Changes in clinical dietetics: impact of cost reduction in healthcare systems

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Changes in clinical dietetics: Impact of cost reduction in healthcare systems

by

Junehee Kwon

A dissertation submitted to the graduate faculty
in partial fulfillment of the requirements for the degree of
DOCTOR OF PHILOSOPHY

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1999

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For the Graduate College
DEDICATION

This dissertation is dedicated to

Author's parents,

Youn-Wong Kwon and Tae-Boon Lee Kwon

and

Author's husband

James Richard Thompson

for their endless support and encouragement.
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INTRODUCTION

Many changes in healthcare delivery systems have occurred in recent years. The length of hospital stay per admission and hospital occupancy rates have decreased (Levit et al., 1996). Competition among hospitals has increased, and healthcare organizations have put forth efforts on marketing their services to the public to increase occupancy rates and hospital revenue (Lathrop, 1991).

Not only have hospitals attempted to increase revenue by working to increase occupancy and reimbursement rates, hospital administrators have tried to reduce operating expenses (Moore, 1994). Frequently, the workforce has become a major target for cost reduction via downsizing and restructuring because labor is the greatest hospital expense (Human Resource Consulting, 1994, 1995; Human Resource Consulting Practice, 1993; Human Resources Strategies Group, 1996). However, workforce reduction has been proven ineffective in improving financial performance. Rather, downsizing has resulted in many negative impacts on human resources (Mick & Wise, 1996; Noer, 1993; Young & Brown, 1998).

Managed care organizations (MCO) have emerged to increase the efficient use of hospital resources. MCO are a type of healthcare delivery system that manage and control the cost of healthcare services and delivery. MCO also manage the quality and availability of healthcare (Robbins, 1998). Healthcare providers have been required to prove the effectiveness of patient care with outcomes documentation and cost-containment. Cost-effectiveness analysis also was required to secure third-party payer reimbursement for services provided by many healthcare professionals (Kretesz, 1994). It is also true that
because of the capitation-based payment method, healthcare organizations and physicians under managed care must bear the financial risks (Robbins, 1998).

All of these changes have impacted healthcare organizations and activities performed by healthcare professionals within organizations, including clinical dietitians (Braverman, 1995; McAlpine, 1997). These changes in clinical dietitians' activities may result in altered perceptions of job satisfaction, levels of nutrition care, improvement of clinical dietetics practice, and educational needs for future clinical dietitians.

As a way to improve the clinical dietetics practice, Braverman (1995) contended that clinical dietitians may have to expand their job responsibilities beyond traditional position descriptions. In addition to expansion of roles, clinical dietitians have been advised to document enhanced patient outcomes (Schiller et al., 1998). Furthermore, outcomes should demonstrate cost-effectiveness of medical nutrition therapy (MNT) with improved health status of patients at a lower cost than other therapies. Many researchers have demonstrated the cost-effectiveness of MNT (Franz et al., 1995; McGehee et al., 1995; Sheils, Rubin, & Stapleton, 1999; Splett, 1991a).

In conjunction with improving clinical dietetics practice in changing environments, the educational preparation for dietetics professionals may need to reflect changes in healthcare systems (Braverman, 1995). In an effort to establish competency-based education, role delineation data (Kane, Estes, Colton, & Eltoft, 1990) were used to identify activities and levels of activities clinical dietitians perform (Gilmore, O’Sullivan-Maillet, & Mitchell, 1997). One basic concept behind competency-based education is preparing students for actual job involvement and setting minimum skill criteria necessary for the practice.
It is anticipated that apparent changes in the healthcare industry may have altered activities and staffing patterns of clinical dietitians as well as departmental structures. These changes may impact clinical dietitians' job satisfaction and perceptions about the level of patient care and educational and preprofessional preparation of future clinical dietitians. However, no research studies were found that investigated job changes in clinical dietetics due to cost reduction activities. Further, there were no studies investigated clinical dietitians' perceptions on the improvement of clinical dietetics practice or improvement in preparation of clinical dietitians.

Therefore, this study was designed to investigate job changes in clinical dietetics and the perceptions of clinical dietitians regarding various issues in clinical dietetics. This research consisted of two parts: qualitative and quantitative studies. In the qualitative study, clinical dietetics experts identified and share experiences about changes in clinical dietetics practice. In the quantitative study, clinical dietitians employed in acute care hospitals were queried about their experiences with downsizing activities during the last 5 years and their perceptions regarding various issues, such as improvement of clinical dietetics practice and preparation of future clinical dietitians.

The purposes of the qualitative component of this research study were to (1) gather initial observations of clinical dietetics experts on clinical dietitians' job changes due to cost reduction activities in healthcare organizations; (2) identify insights on improvement of the professional level of the clinical practice in dietetics; (3) identify recommendations for preparation for the future dietetics such as didactic and preprofessional education, and (4) to develop a quantitative questionnaire based on responses from clinical dietetics experts.
The purposes of the quantitative study were to (1) identify clinical dietitians’ job changes due to downsizing and restructuring in acute care hospitals, (2) assess clinical dietitians’ perceptions on how to improve the professional level of clinical dietetics practice, and (3) assess clinical dietitians’ perceptions on how to improve educational and professional preparation for improved/expanded practice.

Assumptions

This research was conducted under the following assumptions.

1. Clinical dietetics experts are able to identify current changes in clinical dietetics and to give insights on how clinical dietitians could improve their professional level of practice and preparation for future clinical dietitians.

2. Clinical dietitians’ perceptions of their job changes are identifiable and measurable.

3. Clinical dietitians’ perceptions about improvement of practice and preparation for future clinical dietitians are based on a psychological continuum and measurable with the scale provided.

4. The scale values applied in this study are appropriate.

5. Clinical dietitians will respond to the questionnaire truthfully.

6. Subjects will answer the items based on their feelings toward agreement and disagreement levels for each item.

Limitations

Due to the design of the research, this research had the following limitations.

1. Both qualitative and quantitative studies were conducted with subjects in eight states: Iowa, Michigan, Minnesota, Missouri, Nebraska, North Dakota, South Dakota, and
Wisconsin. Therefore, results may not be generalized beyond these geographical areas.

2. Because of inability to select only clinical dietitians employed in acute care hospitals, the members of the American Dietetic Association employed in acute care hospitals were selected as the sample.

3. Only clinical dietitians and clinical managers working in acute care hospitals participated in the quantitative survey. Therefore, results cannot be generalized to any other types of dietetics practice.

**Dissertation Organization**

Using the alternate format, this dissertation consists of a general introduction to the research project, a review of literature, methodology, two articles based on the quantitative research, general conclusions, references, and appendices. Each article includes an abstract, introduction with a brief review of literature, methodology, results, discussion, applications or recommendations, and references. Appendices contain all materials required or used in the research project: Human Subjects Review Committee Approval, letters and data collection instruments for both qualitative and quantitative studies.
REVIEW OF LITERATURE

The purpose of this research is to identify job changes in clinical dietetics due to cost reduction activities in healthcare systems and to assess various perceptions of clinical dietitians on improvement of the dietetics practice, and educational and preprofessional preparation for future clinical dietitians. The review of literature is divided into three major sections—Trends in Healthcare Systems, Clinical Dietetics Practice, and Conclusions and Purposes.

Trends in Healthcare Systems

This section includes reviews of recent changes in healthcare systems, such as downsizing and its impact on healthcare organizations and the emergence of managed care organizations. As an important change in healthcare, the length of hospital stay per admission and hospital occupancy rates have declined. Since diagnosis-related groups (DRGs) were introduced (Grimaldi & Micheletti, 1983), the mean length of stay for hospitalization based on a medical diagnosis has been defined. In the United States (U.S.), the average length of stay decreased from seven days per admission in 1983 to six days in 1994 (Levit et al., 1996). To increase hospital revenue and occupancy rates, healthcare organizations have increased competition among one another. They increasingly have turned to advertisement in print and television, and providing patient-focused care has gained importance (Lathrop, 1991).

A likely cause of this recent competitiveness in the healthcare industry was described by Taylor and Capella (1996). These researchers found that many consumers are comparison
shopping, using the following criteria: convenient location, modern facility, appearance of rooms, quality of hospital services, reputation, and friendliness of employees. The primary customers were patients, and hospital administrators have tried to find ways to redesign care to enhance services to meet patients' needs and expectations (McGinn, 1993).

Despite efforts to compete effectively for patients, hospitals have been under financial stress. The rate of reimbursement for healthcare services by third-party payers has dropped steadily, resulting in decreased hospital revenues (Levit et al., 1996). To be reimbursed for their services, all healthcare providers must prove cost-effectiveness, ensure accountability, and provide outcome assessment of their services (Kretesz, 1994). Consumers, including employers who provide healthcare benefits to their employees, are increasingly concerned about costs and quality of healthcare services (Robbins, 1998). Cost containment has been the operative force driving many changes (Moore, 1994).

**Downsizing**

Hospital administrators have been forced to reduce expenses in response to financial pressures due to decreased revenue and increased healthcare costs (Moore, 1994). Administrators have tried to reduce their operational expenses through downsizing — reduction of labor force, is the major expense in healthcare organizations. Many hospital administrators, who responded to the Human Resources Surveys from 1993 to 1996, indicated they were in the process of reducing labor costs by downsizing, restructuring, or eliminating specific hospital departments or services. This cost-cutting trend exists in both the private and the public sectors (Human Resource Consulting, 1994, 1995; Human Resource Consulting Practice, 1993; Human Resources Strategies Group, 1996).
Lathrop (1991) contended that hospitals need restructuring to increase their operational efficiencies and suggested reducing documentation and "structural idle time" (e.g., housekeeping staff waiting for patients to finish meals before duties can be completed, radiology staff on standby, etc.). In a case study of a 650-bed acute care hospital, Lathrop reported that 29% of the hospital wage expenditures were used for documentation of health care and 20% for structural idle time.

**Impact on human resources**

As downsizing has become prevalent, many concerns have surfaced regarding the negative impacts of downsizing. Noer (1993) recognized some negative impacts of downsizing when he explained that "layoffs are intended to reduce costs and promote an efficient, lean, and mean organization. However, what tends to result is a sad and angry organization, populated by depressed survivors" (p. 6). Employees in hospitals and other downsized organizations have experienced similar negative results (Young & Brown, 1998).

Young and Brown (1998) surveyed directors of nursing in 31 North Carolina hospitals with an average daily census >100. Among the 31 nursing administrators, 11 indicated they had experienced downsizing via attrition, relocation, early retirement, and/or layoffs. These nursing directors reported many negative symptoms corresponding to the "survivor syndrome" described by Noer (1993) such as fear, uncertainty, insecurity, frustration, resentment, anger, and sadness. Respondents indicated that communication before and after downsizing was the most important intervention to reduce negative impacts of downsizing.

In a 1996 nationwide survey of 783 hospital administrators, 85% of respondents indicated they were examining ways to cut costs, a 10% increase compared to the previous
year (Human Resources Strategies Group, 1996). Over 80% of respondents indicated low employee morale was the top challenge for hospital executives, and healthcare reform and uncertainty were reasons for decreased employee morale. The second highest challenge was dealing with the impact of downsizing. In recent years, an increasing percentage of respondents indicated that the impact of downsizing was a challenge. In 1992, only 18% of respondents considered downsizing a challenge versus 49% in 1993, 62% in 1994, 53% in 1995, and 55% in 1996. Achieving or maintaining efficiency is a major concern of the impact of downsizing (Human Resource Consulting, 1994, 1995; Human Resource Consulting Practice, 1993).

Hutchinson, Mann, and Johnson (1997) surveyed 527 employees in 92 cafeteria cost centers of a public school system where the foodservice director planned to achieve workforce reduction over a five-year period. They found that a carefully planned implementation procedure during downsizing could reduce negative impacts such as job insecurity, role ambiguity, and role conflict. Minimizing negative impacts was accomplished by reducing staff through attrition rather than layoffs, approaching downsizing as a long-term process, communicating formally with employees, and involving cost center managers in the decision-making process.

Impact on financial performances

Although the main reason cited for downsizing and restructuring was to reduce costs and improve financial status, only few research studies demonstrated positive relationships between downsizing and financial performance. Murphy and Murphy (1996) surveyed 502 hospital executives (i.e., chief executive officers, chief financial officers, and controllers) from a sample of 281 hospitals nationwide. Results showed that carefully planned
restructuring with work process analysis was effective in reducing operating costs. Work process analysis enabled hospital administrators to determine who is doing what type of work, what type of work adds value to the organization, and how non-value-added, unnecessary, or duplicate work can be reduced or eliminated. Some examples of targets for restructuring (i.e., eliminating or reducing non-value-added, unnecessary, duplicate work) were patient care documentation, communication activities, environmental and plant operations, transit time, and housekeeping. However, these researchers found that across-the-board workforce reduction without analysis prior to downsizing was not effective in reducing costs. Instead, such reductions caused negative impacts (i.e., low morale and decreased productivity).

Moreover, Mick and Wise (1996) found no financial improvement in rural hospitals where downsizing occurred. A longitudinal study with 797 chief administrators of rural hospitals was conducted to compare financial performances between fiscal years 1983 and 1988. They found decreased profitability in hospitals regardless of downsizing activities, and the difference in profitability decreases with and without downsizing was not significant. However, when comparing current ratios, which measured the ability to meet short-term financial obligations, hospitals where downsizing activities existed had significantly poorer current ratios than hospitals that did not downsize. They concluded that downsizing in rural hospitals was ineffective in improving financial performance.

**Managed care organizations**

The emergence of Managed Care Organizations (MCO) is the result of attempts to manage and control healthcare costs and to ensure quality, access, and availability of healthcare (Robbins, 1998). To improve efficiency and reduce healthcare costs, managed
care organizations established healthcare delivery systems composed of physicians, hospitals, and other healthcare providers. Generally, managed care organizations attempt to control costs by limiting or regulating providers and caregivers who work within managed care plans. Providers are restricted by managed care contracts to provide care at a reduced cost, which, in some cases, may lead to conflicts with their professional standards and ethics (Robbins, 1998; Robinson & Casalino, 1995; Soper & Ferriss, 1992).

As managed care organizations administer healthcare delivery processes to a larger portion of the U.S. population, the impact of decisions made by administrators of these large organizations increases. Due to capitation-based payment methods, healthcare organizations and physicians bear the financial risk of operating within a predetermined budget instead of receiving fee-for-service (Robbins, 1998).

Robinson and Casalino (1995) conducted a research study with six large health maintenance organizations in California and found that the large increase in number of enrollees in managed care organizations resulted in increased revenue between 1990 and 1994. However, these researchers indicated that many challenges still exist for personnel of managed care organizations such as investing in new facilities, developing and maintaining management-information systems, hiring necessary member physicians, and acquiring independent medical groups. Independent medical groups are organizations of physicians that are paid on a capitation basis and responsible for managing the use of services, costs, and quality.
Clinical Dietetics Practice

In the current climate of downsizing and uncertainty, many healthcare professionals have sought ways to justify their worth, survive downsizing, and expand their professional roles both inside and outside of healthcare organizations (Braverman, 1995; McAlpine, 1997; Nutrition Screening Initiative, 1996; Turner, 1998). As healthcare professionals, clinical dietitians have had concerns about their profession in response to downsizing and the restructuring of healthcare systems. Demonstrating cost-effectiveness of services, participating in restructuring processes, and documenting outcome-focused care were emphasized as necessary to persevere in a changing environment (Franz et al., 1995; Gilbride, 1995; McAlpine, 1997; Turner, 1998). In addition, expanding areas of practice; developing and using a profession-specific language for diagnosis, implementation, and outcomes (e.g., Dietetic-Specific Nutritional Diagnostic Codes); and developing multiple career alternatives were recommended for future healthcare professionals (Chambers, Gilmore, O'Sullivan-Maillet, & Mitchell, 1996; Kight, 1985; McAlpine, 1997; Turner, 1998). The nutrition physical assessment to identify specific nutritional problems was recommended for inclusion in dietetics practice (Chambers et al., 1996; Kight, 1985).

This section reviews activities of clinical dietitians, staffing patterns of clinical dietetics, and job satisfaction of dietitians. In addition, literature related to improving clinical dietetics practice, and educational and preprofessional preparation of clinical dietitians is discussed.

Activities of clinical dietitians

In an acculturation study of clinical dietitians, Forcier, Kight, and Sheehan (1977) categorized the activity patterns of clinical dietitians into the following categories:
professional activities for transforming the science of nutrition into the administration of
case-oriented nutrition care, technical activities for implementing case-oriented nutritional
care, technical activities for implementing the feeding of individuals, and professional
activities for administering the feeding of groups. They found that clinical dietitians
performed technical activities more frequently than higher-level, professional nutritional care
activities. The researchers developed a model explaining the relationship between four
professional postures (i.e., diet-oriented, physician-oriented, transitional, and case-oriented)
and status in the dietetics profession. Findings indicated that the level of professionalism
increases as dietitians' activities acculturate from diet-oriented activities to case-oriented
activities.

Schiller (1984) surveyed 177 clinical dietetics managers from hospitals nationwide on
the overall practice of clinical dietitians. Respondents were asked 52 questions regarding
clinical dietetics practices, attitudinal factors associated with clinical dietitians, and the
organization of dietetics departments. Approximately 60% of clinical dietetics managers
indicated their clinical dietitians made meal rounds, and 5.7% of these managers indicated
meal trays were checked by clinical dietitians. Almost two-thirds (64.0%) of respondents
indicated that clinical dietitians were initiating the assessments of patients' needs. On the
other hand, 84.1% of respondents indicated that clinical dietitians responded to physicians'
requests for nutrition consultation. Most respondents indicated they were medical team
members (92.5%) and conferred with physicians (98.3%). About one-half of respondents
(55.4%) indicated they attended medical rounds.

A survey of 458 clinical dietitians to identify and differentiate their activities was
conducted by Thomson, Kight, and Longstreth (1990). Results showed that many clinical
dietitians routinely performed diet-oriented activities (i.e., 35.5% making meal rounds, 21.4% checking meal trays). However, clinical dietitians who indicated they were involved with physician-oriented activities ranged from 78.0 to 97.1%, and case-oriented activities ranged from 35.3 to 83.9%.

Thomson et al. (1990) compared their results with results from Shiller's 1984 study and stated that a greater percentage of clinical dietitians who responded to Thomson et al.'s study were performing diet-oriented or physician-oriented activities such as checking meal trays and adjusting diet orders than respondents in Schiller's study. Fewer clinical dietitians who responded to Thomson et al.'s study performed case-oriented activities such as participating on a patient care team, conferring with the physician directly, and attending medical/surgical rounds than respondents from Schiller's study. However, differences in subjects, scope, and methodology make a parallel comparison of the two studies difficult.

Kane, Estes, Colton, and Eltoft (1990) reported results from the role delineation study for dietetics practitioners by the American Dietetic Association (ADA). Results provided an understanding of how jobs were distributed among different levels of dietetics staff. Entry-level dietetic technicians (n = 840), entry-level registered dietitians (n = 2,759), and beyond-entry-level registered dietitians (n = 5,233) were surveyed. Respondents were asked to indicate whether they were involved with each of 129 activities and the nature of involvement in the activity (i.e., advising, policy setting, supervising, and performing).

Clinical dietetics activities were grouped into the following nine categories:

Category A. Managing food and other material resources
Category B. Providing nutrition care to individuals
Category C. Providing nutrition programs for population groups
Category D. Managing financial resources
Category E. Marketing of services and products
Category F. Teaching dietitians and other professionals/students
Category G. Conducting research
Category H. Managing human resources
Category I. Managing facilities

Kane et al. (1990) found that no one activity was unique to one particular group, but there were differences in the degree of involvement. All three groups were involved most with Category B (providing nutrition care to individuals) activities and least with Category G (conducting research) activities. Among the three dietetics groups, entry-level registered dietitians were involved more frequently with Category B activities than the other two groups. For those activities, most entry-level registered dietitians were involved in performing rather than policy setting, advising, or supervising. Beyond-entry-level registered dietitians were involved with a broader range of activities, including more policy setting and administrative activities than the other two dietetics groups.

Kight (1985) contended that a clinical dietitian is a highly qualified healthcare professional capable of greater responsibilities in the assessment, problem identification (diagnosis), and treatment of nutrition-related disorders. Clinical dietitians who participated in studies conducted by Forcier et al. (1977) and Thomson et al. (1990) indicated that clinical dietitians perceived differences between their professed roles and their current activities.

Boyhtari and Cardinal (1997) surveyed 88 physicians and 149 clinical dietitians regarding dietitians’ responsibilities, and found that physicians and clinical dietitians perceived the role of clinical dietitians differently. Participants were given 15 questions related to roles and responsibilities of registered clinical dietitians, and asked to rate each activity using a five-point Likert scale from 1=Agree to 5=Disagree. Physicians agreed more
strongly than clinical dietitians that clinical dietitians should obtain diet histories, help patients make menu selections, and check food trays before delivery to patients. In contrast, clinical dietitians agreed more strongly than physicians that their responsibilities should include attending medical rounds, contributing to the discussion during these medical rounds, and managing/controlling disease and medical complications with therapeutic diets or nutrition support.

Kwon (1995) used a case study research design to identify the activity patterns of three clinical dietitians employed in a mid-sized (150-bed) midwestern community hospital. Analysis of 15-day work activity records indicated that dietitians were spending a significant amount of time on unproductive activities (i.e., 13.3% for delays and 8.2% for transit time). She also found that clinical dietitians spent time completing paperwork (e.g., 24.7% for screening, follow-up, and other documentation), low-risk activities (e.g., 3.1% for menu preparation), and clerical activities (e.g., 4.0% for photocopying and answering the telephone).

Kwon (1995) recommended that low-risk activities be reassigned to other support staff (i.e., dietetic technicians or diet clerks) or completed by using other resources, such as computer applications. She contended that when low-risk clinical dietitians' tasks are reassigned to other resources (i.e., other staff members or the utilization of technology), clinical dietitians may be able to focus on more complicated, higher-level activities.

Myers, Gregoire, and Spears (1994) surveyed 309 dietitians and 208 dietetics support personnel to identify managerial tasks of dietitians that could be delegated to support personnel. Based on these survey results, a quality grid was developed with two elements—delegation and quality. The delegation element measured the degree of possible activities
completed by support personnel, and the quality element measured the degree of acceptability if completed by support personnel. Tasks that fit in the high delegation/high quality section of the grid suggest they can be delegated to support personnel and maintain an acceptable quality. Although the activities studied were limited to management tasks, food production and service tasks, and storeroom management tasks, the application of results from this study may be useful in assigning clinical dietetics support staff. Myers et al. recommended utilization of the quality grid and role delineation studies (Kane et al., 1990) to evaluate the current delegation process and identify tasks that can be delegated to support personnel.

If clinical dietitians perform higher-level activities while dietetics support personnel are delegated lower-level activities, clinical dietitians may perceive greater job satisfaction. In addition, the healthcare dollar may be utilized more effectively by having clinical dietitians perform higher level activities that require more professional skill.

**Staffing patterns of clinical dietetics**

Compher and Colaizzo (1992) surveyed 271 clinical dietetics managers regarding their staffing patterns in hospital clinical dietetics. These researchers compared their research data to data collected by Compher, Colaizzo, and Rieke (1990). The average number of registered clinical dietitians, clinical managers, and dietetic technicians staffed per 100 beds were lower in research conducted by Compher and Colaizzo than Compher et al. Compher and Colaizzo also found that as hospital bed counts increased, the number of patients per registered dietitian increased.

Simmons (1999) indicated that identifying staffing needs of clinical dietitians evolved from using dietitian-to-patient ratios and patient’s diagnosis to using patient’s need for
nutritional care based on nutritional acuity. She noted that because clinical dietitians are involved in more than merely diet modification and instruction, the workload based on the number of beds was no longer effective. As the average length of stay per admission decreased, most hospitals rearranged their functional units by combining patient groups with different diagnoses and closing floors to maximize staffing. Therefore, clinical dietitians may work with different diagnoses among patients, whose length of stay in hospital has been reduced.

**Job satisfaction of clinical dietitians**

Job satisfaction of dietitians has been studied by several researchers (Agriesti-Johnson & Broski, 1982; Dalton, Gilbride, Russo, & Vergis, 1993; Gilbride & Conklin, 1996; Rehn, Stalling, Wolman, & Cullen, 1989). Agriesti-Johnson and Broski surveyed a nationwide sample of 529 dietitians to determine levels of their job satisfaction. Job satisfaction scores were obtained, based on five subscales of the Job Descriptive Index (JDI) such as work, supervision, coworkers, pay, and opportunities for promotion with a maximum score of 54 for each subscale (Smith, Kendall, & Hulin, 1969). Scores were compared across different categories of dietitians such as educators; administrative heads of units; and administrative, clinical, generalist, research, private consultant, private practice, and community dietitians. There were no significant differences in the total JDI scores and the supervision subscale among dietitians in all categories. However, clinical dietitians were significantly ($p < 0.05$) less satisfied with work as a whole (mean = 33.44) than private practice and research dietitians (means = 39.25 and 38.58, respectively). Clinical dietitians were less satisfied with promotion (mean = 14.40) than private practice dietitians, administrative dietitians, and administrative heads of units (means = 23.52, 21.41, and 21.26, respectively).
respectively). On the other hand, clinical dietitians were more satisfied with colleagues (mean = 36.75) than private practice, consultant, and educator dietitians (means = 31.62, 29.59, and 29.38, respectively).

Rehn et al. (1989) found that 211 dietitians in South Carolina were more satisfied in most subscales than dietitians in the national survey conducted by Agriesti-Johnson and Broski (1982). Rehn et al. indicated that dietitians were most satisfied with their supervision and least satisfied with pay and the opportunity for promotion. Results also showed that clinical dietitians in South Carolina (SC) were less satisfied with more variables (i.e., work, pay, the opportunity for promotion, and coworkers) than other dietitians except community dietitians. Rehn et al. anticipated that some dietitians might leave their professions if their work does not provide opportunities for promotion and higher pay.

Dalton, Gilbride, Russo et al. (1993) reported results from a job satisfaction study in New York City (NYC). The researchers conducted a survey with dietitians in clinical, community, and long-term-care positions (n = 409). They compared JDI scores among different studies and found that JDI scores of dietitians in NYC were lower in subscales such as work, pay, and promotion were lower than scores of dietitians who participated in the national study (Agriesti-Johnson & Broski, 1982) and dietitians in SC (Rehn et al., 1989). Dalton et al. also compared job satisfaction scores of dietitians with the 50th percentile of a normalized sample of U.S. women from business and industry firms in the U.S. (Smith, 1985) they concluded that dietitians were less satisfied than the women in Smith's study. These researchers indicated again that pay and promotion were the least satisfying aspects of dietitians' jobs. The summaries of JDI scores from the dietitians' job satisfaction studies are shown in Table 1.
Table 1. JDI\textsuperscript{1} scores obtained from selected dietitians’ job satisfaction studies

<table>
<thead>
<tr>
<th>JDI scores of Registered Dietitians</th>
<th>Norm: U.S. women 50\textsuperscript{th} percentile (1985)\textsuperscript{5}</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nationwide (1982)\textsuperscript{2} (n=529)</td>
<td>South Carolina (1989)\textsuperscript{3} (n=161)</td>
</tr>
<tr>
<td>Mean ± SD\textsuperscript{6}</td>
<td>Mean</td>
</tr>
<tr>
<td>Work</td>
<td>35.6±11.2</td>
</tr>
<tr>
<td>Pay</td>
<td>28.1±6.3</td>
</tr>
<tr>
<td>Promotion</td>
<td>17.7±6.4</td>
</tr>
<tr>
<td>Supervisors</td>
<td>35.9±12.3</td>
</tr>
<tr>
<td>Coworkers</td>
<td>33.1±13.1</td>
</tr>
<tr>
<td>Job in general</td>
<td>-</td>
</tr>
</tbody>
</table>

\textsuperscript{1} JDI = Job Descriptive Index
\textsuperscript{2} Results from Agriesti-Johnson and Broski (1982).
\textsuperscript{3} Results from Rehn et al. (1989).
\textsuperscript{4} Results from Dalton et al. (1993).
\textsuperscript{5} Results from Smith (1985).
\textsuperscript{6} SD = standard deviation.

Dalton, Gilbride, and Weisberg (1993) surveyed 374 dietitians regarding job changes and position preferences. They reported that some reasons for job changes were boredom, frustration, stress, lack of promotion, and layoffs. Some reasons for remaining in a specific job position included the possibility of promotion, increased responsibility, continued education, more opportunities for growth, and increased pay. It was a clear and consistent finding that dietitians were less satisfied with pay and promotion than other factors (e.g., work, supervision, colleagues), and pay and promotion factors had a strong influence on job satisfaction and job changes. They concluded that dietitians were seeking new challenges, better salaries, and professional recognition as experts.
Improving clinical dietetics practice

In this section, literature related to ways to improve clinical dietetics practice is discussed. Subsections include clinical/outpatient outcomes, cost-effectiveness of nutrition care, and reimbursement of nutrition care.

Client/patient outcomes

Schiller et al. (1998) undertook a survey study with 400 adult patients who received nutrition counseling (274 inpatients, 124 outpatients) regarding client perception about nutrition counseling and outcome. Patients were asked to indicate "yes," "no," or "neither yes nor no" for 10 questions about clinical dietitians' advice and their perception of outcomes. The majority of patients (82.7%) indicated, after nutrition counseling, they knew what food should be consumed for their special needs. Among these patients, 62.0% of patients reported that they changed their diets. After counseling, 56.5% of patients reported increased emotional well-being, 36.7% reported increased physical well-being, and 43.8% noticed health-related improvement. Schiller et al. concluded that nutrition counseling was effective for providing positive health changes as well as contributing to emotional needs.

Weddle, Tu, Guzik, and Ramakrishnan (1995) studied the nutritional status of 156 patients who were receiving enteral nutrition in six acute care hospitals and one rehabilitation institute in Chicago, Illinois. The results from the three-month study indicated that clinical dietitians' recommendations about enteral nutrition were followed in 50-89% of cases, and 29-86% of patients reached desirable outcomes. These researchers presented an instrument used to collect outcome data and recommended it for use in identifying and measuring patient outcomes.
Gallagher-Allred, Voss, Finn, and McCamish (1996) reviewed research studies regarding costs, interventions, and outcomes for malnourished patients. These authors addressed the need for clinical outcome studies regarding malnutrition and stated, “To date, few clinical nutrition studies have measured outcome in terms of clinical rather than biochemical end points, and fewer have addressed the economic value of nutrition intervention” (p. 365). They also contended that outcome studies should quantify benefits and address cost-effectiveness in relation to healthcare cost issues.

One way to improve patient outcomes is working with physicians effectively so that recommendations regarding nutrition care are followed. Grace-Farfaglia and Rosow (1995) conducted a study using automated documentation and found that when computer technology was utilized, physicians accepted clinical dietitians' recommendations more readily than in handwritten format. They reported that when an automated, standardized documentation method was used, physicians responded more positively and followed more recommendations from the clinical dietitians than recommendations made without automation (i.e., 50% followed vs. 34% in a previous audit).

In order to establish a system for automated documentation of nutritional diagnosis, intervention, and outcome, a standardized language is necessary. Hakel-Smith (1995) noted the importance of standardized language (codes) to describe nutrition problems or diagnoses. She stated that nutrition diagnosis is "focusing and classifying clinical dietitians' unique knowledge into clinical dietitians' own profession-specific human condition codes" (p. 1). She contended that if the nutritional diagnosis is included in clinical dietetics practice (i.e., assessment, diagnosis, planning, implementation and evaluation), it could demonstrate the cause and effect relationships of a dietitian's actions and interventions with patient goals and
outcomes. For clinical dietitians to diagnose, the importance of a standardized language for nutritional diagnoses must be addressed.

Kight (1985) developed the Dietetic-Specific Nutritional Diagnostic Codes (D-S NDCs). D-S NDCs include 74 nutrition diagnoses with criteria for each diagnosis (Kight, 1993). Kight contended that the use of D-S NDCs will advance the levels of dietetics practice. These codes provide the focus for classifying nutritional problems. They assist clinical dietitians in establishing interventions for defining nutrition problems and measuring patient outcomes as indicators of the effectiveness of nutrition intervention.

Cost-effectiveness of nutrition care

Proving the cost-effectiveness of clinical dietetics practices has gained importance, in addition to identifying outcomes of clinical dietetics practices. The cost-benefit relationship of nutrition care is no longer taken for granted; costs must be justified by an impact on nutritional status that ultimately results in decreased length of hospital stay (Meyer & Olsen, 1989).

Splett (1991a) summarized the recommendations of seven experts concerning the cost-effectiveness of nutrition services and stated that outcomes should be translated into cost information to increase the awareness of nutrition care values. She stated that cost-effectiveness analysis is more favorable to third party payers if the cost-benefit relationship reveals positive outcomes and are inexpensive to implement as well. Many researchers analyzed effectiveness and cost-effectiveness of medical nutrition therapy (MNT) to prove the value of nutrition care. Splett (1991b) summarized existing studies on cost-effectiveness of nutrition services for different illnesses such as critical care (i.e., burns and surgery), prenatal care, diabetes, and obesity. She found a number of research studies about the cost
and cost-effectiveness of nutrition care practices, but she noted that few studies were
designed well. She addressed that well-designed, high quality studies with sufficient sample
sizes are needed to create a sound database for justification of nutrition care services.

Franz et al. (1995) studied the cost-effectiveness of MNT provided by dietitians for
non-insulin-dependent diabetes mellitus (NIDDM) patients. They compared costs and
outcomes of basic nutrition care versus practice guidelines of nutrition care for 179 NIDDM
patients. Their results demonstrated that although nutrition care methods with practice
guidelines that involve individualized nutrition intervention by experienced dietitians cost
more than basic nutrition care, the outcome (i.e., reduce fasting blood glucose level) and
cost-effectiveness figures were better than with basic nutrition care. They concluded that
nutrition interventions that follow practice guidelines are cost-effective, leading to
improvements in metabolic control with a reasonable economic investment.

McGehee et al. (1995) studied costs and benefits of MNT for 285 patients with
hypercholesterolemia from 23 hospitals in Massachusetts. These researchers retrospectively
reviewed the cost of MNT and patient outcomes. They reported that the average serum
cholesterol reduction of patients who were treated with diet alone was 8.6%. The average
cost of MNT was $163 and was significantly lower than the cost of drug therapy (i.e.,
$1,450). These researchers concluded that MNT should be the initial treatment of patients
with mild-to-moderate hypercholesterolemia prior to drug therapy.

Sheils, Rubin, and Stapleton (1999) estimated the number of hospital admissions and
physician office visits based on many variables including the patient’s first visit for MNT,
the level of hospital admissions, physician visits, and outpatient visits. A massive data set of
12,308 diabetes mellitus patients, 10,895 cardiovascular diseases patients, and 3,328 renal
patients was used to determine the regression among variables. These researchers found that after an initial visit with a dietitian, the number of physician office visits was reduced significantly for patients with diabetes and cardiovascular diseases. These researchers demonstrated that for this study group MNT decreased Medicare costs.

As a way to improve cost-effectiveness, the use of standards to identify patients' needs for nutrition interventions was recommended. Mazzoni and Chylak (1994) studied hospital-based clinical practices by reviewing charts of 17 patients whose lengths of stay in the hospital were \( \geq 60 \) days. These researchers indicated that if the quality of care improved, the length of hospital stay may decrease. This might occur if clinical dietitians were able to identify patients who were likely to have an extended stay and provide appropriate MNT. They recommended that dietitians should provide frequent assessment of nutrition status, ensure consistent follow-through on nutrition intervention recommendations, provide continuous care, and communicate the results adequately. As a result, costs of patient care may decrease.

Despite the value of cost-effectiveness analysis, Gilbride, Parks, and Palakurthi (1994) found that registered dietitians and dietary managers were not ready to incorporate cost-effectiveness nor cost-benefit analyses into their practice. In a survey of 480 registered dietitians and 242 dietary managers, they found that neither group had extensive experience with the costing procedures investigated in their study (i.e., costing services, measuring productivity, instituting cost control, and conducting cost-benefit analysis [CBA] and cost-effectiveness analysis [CEA]). Neither group of respondents reported extensive use of CBA nor CEA in the workplace. Some dietary managers reported they were using other cost techniques (i.e., 33% for costing services and instituting cost controls, and 27% for
measuring productivity). Very few dietitians reported extensive use of the five costing procedures identified by these researchers (2 to 9%).

**Reimbursement for nutrition care**

One way to utilize cost-effectiveness analysis was to increase reimbursement for MNT. Weese, Jones, and Miller (1993) proposed successful strategies for reimbursement of outpatient nutrition services and indicated cost-effectiveness of nutrition services as the first rationale for reimbursement. These researchers found in a study at a university medical center ambulatory nutrition clinic that it took less than one year to plan, propose, and implement an entire reimbursement plan. They found that providing specific examples of cost-effectiveness of nutrition services and demonstrating savings in pharmacy costs based on actual practice led to greater rates of reimbursement.

McCulley and Myers (1994) found that assessing a patient's malnutrition status with standard procedures and diagnosing as malnutrition may increase third-party payer reimbursement. These researchers reviewed dietary department files for patients discharged during a 60-day period in a 125-bed medical center. Among 31 patients who received extensive nutrition intervention, 29 patients met the diagnostic criteria for malnutrition based on the International Classification of Diseases, 9th revision (ICD-9) (Commission of Professional and Hospital Activities, 1988). However, only three patients were diagnosed with malnutrition when discharged from the hospital. When appropriate malnutrition identification at the time of discharge became part of the quality assessment program in the dietary department, 26 of 27 patients who met the criteria for the malnutrition diagnosis were identified and documented. These researchers concluded that when clinical dietitians provide more complete documentation about a patient's status, an accurate description of the
patient’s condition could be made, and hospitals could maximize reimbursement for the service from third-party payers.

Bolonda, Lacagnina, Dahl, Murphy, and Hunt (1994) found that when patients were instructed about reimbursement procedures, there was an increase in claims submitted for nutrition services and an increase in the rate of reimbursement. These researchers conducted a two-phase survey study with outpatients who received dietetic instruction to examine the rate of claim submission and reimbursement. In Phase 1, 115 insured clients were surveyed retrospectively regarding submission of claims and reimbursement. In Phase 2, as a strategy to increase reimbursement, clients were instructed on how to file claims and were provided with letters indicating medical necessity. After Phase 2, 67 clients were surveyed regarding submission of claims and reimbursement. The researchers found that the percent of clients who submitted claims increased from 65 to 70% after instruction. In addition, 100% of the submitted documentation was accurate after instruction, while only 68% of clients submitted appropriate documentation accurate before instruction. After submission, 42% of clients reported they received insurance reimbursement, a significant increase from the 16% reimbursement rate before strategies were implemented. Bolonda et al. emphasized the importance of reimbursement issues when they stated “Obtaining third-party reimbursement for outpatient nutrition services is an increasingly urgent concern for the dietetics profession” (p. 390). They suggested that dietetics professionals should make an effort to increase reimbursement by interacting with legislators and insurers, in addition to filing claims and providing letters.

As an effort to maximize reimbursement for nutrition services, the ADA, as a professional organization, has been involved with many legislative issues relating to
reimbursement for MNT. The ADA has kept its members updated with legislative issues in their newsletters and in the Journal of the ADA (JADA). In 1995, several legislative issues were reported in JADA ("ADA urges Congress," 1995; "Medicaid reform efforts," 1995; "State and federal efforts," 1995; & "Washington train wreck," 1995). The main effort was to influence policy makers with cost-effectiveness of MNT and to obtain reimbursement for Medicare and Medicaid MNT. Recognizing that Medicaid coverage of MNT is a state option and that several states have appointed committees for revising Medicaid coverage, the ADA urged dietitians to become involved in the revision process in their states. The ADA recommended that its members become members of state Medicaid committees and contact members of the committee, the governor, and state legislators to inform them the value of the MNT ("Medicaid reform efforts").

Efforts to secure reimbursement for nutrition care has continued. The ADA put forth efforts for passage of MNT legislation, and acknowledged that Medicare MNT Act has gained the support of a majority of legislators in the House of Representatives. Although gaining support of a majority does not guarantee passage of legislation, the ADA indicated that the issue has been recognized by congressional leaders ("The Campaign for Coverage," 1999).

Educational and preprofessional preparation for dietetics

The concept of competency-based education began in the 1960s, and efforts to assess minimum academic competency were made in the 1970s (Chambers & Hubbard, 1978a, 1978b). Holmes (1982) surveyed 155 dietetics faculty from college and university dietetics programs and 49 internship program directors and found that many competency items were rated 'essential' or 'desirable' to include in a dietetics program if faculty and financial
resources allowed. Main categories of competencies tested were (1) general behavior/communication sciences (21 items), (2) general, community, and clinical nutrition (28 items), and (3) foodservice management (21 items).

Lawler and Fruin (1986) surveyed 475 dietetics interns to compare competencies attained during internship programs. Dietetics interns who would complete their programs within three months rated their competencies both at the time of the study and at the beginning of their internship based on a rating scale of 0-7. Mean scores of interns' competencies related to clients (i.e., assessment, planning, implementation, evaluation, and nutrition education and referral) at the beginning of the internship program ranged between 2.44 and 2.96. At the time of the survey, about three months prior to the completion of the internship programs, ratings from respondents improved significantly and ranged between 5.89 and 6.02. The mean scores of competencies for integration of nutrition and health improved from 1.68 to 4.83, for quality assurance and cost containment competencies from 1.92 to 4.58, and management of support personnel competency from 1.65 to 4.62.

The role delineation study of the ADA (Kane et al., 1990) became the new basis for knowledge and performance requirements for the curriculum in dietetics education programs. Activities that entry-level registered dietitians perform were categorized into nine groups — managing food and other material resources, providing nutrition care to individuals, providing nutrition programs for population groups, managing financial resources, marketing service and products, teaching dietitians and other professionals/students, conducting research, managing human resources, and managing facilities.

After the role delineation study (Kane et al., 1990), a new scheme of educational preparation for dietetics was suggested. Chambers et al. (1996) adapted a model of
professional growth, which consisted of five development stages (i.e., novice, beginner, competent, proficient, and expert) into dietetics. Gilmore, O'Sullivan-Maillet, and Mitchell (1997) added lifelong learning processes to this model to indicate how a person can reach the different stages in professional growth. These researchers indicated that entry-level education, including didactic and supervised practice, can enable a person to become a competent professional. Then, continuing professional development and actual practice could bring a person to the expert stage.

Gilmore et al. (1997) reported the project results conducted by the Educational Competencies Steering Committee of ADA (CSCADA). During the first two years of the study period, CSCADA developed competency statements and surveyed a sample of entry-level registered dietitians (n = 149) and registered dietetic technicians (n = 97). The sample was asked to indicate whether they were taught the 102 competencies, whether they were expected to perform those competencies during their first year in practice, and whether they used those competencies in an entry-level practice. Three different levels of education and practice were identified with action verbs such as assist, perform, and manage. CSCADA generated lists of core competencies and emphasis area competencies based on involvement. Core competencies were what all graduates should be able to perform when they complete the supervised practice component of dietetics education. Gilmore et al. concluded that the competency statements identified by CSCADA served as a guide for curriculum development, evaluation, and program outcome assessment.

Braverman (1995) indicated that clinical dietitians' responsibilities currently go beyond the traditional position descriptions. Rather than performing traditional routine activities, it has become essential for clinical dietitians to learn new skills to enhance patient
services. Braverman emphasized that didactic and preprofessional education should prepare future clinical dietitians in accordance with job changes in the profession. She also recommended that preparation for clinical dietitians should include training in management, marketing, budgeting, evaluation, communication, and technology skills to accommodate changes in healthcare systems.

In regard to adapting dietetics education in a changing environment, O'Sullivan-Maillet (1997) wrote, "The themes for higher education in the 1990s are twofold: broad-based education and 'just-in-time' marketplace skills" (p. 841). She contended that broad-based education, supported by the registration examination, evaluated core competencies that distinguish dietitians from other professionals. On the other hand, just-in-time marketplace skills imply that additional competencies are required for particular job titles such as clinical, foodservice, and community dietitians. In addition, she noted the importance of continuing education in dietetics so that dietitians can remain competent in their practice.

The Commission on Dietetic Registration, the credentialing agency for the ADA, establishes and enforces standards for dietetics registration. A person should complete a didactic program in dietetics and obtain a baccalaureate degree from a college or university accredited by the Commission on Accreditation/Approval for Dietetics Education (CAADE) of the ADA. Supervised practice requirements include completion of one of the following three CAADE accredited programs — accredited dietetics internship, accredited coordinated program, or approved professional practice program (ADA, 1998).

Accredited coordinated programs offer both didactic instruction and a minimum of 900 hours of supervised practice within an academic program. Both accredited dietetics internship programs and approved preprofessional practice programs (AP4) follow
completion of the ADA academic requirements and provide a minimum of 900 hours of supervised practice (ADA, 1998). The duration of these programs varies from six months to two years with or without an advanced degree granted.

Conklin and Simko (1994) surveyed 145 dietetics students and analyzed activities in which students performed independent services in the dietetics departments. Results showed that students were involved in actual dietitians' activities such as nutrition education or dietary counseling (48.2%), medical record documentation (32.4%), nutrition assessment and care planning (24.1%), initial assessment and follow-up of patients' information (17.9%), and supervision of foodservice employees (17.9%). These researchers concluded that internships benefited both students and departments because students benefit from experiences, and the dietetics departments benefit by having staff relief rotations.

**Conclusions and Purposes**

Changes in healthcare systems have affected the clinical dietetics profession in hospitals. Many dietetics departments have experienced workforce reductions as a result of budget cuts. The number of middle manager positions has decreased, while their job responsibilities and areas of responsibility have increased (Human Resources Strategies Group, 1996; Laramee, 1996). In addition, position descriptions of clinical dietitians and how they perform their tasks may have been altered as a result of changes in healthcare systems.

Some of these changes may result in discrepancies between expectations about jobs and reality. Such discrepancies can cause increased stress on the job and low job satisfaction, which may result in employee turnover. As Dalton, Gilbride, and Weisberg
(1993) found, some clinical dietitians may pursue job changes due to frustration, stress, and lack of promotion opportunities as a result of downsizing. Others may stay in their current positions if they are presented with more important responsibilities and/or opportunities for professional growth. If more important responsibilities and professional growth opportunities are given by restructuring of clinical dietitians’ jobs, positive changes (i.e., improved job satisfaction and morale) may occur, despite negative speculation and anticipation about restructuring and downsizing (Hutchinson et al., 1997).

Although there have been changes in clinical dietitians’ jobs due to cost reductions in healthcare organizations, consequences of downsizing on the clinical dietitians’ array of job responsibilities and performance have not been studied. Identifying ways to improve or expand clinical dietetics practices and finding ways to prepare future clinical dietitians with didactic education for dietetics and preprofessional experience are important. However, no research studies have been conducted regarding these issues.

The purposes of this research are to (1) identify clinical dietitians’ job changes due to downsizing and restructuring in acute care hospitals, (2) make recommendations for future clinical dietitians on ways to improve the professional level of the clinical dietetics practice based on current clinical dietitians’ perceptions, and (3) make recommendations for the improvement of educational and professional preparation for the improved/expanded clinical dietetics practices.
METHODOLOGY

This research has several purposes. They include (1) identifying job changes of clinical dietitians due to downsizing and restructuring in acute care hospitals, (2) assessing perceptions of clinical dietitians for improving the professional level of future dietetics practice, and (3) assessing perceptions of clinical dietitians for improving educational and preprofessional preparation for an improved/expanded practice. This chapter outlines the methodology used to complete this research.

The research was divided into qualitative and quantitative studies. The qualitative study was designed to 1) gather initial observations from clinical dietetics experts on job changes of clinical dietitians, 2) identify visions on how to improve the professional level of the clinical practice in dietetics, 3) make recommendations for the future of dietetics regarding educational and preprofessional preparation, and 4) develop a quantitative questionnaire. The quantitative study was designed to survey clinical dietitians regarding 1) recent job changes due to cost reduction in acute care hospitals, 2) perceptions on improving future clinical practices, and 3) perceptions on preparation for an improved and expanded practice of dietetics.

The methodology is divided into use of human subjects in research, qualitative study, and quantitative study. Sample selection, instrument design, pilot test, data collection, and data analysis methods are included in both the qualitative and the quantitative study sections.

Use of Human Subjects in Research

The Iowa State University (ISU) Committee on the Use of Human Subjects in Research reviewed and approved the proposal for this study (Appendix A). The Committee
ruled that the rights and welfare of the human subjects were adequately protected, no risks or discomforts to the participants were anticipated, and cover letters to subjects clearly stated the purposes of the research and guaranteed the confidentiality of their responses.

Qualitative Study

Sample selection

A dietetics resource person from each Area 2 state (a regional group of the American Dietetic Association [ADA] including Iowa, Michigan, Minnesota, Missouri, Nebraska, North Dakota, South Dakota, and Wisconsin) was identified by a dietetics faculty and director of didactic program in dietetics in the Department of Food Science and Human Nutrition (FSHN) at ISU. The sample for the qualitative study was identified by clinical dietetics resource people in the Area 2 states. To help these dietetics resource people recommend clinical dietetics experts, a letter was sent to each resource person briefly explaining the research (Appendix B).

The dietetics resource person from each state provided contact information (i.e., names, telephone numbers, addresses, and e-mail addresses) for two clinical dietetics experts. They also provided contact information for two alternate experts in case either of the two experts could not participate. The two experts from each state were contacted by letter explaining the study and asking for their participation (Appendix B). These experts then were contacted by telephone, and a verbal agreement to participate was obtained. A sample of 16 clinical dietetics experts was identified. After identifying 16 experts, one additional clinical dietetics expert was recommended by a FSHN faculty member at ISU and included in the sample.
Instrument design

An open-ended questionnaire was developed based on the research objectives. The instrument included items regarding recent job changes for clinical dietitians and other dietetics staff, suggestions for future dietetics practice, and suggestions for educational and preprofessional preparation for future clinical dietitians. Items were reviewed for content validity by a dietetics faculty researcher, and the appropriateness of each item was reviewed by a qualitative researcher.

Pilot test

The questionnaire was pilot tested with two clinical dietitians and a dietetics educator. They responded to the items and provided suggestions for clarity and readability of items. Suggestions for clear direction were incorporated into the questionnaire as appropriate.

Data collection

A copy of the open-ended questionnaire was mailed to each previously selected dietetics expert with a cover letter (Appendix B). Participants were asked to respond to all questions with as much detail as possible. Two weeks later, follow-up telephone calls were made to remind participants to complete and return the questionnaires. Questionnaires were completed and returned by 16 clinical dietetics experts. One expert did not respond. All responses were usable, and the number of subjects seemed sufficient due to saturation of the data.

Data analysis

Two researchers were responsible for sorting and coding data to assure consistent data analysis. All responses were compiled and sorted into meaningful groups based on consensus of two researchers. Some of the clinical dietetics experts (n= 8) were interviewed
by telephone to verify their written responses to ensure accuracy of interpretation. Telephone interviews were recorded on audiotapes after consent from the clinical dietetics experts. The tapes were used to clarify ambiguities found on the written questionnaires.

Quantitative Study

Sample selection

Although the target population was clinical dietitians working in acute care hospitals in the eight ADA Area 2 states, it was not possible through the ADA List Rental Services to purchase a selected sample with only clinical dietitians employed in acute care hospitals. Therefore, the sample included all ADA members who were employed in acute care hospitals. The list of names included clinical dietitians, clinical managers, administrative dietitians, dietetic technicians, and dietetic interns.

A total of 1,887 names of ADA members from the eight states employed in acute care hospitals and their addresses were obtained from the ADA List Rental Services. All 210 ADA members from Iowa were selected for the sample at the request of the project grantor for this study (Iowa Dietetic Association). From the other seven states, 990 dietitians were selected randomly from the ADA list using computer-generated random numbers. The 990 dietitians represented 59.0% of the ADA members working in acute care hospitals from seven states. The sample distribution is summarized in Table 2.
Table 2. Numbers of ADA members employed in acute care hospitals and of members selected in sampling per each state

<table>
<thead>
<tr>
<th>State</th>
<th>No. of members working in acute care hospitals</th>
<th>No. of members Sampled</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iowa</td>
<td>210</td>
<td>210</td>
<td>100.0</td>
</tr>
<tr>
<td>Michigan</td>
<td>494</td>
<td>292</td>
<td>59.1</td>
</tr>
<tr>
<td>Minnesota</td>
<td>242</td>
<td>143</td>
<td>59.1</td>
</tr>
<tr>
<td>Missouri</td>
<td>359</td>
<td>212</td>
<td>59.1</td>
</tr>
<tr>
<td>Nebraska</td>
<td>115</td>
<td>68</td>
<td>59.1</td>
</tr>
<tr>
<td>North Dakota</td>
<td>61</td>
<td>36</td>
<td>59.0</td>
</tr>
<tr>
<td>South Dakota</td>
<td>48</td>
<td>28</td>
<td>58.3</td>
</tr>
<tr>
<td>Wisconsin</td>
<td>358</td>
<td>211</td>
<td>58.9</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1,887</strong></td>
<td><strong>1200</strong></td>
<td><strong>63.6</strong></td>
</tr>
</tbody>
</table>

**Instrument design**

Themes generated from the responses of at least three experts were incorporated into quantitative questionnaire during development. Similar themes were grouped into sections. The instrument included four sections: demographic data, job changes in clinical dietetics, perceptions on improvement of clinical dietetics practice, and perceptions on educational and preprofessional preparation for future clinical dietitians (Appendix C).

Section I included demographic data items such as population of the community and hospital bed count where the clinical dietitian works, number of years employed as a clinical dietitian, number of years employed in the hospital, numbers of various dietetics staff, and level of education. These data were used to create demographic groups. In this section, a question was asked to classify the clinical dietitian's current position to distinguish clinical dietitians and clinical managers from respondents who were not working in clinical settings. According to their responses, usable questionnaires (i.e., responses from clinical dietitians and clinical managers) could be identified.
Section II included four parts regarding various changes that clinical dietitians and clinical managers have experienced. In Part A, seven items related to recent staff changes were asked. Respondents were requested to indicate if dietetics staff has increased, decreased, or not changed. In Part B, 16 items related to position responsibility changes were included. Part C included 11 items pertaining redistribution of activities among different staff. In Part D, 13 items regarding other changes such as structural changes and perceived job satisfaction were asked. An open-ended question was included in each part to gather any additional information about clinical dietetics changes.

Respondents were asked to indicate how much they agreed or disagreed with each item using a five-point Likert-type scale except for the open-ended questions, in Parts B, C, and D. The Likert-type scale was 1=Strongly disagree, 2=Disagree, 3=Neutral, 4=Agree, and 5=Strongly agree. Also, for each item in Section II, a “Not applicable” option was listed for those respondents who are not sure of their answers, who did not experience such changes, or whose hospitals did not have certain dietetics staff.

In Section III, clinical dietitians and clinical managers were asked to rate the perceived importance of each of 18 items related to the improvement of dietetics practice, based on their current practice. Section IV was divided into two parts. In Part A, clinical dietitians were asked to rate the importance of 16 topics, subjects, and skills to improve dietetics practices in didactic education for dietitians. In Part B, there were eight items where respondents were asked about the importance of preprofessional preparation or experience attributes (i.e., length, emphasis, etc.). In Sections III and IV, respondents were asked to rate the degree of importance for each item based on their current practice with 1=Not important to 5=Very important.
A dietetics educator from human nutrition faculty suggested eight members of expert panel composed of dietetics educators and public health dietitians, who had previously worked as clinical dietitians or have knowledge about instrument development. The preliminary questionnaire was reviewed for clarity of direction, contents, and readability. Recommendations from these panel members were incorporated into the questionnaire as appropriate. After the expert panel review, the questionnaire was submitted for approval from the ISU Committee on the Use of Human Subjects in Research prior to the administration of the pilot study.

Pilot study

Clinical dietitians who were employed in a large Illinois hospital (n=13) were invited to participate in the pilot study of the quantitative questionnaire. Participants were asked to complete the questionnaire and to provide concerns and suggestions regarding content, clarity of directions, and format. The pilot study data were analyzed, and appropriate recommendations from the participants were included in the final revision of the instrument.

Data collection

Questionnaires with cover letters (Appendix C) were mailed to all 210 Iowa Dietetic Association members and 990 randomly selected ADA members from the seven other ADA Area 2 states. The list of names and addresses was purchased from ADA List Rental Services. Approximately three weeks after the questionnaires were mailed (one week after the date respondents were requested to return their questionnaires), follow-up postcards (Appendix C) were mailed to remind respondents to complete and return the questionnaire. A total of 400 questionnaires were returned, for a 33.3% response rate, and 342 (28.5%) were
usable. The other 58 questionnaires were from dietitians who were not employed as clinical dietitians or clinical managers at the time of the study.

Data analysis

The Statistical Package for the Social Sciences (SPSS) for Windows Release 7.0 (1995) was used to analyze the data. Descriptive data analyses included frequencies, mean scores, and standard deviations of items. To examine differences in data distribution across variables, crosstabs were employed with a Pearson chi-square analysis. A factor analysis using maximum likelihood extraction was applied to examine the item patterns and to decrease the number of variables. Mean scores were used to replace missing data for the factor analysis.

One-way completely randomized analysis of variance (ANOVA) and independent t-tests were used to compare mean scores of (1) the changes in staffing, responsibilities, and structures of clinical dietetics departments from different hospital demographic groups and (2) clinical dietitians' activity changes, perceived job satisfaction, and perceptions about various issues among respondents in different demographic groups. Pearson correlation coefficients with the two-tailed option were calculated (1) between respondents perceived job satisfaction and experienced job changes; (2) between respondents’ perceptions about improvement of the level of nutritional care for patients and experienced job changes; and (3) among changes in clinical dietetics and respondents’ perceptions about the improvement of the clinical dietetics practice, and educational and preprofessional preparation.
Abstract

Objective

The current study was designed to assess job changes in clinical dietetics due to cost reduction activities in healthcare systems and to identify changes in perceived job satisfaction and improvement of clinical dietetics practices.

Design

Subjects were requested to complete a questionnaire that included demographic information, staffing changes, activity changes, redistribution of activities, and other changes.

Subjects

Randomly selected ADA members from the ADA Area 2 states whose job settings are acute care hospitals (n=1,200) were identified as the sample.

Statistical analysis

SPSS for Windows was used to perform statistical analyses. Descriptive statistics, t-tests, ANOVA, chi-square tests, and correlations were calculated.

Results

Results indicated that there were significant changes in clinical dietitians’ jobs due to cost reduction activities. Reduction in number of clinical dietitians was reported by 37.9% of respondents, and 32.2% reported increases in the number of part-time clinical dietitians.
Most respondents indicated that they were more involved with high-risk patient intervention, have limited time for inpatient instruction, have increased patient caseload, and perform more nutrition intervention based on nutrition assessment results. Due to downsizing, 45.4% of respondents reported they are less satisfied with their jobs.

Applications/conclusions

Findings may be utilized for identifying ways to reduce the negative impact of downsizing. Further research is recommended with different subject groups from different regions of the U.S. and with different job settings.

Introduction

Cost reduction activities such as downsizing and restructuring have become a common practice of many healthcare systems (1-4). Reasons for cost reduction activities are reduced hospital revenue due to decreased length of stay (LOS) and reduced hospital occupancy rates, in addition to sky-high healthcare costs and intensifying competition (5-7).

The labor force, which accounts for a large portion of hospital expenses, has been targeted frequently for cost reduction activities (1-4, 6). Despite the original intention of cost reduction, downsizing was found to be ineffective for improving financial performance (8). Furthermore, downsizing lowered morale and increased the stress of hospital employees (1-4, 9, 10).

Managed care organizations (MCOs) emerged to improve efficiency and to reduce the cost of hospital services. As MCOs provide healthcare delivery services with capitation-based payment methods to an increasing portion of the US population, healthcare organizations and physicians bear the financial risks because services are offered within a
predetermined budget (11, 12). The American Dietetic Association (ADA) recognized challenges of healthcare delivery under MCOs and emphasized needs for clinical dietitians to focus on customer satisfaction and cost-effectiveness of medical nutrition therapy (13-15).

One major change in healthcare systems due to downsizing was in staffing patterns of clinical dietetics personnel (16, 17). The number of patients per clinical dietitian is not considered to be a good measure for estimating dietetics staff needs at present. As an alternative, identifying staff needs as determined by the patient's need for nutrition care was recommended (17).

Activities of clinical dietitians also may have been impacted by cost reduction activities of healthcare systems. Since the 1970s, clinical dietitians' activities have been studied by many researchers in regard to acculturation of clinical dietetics (18), involvement of clinical dietitians in various levels of activities (19, 20), role delineation of clinical dietetics personnel (21), and time expenditure of clinical dietitians (22, 23). Despite the expectation that cost reduction activities may result in changes in clinical dietetics, no studies have been conducted that investigate the impact of cost reduction on clinical dietitians' jobs.

In addition to impact on the clinical dietitian's job, current changes in clinical dietetics may increase or decrease clinical dietitians' job satisfaction. The Job Descriptive Index (JDI) has been used to investigate dietitians' job satisfaction in different regions of the US (24-27). However, no studies have evaluated clinical dietitians' job satisfaction after cost reduction activities despite job changes that may have impacted their job satisfaction.

Therefore, this study was undertaken to identify changes in (a) staffing of clinical dietetics, (b) activities of clinical dietitians, (c) delegation of clinical dietetics activities to
support staff, and (d) department structure and accountability due to cost reduction activities. As a secondary objective, researchers investigated perceived job satisfaction of clinical dietitians after downsizing activities.

Methodology

Sample

The target population was clinical dietitians employed in acute care hospitals in ADA Area 2 states (Iowa, Michigan, Minnesota, Missouri, Nebraska, North Dakota, South Dakota, and Wisconsin). However, sampling from the target population was not possible through the ADA List Rental Services. Alternatively, 1,200 ADA members employed in acute care hospitals in ADA Area 2 states were selected as the sample. All 210 members from Iowa were included in the sample by request from the Iowa Dietetic Association, the grant provider for this research. From the other seven states, 58.9% of ADA members working in acute care hospitals (N=990) were selected and included in the total sample.

Instrument development and data collection

The survey instrument was developed based on themes from an earlier qualitative study (28). The instrument included the following sections: demographic characteristics (12 items), changes of dietetics department staffing (8 items), clinical dietitians' responsibilities (16 items), department structure and accountability (14 items), and delegation of clinical dietetics activities (11 items). Respondents were asked to rate the degree to which they agreed or disagreed with each item using a Likert-type scale (1=Strongly disagree, 2=Disagree, 3=Neutral, 4=Agree, and 5=Strongly agree). For respondents who could not
respond to items because their hospitals did not have certain staff or services or they were not sure of the answer, a "Not applicable" (NA) option was included.

The questionnaire was reviewed by an expert panel that included eight dietetics educators and public health dietitians who had experiences in clinical dietetics. Appropriate recommendations from the panel were incorporated into the questionnaire. Prior to the field test, the instrument was pilot tested by 13 clinical dietitians working in a large Illinois hospital. Participants provided further recommendations, and revisions were made as appropriate.

Questionnaires with cover letters were mailed to the selected sample. Three weeks later, follow-up postcards were mailed to increase the response rate.

Data analysis

The Statistical Package for the Social Sciences for Windows (SPSS/PC, version 7.0, 1995, SPSS, Chicago, Ill) was used to analyze the data. Descriptive data analyses included frequencies, mean scores, standard deviations, and crosstab distributions. To compare data distributions among different demographic groups, Pearson chi-square analysis was applied. Analysis of Variance (ANOVA) and t-tests were implemented to compare mean scores among and between different demographic groups. Two-tailed bivariate correlations were calculated to examine the association between variables.

Results

Response rate

A total of 400 questionnaires was returned (33.3%). Of these, 342 questionnaires (28.5%) were usable for data analysis. The other 58 questionnaires were from dietitians who
were not practicing clinical dietitians or clinical managers. The relatively low response rate may be due to the total sample that included ADA members who were not employed as clinical dietitians or clinical managers.

**Demographic characteristics**

Demographic characteristics of hospitals where respondents were working are listed in Table 1. Most hospitals (67.3%) were located in suburban or small metropolitan areas, and experienced downsizing activities during the last five years. Prior to the last five years, 39.9% of respondents indicated they experienced downsizing activities, showing a large increase in cost reduction activities during the last five years. Only 76 clinical dietitians (22.2%) indicated they had not experienced downsizing activities. Most respondents (82.5%) indicated they were employed in community hospitals, large healthcare systems, or teaching hospitals. “Other” hospitals included government hospitals (e.g., Veterans’ Affairs, state psychiatric hospitals) and hospitals that were in the process of being acquired by other large healthcare systems. The size of hospitals varies from ≤ 50 beds to > 500 beds with a fairly even distribution of hospitals in each category.

<table>
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<th>Table 1 Here</th>
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About half of respondents (48.5%) had bachelor’s degrees, and most respondents (80.4%) were working as clinical dietitians without management responsibilities. The other 19.6% were either clinical managers (10.2%) or clinical dietitians who have some clinical managerial responsibilities (9.4%). The respondents were split almost evenly between with specialty areas of practice (n=177) and without specialty areas (n=165). Among specialty
areas of practice, the most common areas were critical care (n=41), diabetes mellitus (n=31), and cardiac (n=24). The number of years respondents worked as a clinical dietitian ranged from < 1 year to 45 years, with a mean of 14.2 years.

**Staffing changes**

Figure 1 describes staffing changes in nutrition services and dietetics departments as a result of downsizing activities. The greatest impact was on the food production staff, with 66.8% of respondents reporting a decrease in the food production staff. Among clinical staff, the decrease in clinical dietitians was the greatest (37.9%). About 30% of respondents indicated an increase in the number of part-time clinical dietitian positions (32.2%) and on-call coverage during weekends (29.6%). There were respondents who indicated “Not applicable” for staffing changes for clinical manager, dietetic technician, and diet clerk (27.7%, 41.6%, and 29.6%, respectively). These responses may imply that no such positions existed either before or after downsizing.

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**Activity changes**

Respondents were asked to indicate activity changes that occurred during the last five years due to downsizing activities. Mean scores and standard deviations of items included in clinical dietetics activity changes are shown in Table 2. Compared to their activities before downsizing, most respondents (90.0%) agreed or strongly agreed that clinical dietitians are more involved with high-risk patient interventions, and 77.7% of respondents indicated they receive more high-risk patient referrals from other healthcare professionals. These results
may imply that due to cost reduction activities, clinical dietitians are responsible for high-risk patient interventions, while other staff are responsible for low-risk patient interventions. Increased high-risk patient interventions also may occur because there are more high-risk patients in acute care hospitals. A majority of respondents agreed or strongly agreed that they have an increased patient caseload (81.3%) and have limited time for inpatient instruction (84.9%). Regarding nutrition diagnosis (clinical decision making) and interventions, 73.5% agreed or strongly agreed they use more nutrition diagnosis in assessment, and 82.3% agreed or strongly agreed they identify more nutrition interventions based on nutrition assessment.

Compared to activities before downsizing, nearly half of respondents agreed or strongly agreed they performed more administrative duties (47.6%), clerical duties (46.5%), and dietetic technicians' duties (42.2%). This may be due to the decreased number of department support staff. Some respondents (20.5%) agreed or strongly agreed that they are expected to perform more duties of other healthcare professionals. Of those who responded to the open-ended question asking who these healthcare professionals might be, most respondents (> 80%) indicated they were nurse educators and other nursing staff.

**Redistribution of activities**

Although many respondents reported an involvement with interventions for high-risk patients and increased patient caseloads, a relatively small number of respondents reported that their duties have been delegated to support staff. As Table 3 shows, fewer than 3% of respondents indicated that their duties are delegated frequently to dietetics support or nursing
staff. A greater percentage, but fewer than one-third of respondents, indicated that sometimes their duties are delegated to the dietetics support or nursing staff.

Table 3 Here

Of respondents, 41.0% indicated that initial nutrition screening is completed always by nursing staff, 18.8% indicated frequently, and 13.6% indicated sometimes. Some respondents (12.6%) reported that nutrition counseling/education is done frequently by other healthcare professionals. Of those who responded to the open-ended question asking which professionals are performing nutrition counseling/education, nursing staff and certified nursing educators were mentioned more frequently (> 80%) than other professionals. Many respondents indicated that nurses do basic nutrition counseling and refer patients to clinical dietitians if they are at high nutritional risk.

Department, accountability, and other changes

There were 11 items related to changes in department and accountability and the use of simplified and/or automated processes. A factor analysis was applied to reduce the number of variables. Maximum likelihood extraction was used to identify patterns of items. The simple structure was achieved more nearly by unrotated results. Missing data were replaced with mean scores. The first and strongest factor (Factor 1) was “the use of simplified meal preparation process,” and included items such as reduced snack and menu selections, shortened menu cycles, and increased use of convenience/prepared food products. The second factor (Factor 2) was “changes in departmental structure” and included items such as clinical dietitians being accountable to nursing administrators or medical practice.
centers, separation of foodservice and nutrition services departments, and relocation of clinical dietitian full-time-equivalents (FTE) to other cost centers to reduce departmental expenses.

Distributions of Factors 1 and 2 are shown in Figure 2. As the histograms show, Factor 1 was skewed to the left, implying that due to downsizing more clinical dietitians agreed that simplified food production processes are used. As a result, patients have fewer menu and snack selections. Although cost reduction may have the potential to change departmental and accountability structures, Factor 2 was skewed to the right, implying that more respondents disagreed or strongly disagreed with experiencing such changes. Although the distribution of data was not normal, this caused relatively little problem for ANOVA purposes because of the large sample size.

Items not associated with Factor 1 or Factor 2 were analyzed individually. A majority of respondents (89.1%) indicated (i.e., agreed or strongly agreed) that office automation has increased (mean=4.41, SD=0.89), less than 50% of respondents indicated that clinical dietitians are seeking outside consulting contracts to increase departmental revenue (42.9%) and that dietetic technicians or clerks are trained to perform expanded duties such as kitchen supervisor duties (38.9%).

**Impact of changes on patient care and job satisfaction**

Half of respondents (49.9%) agreed or strongly agreed that recent changes in clinical practice have improved the level of nutritional care for patients (mean = 3.34, SD = 1.23),
while 26.4% disagreed or strongly disagreed with the item. However, when downsizing activities occurred, almost half (45.4%) of respondents disagreed or strongly disagreed that they are more satisfied with their jobs due to recent changes in clinical dietetics. Only 28.9% of respondents who have experienced downsizing activities agreed or strongly agreed that they are more satisfied with their jobs. The mean score of perceived job satisfaction was 2.76, with a standard deviation of 1.24.

Comparisons of data among different groups

Pearson chi-square test results showed a significant association between hospitals that have incorporated downsizing activities and bed counts. For a meaningful comparison with a similar number of hospitals per group, numbers of hospitals with bed counts ≤ 50 and 51-100 were combined to form a group (bed counts ≤ 100), and bed counts of 401-500 and > 500 were combined to form a group (bed counts > 400). As Table 4 shows, more than two-thirds of respondents indicated that they experienced downsizing activities in their hospitals during the last five years. An exception was hospitals with bed counts ≤ 100, where less than 50% of respondents indicated their hospitals had downsized the operation. Pearson chi-square tests results indicated that responses among groups with different bed counts differ significantly.

Table 4

Analysis of variance (ANOVA) results showed that mean scores of items related to activity changes of clinical dietitians and the redistribution of clinical dietitians’ activities were significantly different among hospitals with different bed counts (Table 5). As the
hospital size increased, more respondents tended to agree or strongly agree with registered clinical dietitians having limited time for inpatient instruction. Mean scores tended to decrease as hospital bed counts increased for items such as registered clinical dietitians perform more managerial duties in food production, dietetic technicians’ duties, and clerical duties. These results may indicate that in larger hospitals jobs are more specialized, and there are fewer dietitians performing the duties of other support staff.

Patterns in redistribution of activities were also significantly different among hospitals with different bed counts. Clinical dietitians’ duties were delegated more frequently to dietetic technicians and dietetics students in hospitals with higher bed counts than ones with lower bed counts. On the other hand, clinical dietitians’ duties were delegated more often to foodservice supervisors in hospitals with lower bed counts. Factor 1 (use of simplified meal preparation process) also showed a difference depending upon hospital bed counts. The mean score of Factor 1 is 0.00 — neutral (i.e., neither agreed nor disagreed) — by construction, and the negative numbers indicate that respondents in the group disagreed with occurrence of the item. This finding showed that as the bed count increased, the hospital dietetics service utilized more simplified meal preparation methods.

Table 5 Here

Between and among groups of respondents with different demographic characteristics, some differences were found in activity changes, perceived improvement of patient care, and perceived job satisfaction. Assuming equal variances, there were differences in activity changes between clinical dietitians with specialty areas of practice and
without specialty. As shown in Table 6, responses from respondents with and without specialty areas of practice were significantly different in six items regarding activity changes. Both groups agreed that these changes had occurred, but respondents with specialty areas of practice agreed more strongly.

There were some differences in perceptions of patient care improvement between clinical dietitians with (n=67) and without (n=275) management responsibilities. To make the comparison between groups meaningful, respondents whose current position classifications were “both clinical dietitian and clinical manager” (n=32) and “clinical managers” (n=35) were combined into “clinical dietitians with management responsibilities.” Clinical dietitians with management responsibilities agreed more that current changes in clinical dietetics due to downsizing activities had improved the level of nutritional care for patients than clinical dietitians without management responsibilities.

Perceived job satisfaction among groups of respondents with different levels of education differed significantly (P < 0.05). For making a comparison, respondents with a master’s degree (n=102), some graduate work toward the Ph.D. degree (n=5), and Ph.D. degree (n=3) were combined into one group, master’s degree and higher (n=110). This group was compared to respondents with a bachelor’s degree (n=166) and some graduate work toward the master’s degree (n=102). Respondents with a bachelor’s degree indicated lower perceived job satisfaction because of recent job changes (mean=2.70, SD=1.23) than
respondents who had some graduate work toward a master's degree and those who had a master's degree and higher (mean=3.16, SD=1.22, and mean=3.01, SD=1.26, respectively).

Correlations

Table 7 shows correlations between selected variables and perceived job satisfaction and perceived improvement of patient care. Most correlations are of modest magnitudes, but the sample size provides adequate statistical power to detect significant relationships. Items that were positively correlated with perceived job satisfaction were receiving more high-risk patient referrals, identifying interventions based on nutrition assessment, and being involved with more high-risk patients. These same variables were correlated positively with perceived improvement of patient care. These relationships suggest that when job changes occur and registered clinical dietitians receive referrals for more high-risk patients, clinical dietitians are more satisfied with their jobs. Items that were significantly and negatively associated with job satisfaction were performing dietetic technicians' duties and clerical duties, limited time for inpatient instruction, and being expected to perform other healthcare professionals’ jobs. These relationships may imply that clinical dietitians perceive their jobs as less satisfying if they are performing more responsibilities of support staff or other healthcare professionals. Clinical dietitians also perceive less job satisfaction if they feel a lack of time for inpatient instruction.

As shown in Table 7, items that were positively associated with perceived improvement of patient care were also positively associated with perceived job satisfaction. There was a negative association between perceived improvement of patient care and limited time for inpatient instruction. There was a positive association between assessing more...
practice outcomes of nutrition intervention and perceived improvement of patient care, suggesting that clinical dietitians believe their services increase the level of patient care when outcomes are assessed.

Factor 1, the use of simplified meal preparation processes, was significantly (P < 0.001) negatively correlated with both perceived job satisfaction and improvement of patient care. These correlations may indicate that when a simplified meal preparation process is used (e.g., reduced snack and menu selections), clinical dietitians perceive less job satisfaction. There was no significant correlation between Factor 2, changes in departmental structure, and perceived job satisfaction or improvement of patient care.

Discussion

Results of this study show that dietetics service departments were impacted by cost reduction activities. Respondents reported not only that staffing changes of the dietetics personnel occurred, but also that their activities have changed. Despite the finding of increased workload, limited delegation of clinical dietitians' activities to support staff was carried out. Many respondents indicated that the meal preparation process has been simplified. However, changes in departmental structure were not as common.

Our results should be interpreted with caution because we surveyed clinical dietitians and clinical managers in ADA Area 2 states only, where size of hospitals and communities are relatively small compared to other states. However, demographic data indicated that this sample included more larger hospitals (i.e., > 200 beds) than previous nationwide surveys (1-
4). This may be due to the samples selected in prior studies (1-4) included more hospitals from the central region (~50%) of the US than eastern (~20%) and western (~30%) states.

More than one-third of respondents reported a decrease in clinical dietitian full time equivalents (FTEs) during the last five years. Compher and Colaizzo (16) reported both decreases and increases of clinical dietitian FTEs depending on the number of hospital beds in 1989 vs. 1986. However, they reported a decrease in average clinical dietitian FTEs per 100 beds in 1989. It was not possible to quantify the staff reduction in this study and to compare our results with previous studies.

In summary, activity changes of clinical dietitians included increases in (a) caseloads resulting in limited time for inpatient instructions, (b) high-risk patient interventions and referrals, (c) clinical decision making and intervention based on nutrition assessment, and (d) outpatient education. High-risk patient interventions may require a higher level of professional practice as they require more sophisticated interventions than lower level, diet-oriented interventions (18, 20). On the other hand, involvement with administrative, clerical, and dietetic technicians' duties may be seen as having an opposite effect. These results may imply that clinical dietitians have challenges from increased caseloads and severity of patient risks and also from a lack of support staff.

Many respondents (41.0%) indicated that the nursing staff always does the initial screening and refers patients who are at high nutritional risk to clinical dietitians. These results are of concern of the researchers because intermediate- or low-risk patients may be neglected and develop higher nutritional risks if clinical dietitians are not available to assess those inpatients.
It is intuitive to expect more delegation of clinical dietitians' responsibilities considering increased caseloads and high-risk patient interventions. However, results show that a small percentage of respondents actually delegate their responsibilities to dietetics support staff.

Use of simplified meal preparation processes such as reduced number of menu and snack selections, may impact clinical dietetics practices negatively because the ability to offer a variety of food selections for patients becomes limited. It also may be hard to meet nutritional needs for patients with limited selections. Use of convenience or processed food products and shortened menu cycles may not impact the quality of patients' meals as much as reduced selections considering the availability of quality products and reduced lengths of hospital stay.

In this study respondents were asked how much they agree with the statement, "I am more satisfied with my job because of job changes during the last five years" rather than using the JDI instrument used in other job satisfaction studies (24-27). We were interested in perceived job satisfaction of respondents compared to the time before downsizing activities. As Noer (9) and Young and Brown (10) anticipated and found, many respondents (45.4%) disagreed or strongly disagreed with the statement regarding perceived job satisfaction after downsizing activities.

Comparison of data among hospitals showed that as the number of bed counts of a hospital increases, the impact of downsizing increases. In larger hospitals, the percent of respondents who reported staff reduction and limited time for inpatient instructions was greater. These results corresponded with findings by Compher and Colaizzo (16) who
indicated that patients to clinical dietitian FTEs ratios decrease as the hospital bed counts increase. These results also raise concern that patients in larger hospitals are at greater nutritional risk because it is less likely for clinical dietitians to assess nutritional problems early compared to dietitians in smaller hospitals. However, to compensate for limited staffing in larger hospitals, respondents delegate more low-risk activities to their support staff and are involved with less clerical, administrative, and dietetic technicians' duties.

Correlation results show some changes derived from cost reduction activities can increase the perceived job satisfaction of clinical dietitians and perceived improvement of patient care. Although the negative impact of downsizing activities were addressed previously (8-10), by incorporating positive changes (i.e., more involvement with high-risk patient interventions and nutrition intervention based on nutrition assessment) and avoiding negative changes (i.e., performing responsibilities of dietetics support staff), clinical dietitians perceived less stress and more satisfaction in their jobs. Contrary to the researchers' anticipation of perceived negative impact as a result of department restructuring and accountability changes on job satisfaction, no significant correlations were found between the two variables.

Applications

Findings from this study may be utilized to reduce the negative impact of downsizing and restructuring of hospital services. Hospital administrators and directors of dietetic/clinical nutrition services may be advised to (a) plan workforce reduction as a long-term project (29), (b) communicate planning and progress of downsizing with employees (29), and (c) evaluate various ways to reorganize job responsibilities (e.g., reassignment of
responsibilities based on complexity of jobs among clinical dietitians and dietetics support staff).

Further research is recommended with subjects from different geographical locations to investigate a nationwide prevalence of downsizing and its impact on clinical dietetics staff. Positive changes from downsizing should be recognized so that job changes of clinical dietetics staff are effective for reducing cost and improving job satisfaction. Moreover, customer satisfaction and quality nutrition care should not be neglected in the process of downsizing.

Downsizing has occurred in other healthcare settings where clinical dietitians are employed, and outsourcing has become more prevalent in healthcare systems. In some cases, contract service companies now provide clinical nutrition services and foodservices. Opportunities offered by contract service companies may differ from those offered by self-operating healthcare services. Comparison of findings from this study related to job changes, perceived job satisfaction, and perceived improvement of patient care with clinical dietitians in different healthcare systems (e.g., acute care hospitals vs. long-term care, self-operating vs. outsourcing) may be valuable for further recognizing positive changes and implementing effective cost reduction activities.

References


### Table 1
Demographic characteristics of hospitals

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<tr>
<th>Characteristics</th>
<th>No. of respondents</th>
<th>Percent (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population of the community (n=334)</td>
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<td></td>
</tr>
<tr>
<td>Rural (&lt; 2,500)</td>
<td>20</td>
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<tr>
<td>Suburban (2,500-49,999)</td>
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<td>Small metropolitan (50,000-499,999)</td>
<td>110</td>
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<td>Medium metropolitan (500,000-999,999)</td>
<td>41</td>
<td>12.3</td>
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<tr>
<td>Large metropolitan (≥ 1 million)</td>
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<td>14.4</td>
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<td>Description of hospitals (n=338)</td>
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<td>Community hospital</td>
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<td>Part of a large healthcare system</td>
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Figure 1
Staffing changes in dietetic/nutrition services departments

\(^a\) The number of responses varies from 319 to 336 due to missing data.
<table>
<thead>
<tr>
<th>Registered clinical dietitians:</th>
<th>N\textsuperscript{a}</th>
<th>Mean±SD\textsuperscript{b}</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Are more involved with high-risk patient interventions</td>
<td>339</td>
<td>4.43±0.79</td>
</tr>
<tr>
<td>2. Have limited time for inpatient instruction</td>
<td>339</td>
<td>4.27±0.96</td>
</tr>
<tr>
<td>3. Have increased patient caseload</td>
<td>337</td>
<td>4.23±0.97</td>
</tr>
<tr>
<td>4. Identify more nutrition interventions based on nutrition assessment results</td>
<td>339</td>
<td>4.11±0.79</td>
</tr>
<tr>
<td>5. Receive more high-risk patient referrals from other healthcare professionals</td>
<td>340</td>
<td>4.05±0.85</td>
</tr>
<tr>
<td>6. Perform more outpatient education</td>
<td>340</td>
<td>3.92±1.08</td>
</tr>
<tr>
<td>7. Use more nutrition diagnosis (clinical decision making) in assessment</td>
<td>340</td>
<td>3.92±0.87</td>
</tr>
<tr>
<td>8. Have new demands for their services due to expansion of hospital services</td>
<td>338</td>
<td>3.91±1.00</td>
</tr>
<tr>
<td>9. Assess more practice outcomes of nutrition interventions</td>
<td>338</td>
<td>3.59±0.91</td>
</tr>
<tr>
<td>10. Are involved with more administrative duties</td>
<td>340</td>
<td>3.34±1.18</td>
</tr>
<tr>
<td>11. Perform more clerical duties</td>
<td>338</td>
<td>3.34±1.14</td>
</tr>
<tr>
<td>12. Perform more dietetic technicians' duties</td>
<td>339</td>
<td>3.31±1.33</td>
</tr>
<tr>
<td>13. Are involved with less community service and outreach programs</td>
<td>340</td>
<td>3.14±1.23</td>
</tr>
<tr>
<td>14. Are expected to perform more duties of other healthcare professionals</td>
<td>336</td>
<td>2.81±1.01</td>
</tr>
<tr>
<td>15. Work in more than one facility to maintain full-time status</td>
<td>340</td>
<td>2.75±1.40</td>
</tr>
<tr>
<td>16. Perform more managerial duties in food production</td>
<td>340</td>
<td>2.52±1.22</td>
</tr>
</tbody>
</table>

\textsuperscript{a} The number of respondents for each item varies, due to missing data.

\textsuperscript{b} Scores are 1=Strongly disagree, 2=Disagree, 3=Neutral, 4=Agree, and 5=Strongly agree.
Table 3
Delegation and redistribution of clinical dietetics activities

<table>
<thead>
<tr>
<th>Clinical dietitians’ duties have been delegated to</th>
<th>N</th>
<th>Mean±SD</th>
<th>% of respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dietetic technicians</td>
<td>234</td>
<td>2.32±1.14</td>
<td>33.8 18.4 32.5 12.8 2.6</td>
</tr>
<tr>
<td>Nursing staff</td>
<td>300</td>
<td>2.29±1.02</td>
<td>25.7 34.0 28.7 9.3 2.3</td>
</tr>
<tr>
<td>Dietetic interns/students</td>
<td>247</td>
<td>2.08±1.03</td>
<td>39.7 21.9 29.6 8.5 0.4</td>
</tr>
<tr>
<td>Dietetic clerks</td>
<td>247</td>
<td>1.80±0.99</td>
<td>51.4 25.5 16.2 5.7 1.2</td>
</tr>
<tr>
<td>Foodservice supervisors or certified dietary managers</td>
<td>276</td>
<td>1.67±0.94</td>
<td>58.7 22.1 14.1 4.0 1.1</td>
</tr>
<tr>
<td>Initial screening is done by nursing staff</td>
<td>324</td>
<td>3.60±1.47</td>
<td>14.2 12.3 13.6 18.8 41.0</td>
</tr>
<tr>
<td>Nutrition counseling/education is done by others</td>
<td>326</td>
<td>2.53±0.96</td>
<td>16.9 27.9 41.4 12.6 1.2</td>
</tr>
</tbody>
</table>

a The number of respondents for each item varies, due to missing data.
b Scores are 1=Never (N), 2=Seldom (S), 3=Sometimes (ST), 4=Frequently (F), and 5=Always (A).
Figure 2
Distributions of Factor 1 (use of simplified meal preparation process) and Factor 2 (changes in department structure)
Table 4
Comparison of staffing changes indicated by respondents from hospital groups with different bed counts

<table>
<thead>
<tr>
<th>Hospital bed counts</th>
<th>≤ 100 (n=94)</th>
<th>101-200 (n=72)</th>
<th>201-300 (n=68)</th>
<th>301-400 (n=51)</th>
<th>&gt; 400 (n=56)</th>
<th>χ²ᵃ</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Items compared</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Downsizing &amp; staff reduction</td>
<td>% of respondents indicated downsizing or staff reduction</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Downsized during the last 5 yrs</td>
<td>46.2</td>
<td>67.2</td>
<td>78.5</td>
<td>82.0</td>
<td>82.1</td>
<td>33.3</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Decreased registered dietitians</td>
<td>18.7</td>
<td>35.8</td>
<td>46.8</td>
<td>58.0</td>
<td>54.5</td>
<td>27.4</td>
<td>.001</td>
</tr>
<tr>
<td>Decreased dietetic clerks</td>
<td>14.0</td>
<td>34.6</td>
<td>44.2</td>
<td>60.5</td>
<td>48.9</td>
<td>23.4</td>
<td>.003</td>
</tr>
<tr>
<td>Decreased food production staff</td>
<td>54.1</td>
<td>73.8</td>
<td>85.2</td>
<td>86.0</td>
<td>86.4</td>
<td>30.7</td>
<td>&lt;.001</td>
</tr>
</tbody>
</table>

ᵃ Results from Pearson chi-square test.
Table 5
Comparison of selected variables among respondents from hospital groups with different bed counts

<table>
<thead>
<tr>
<th>Hospital bed counts</th>
<th>≤ 100 (n=94)</th>
<th>101-200 (n=72)</th>
<th>201-300 (n=68)</th>
<th>301-400 (n=51)</th>
<th>&gt; 400 (n=56)</th>
<th>F&lt;sup&gt;a&lt;/sup&gt;</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Activity changes:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Registered clinical dietitians</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>have limited time for inpatient instruction</td>
<td>3.89 ± 1.17&lt;sup&gt;w&lt;/sup&gt;</td>
<td>4.27 ± 0.92</td>
<td>4.39 ± 0.94&lt;sup&gt;x&lt;/sup&gt;</td>
<td>4.48 ± 0.81&lt;sup&gt;x&lt;/sup&gt;</td>
<td>4.55 ± 0.98&lt;sup&gt;x&lt;/sup&gt;</td>
<td>5.983</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>perform more managerial duties in food production</td>
<td>2.86 ± 1.17&lt;sup&gt;y&lt;/sup&gt;</td>
<td>2.60 ± 1.31</td>
<td>2.31 ± 1.25</td>
<td>2.36 ± 1.17</td>
<td>2.22 ± 1.06&lt;sup&gt;x&lt;/sup&gt;</td>
<td>3.286</td>
<td>.012</td>
</tr>
<tr>
<td>perform more dietetic technicians' duties</td>
<td>3.71 ± 1.21</td>
<td>3.47 ± 1.24</td>
<td>3.25 ± 1.41</td>
<td>3.00 ± 1.45</td>
<td>3.00 ± 1.28</td>
<td>3.186</td>
<td>.014</td>
</tr>
<tr>
<td>perform more clerical duties</td>
<td>3.62 ± 1.03</td>
<td>3.46 ± 1.18</td>
<td>3.19 ± 1.21</td>
<td>3.06 ± 1.11</td>
<td>3.13 ± 1.12</td>
<td>3.048</td>
<td>.017</td>
</tr>
<tr>
<td>are involved with less community service and outreach programs</td>
<td>2.79 ± 1.20</td>
<td>3.32 ± 1.28</td>
<td>3.36 ± 1.25</td>
<td>3.21 ± 1.30</td>
<td>3.19 ± 1.01</td>
<td>2.819</td>
<td>.025</td>
</tr>
<tr>
<td><strong>Redistribution of activities:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clinical dietitian's duties have been delegated to</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dietetic technicians</td>
<td>1.94 ± 1.16&lt;sup&gt;y&lt;/sup&gt;</td>
<td>2.20 ± 1.23</td>
<td>2.13 ± 1.05</td>
<td>2.67 ± 1.08</td>
<td>2.81 ± 0.98&lt;sup&gt;x&lt;/sup&gt;</td>
<td>5.085</td>
<td>.001</td>
</tr>
<tr>
<td>Foodservice supervisors or certified dietary manager</td>
<td>1.97 ± 1.04&lt;sup&gt;x&lt;/sup&gt;</td>
<td>1.68 ± 1.03</td>
<td>1.65 ± 0.91</td>
<td>1.38 ± 0.62&lt;sup&gt;x&lt;/sup&gt;</td>
<td>1.47 ± 0.82</td>
<td>3.502</td>
<td>.008</td>
</tr>
<tr>
<td>Dietetic students / interns</td>
<td>1.86 ± 1.02</td>
<td>1.88 ± 0.99</td>
<td>2.13 ± 1.04</td>
<td>2.18 ± 1.02</td>
<td>2.40 ± 1.03</td>
<td>2.506</td>
<td>.043</td>
</tr>
</tbody>
</table>

<sup>a</sup> Results from analysis of variance (ANOVA) test.

<sup>b</sup> Scores are 1=Strongly disagree, 2=Disagree, 3=Neutral, 4=Agree, and 5=Strongly agree.

<sup>w</sup> The mean score of this item is significantly different from mean scores of hospital groups with bed counts of 201-300, 301-400, and >400 according to Scheffe's multiple range test for comparisons of means (P<0.05).

<sup>x</sup> Significantly different from the group with bed counts of ≤ 100 (P<0.05).

<sup>y</sup> Significantly different from the group with bed counts of > 400 (P<0.05).

<sup>z</sup> Significantly different from the group with bed counts of 301-400 (P<0.05).
Table 6
Significant differences between respondent groups with different demographic characteristics

<table>
<thead>
<tr>
<th>Items</th>
<th>Groups</th>
<th>Mean±SD</th>
<th>t</th>
<th>P&lt;sup&gt; b &lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Clinical dietitians</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>with specialty</td>
<td>without specialty</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(n = 177)</td>
<td>(n = 165)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Registered clinical dietitians</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>assess more practice outcomes of nutrition interventions</td>
<td>3.72 ± 0.90</td>
<td>3.45 ± 0.90</td>
<td>-2.707</td>
<td>.007</td>
</tr>
<tr>
<td>receive more high-risk patient referrals from other healthcare</td>
<td>4.17 ± 0.78</td>
<td>3.93 ± 0.90</td>
<td>-2.579</td>
<td>.010</td>
</tr>
<tr>
<td>professionals</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>identify more nutrition interventions based on nutrition assessment</td>
<td>4.22 ± 0.72</td>
<td>4.00 ± 0.85</td>
<td>-2.533</td>
<td>.012</td>
</tr>
<tr>
<td>results</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>have limited time for inpatient instruction</td>
<td>4.39 ± 0.84</td>
<td>4.14 ± 1.06</td>
<td>-2.416</td>
<td>.016</td>
</tr>
<tr>
<td>are more involved with high-risk patient interventions</td>
<td>4.51 ± 0.79</td>
<td>4.33 ± 0.78</td>
<td>-2.132</td>
<td>.034</td>
</tr>
<tr>
<td>have increased patient caseload</td>
<td>4.34 ± 0.93</td>
<td>4.12 ± 1.00</td>
<td>-2.096</td>
<td>.037</td>
</tr>
<tr>
<td>Changes have improved the level of nutrition care</td>
<td>3.30 ± 1.26</td>
<td>3.38 ± 1.20</td>
<td>0.627</td>
<td>.531</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clinical dietitians with mgmt.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(n=67)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Changes have improved the level of nutritional care</td>
<td>3.63 ± 1.21</td>
<td>3.27 ± 1.23</td>
<td>2.144</td>
<td>.033</td>
</tr>
</tbody>
</table>

<sup>a</sup> Clinical dietitians with some management responsibilities and clinical managers.

<sup>b</sup> These results were based on 18 t-tests. Therefore, results may contain false positive outcomes, and items with marginal P value should be interpreted with caution.
Table 7
Correlation coefficients of selected variables with perceived job satisfaction and improvement of patient care

<table>
<thead>
<tr>
<th>Activity changes: Registered clinical dietitians</th>
<th>Job satisfaction</th>
<th></th>
<th>Improvement of patient care</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>receive more high-risk patient referrals</td>
<td>240</td>
<td>0.230**</td>
<td>322</td>
<td>0.179**</td>
</tr>
<tr>
<td>identify more nutrition interventions based on nutrition assessment results</td>
<td>244</td>
<td>0.187**</td>
<td>328</td>
<td>0.261**</td>
</tr>
<tr>
<td>are more involved with high-risk interventions</td>
<td>245</td>
<td>0.171**</td>
<td>328</td>
<td>0.175**</td>
</tr>
<tr>
<td>have new demands for their services due to expansion of hospital services</td>
<td>238</td>
<td>0.151*</td>
<td>319</td>
<td>0.170**</td>
</tr>
<tr>
<td>perform dietetic technicians' duties because of reduced staff</td>
<td>222</td>
<td>-0.197**</td>
<td>285</td>
<td>-0.104</td>
</tr>
<tr>
<td>have limited time for inpatient instruction</td>
<td>245</td>
<td>-0.161*</td>
<td>328</td>
<td>-0.167**</td>
</tr>
<tr>
<td>are expected to perform more duties of other healthcare professionals</td>
<td>232</td>
<td>-0.151*</td>
<td>306</td>
<td>-0.051</td>
</tr>
<tr>
<td>perform more clerical duties</td>
<td>241</td>
<td>-0.129*</td>
<td>322</td>
<td>-0.067</td>
</tr>
<tr>
<td>assess more practice outcomes of nutrition intervention</td>
<td>242</td>
<td>0.037</td>
<td>324</td>
<td>0.164**</td>
</tr>
<tr>
<td>Factor 1: The use of simplified meal preparation process</td>
<td>325</td>
<td>-0.200**</td>
<td>333</td>
<td>-0.210**</td>
</tr>
<tr>
<td>Factor 2: Changes in departmental structure</td>
<td>325</td>
<td>0.004</td>
<td>333</td>
<td>-0.030</td>
</tr>
</tbody>
</table>

a Numbers of responses are variable depending on items. For job satisfaction, only responses from clinical dietitians and managers who experienced downsizing were included.

b These results were based on correlation among 20 items. Therefore, results may contain false positive outcomes, and items with a marginal P value should be interpreted with caution.

* P < 0.05.

** P < 0.01.
PERCEPTIONS OF CLINICAL DIETITIANS ON IMPROVEMENT OF THE PRACTICE OF AND PREPARATION FOR CLINICAL DIETETICS

A paper to be submitted to the Journal of The American Dietetic Association

Junehee Kwon, Shirley A. Gilmore, Mary Jane Oakland, Mack C. Shelley, II

Abstract

Objective

This study was designed to survey clinical dietitians employed in acute care hospitals regarding their perceptions on improvement of the dietetics practice and educational and preprofessional preparation of future clinical dietitians.

Design

Each subject was asked to complete a questionnaire including sections related to improvement of clinical dietetics practice, didactic educational preparation, and preprofessional preparation.

Subjects

A randomly selected sample of 1,200 ADA members who are employed in acute care hospitals in ADA Area 2 states was identified.

Statistical analysis

SPSS for Windows was used to calculate descriptive statistics, Pearson and linear-by-linear chi-square analyses, t-tests, and ANOVA. Pearson correlation coefficients also were calculated.
Results

Importance of collaboration with other healthcare professionals, being able to perform in more than one area of clinical practice, passage of medical nutrition therapy (MNT) legislation, and proficiency in computer usage were rated as important. For educational preparation, importance of computer skills was rated the highest followed by subjects in enteral/parenteral nutrition, enhancing presentation skills, and evaluating cost-effectiveness of clinical dietetics practice. During preprofessional preparation, more practicum experiences, training with other healthcare professionals, and learning to be flexible in job situations were rated as important.

Application

Results from this study may be applied to designing educational and preprofessional preparation for future clinical dietetics programs. Also, recognizing ways to improve the level of clinical dietetics practice may be helpful for dietetics professionals to make their jobs more effective in ever-changing environments.

Introduction

Didactic education for dietetics provides the basic knowledge of nutrition and dietetics practices to students, whereas supervised practice provides preprofessional experiences by involving students in actual job situations. These processes are designed to prepare students for different settings of dietetics practice (1).

In the past, educators in the area of clinical dietetics have sought ways to ensure that dietetics students were prepared adequately to serve in the field. These efforts included the development of the minimum academic competencies for dietitians (2, 3). Recently, the
American Dietetic Association's (ADA's) role delineation study (4) became the basis for identifying clinical dietitians' activities and performance levels. By understanding clinical dietitians' roles based on actual on-site involvement, dietetics educators were able to set realistic goals for didactic education and supervised practice. In order to provide the most effective and relevant education and training, professional preparation should reflect job changes (5-8).

During the last decade, there has been an unprecedented change in healthcare delivery in the U.S. Managed care systems have become predominant, and the competition between health care providers has grown fiercely. Restructuring and downsizing have been commonplace (9-13). This upheaval has reached most, if not all, sectors of healthcare, and the area of clinical dietetics is no exception. Clinical dietitians have found themselves in departments of reduced size; with fewer managers, greater workloads, and changing responsibilities (13).

Subsequently, these changes in clinical dietetics have influenced clinical dietitians' job satisfaction and their perceptions of the level of patient care (13). Another result of changes in healthcare systems is that clinical dietitians perceive the need for change to improve the practice of clinical dietetics as well as the preparation for new dietitians entering the field.

The purpose of this study was to investigate the perceptions of clinical dietitians for (a) improving the practice of clinical dietetics, and (b) improving the educational and professional preparation for future dietitians based on their practices in the current and future healthcare environments.
Methodology

Sample

Clinical dietitians employed in acute care hospitals were the target population. Geographically, the scope of the research was limited to ADA Area 2 states (Iowa, Michigan, Minnesota, Missouri, Nebraska, North Dakota, South Dakota, and Wisconsin). The researchers were unable to purchase a list that sampled only the target population from the ADA List Rental Services. Rather, the list (n = 1,200) included all Iowa Dietetic Association (IDA) members and randomly selected ADA members from the other seven ADA Area 2 states who indicated their job settings as acute care hospitals. All 210 IDA members were included in the sample by request from the IDA, who provided funding for this research. The 990 members from the other seven states represented 59.0% of members working in acute care hospitals in those states.

Instrument development and data collection

A qualitative study (13) was conducted prior to this research study to provide the basis for instrument development. Researchers gathered clinical dietetic experts’ suggestions about improving the professional level of dietetics practices and recommendations for educational and preprofessional preparation for future clinical dietitians. Two clinical dietetics experts from each ADA Area 2 state responded to the open-ended qualitative questionnaire. Responses were coded, compiled, and sorted into meaningful groups; and themes were identified.

The quantitative instrument was developed based on themes identified from responses of clinical dietetics experts. If a theme was derived from three or more clinical dietetics
experts' responses, it was included in the questionnaire. The instrument included four sections — demographic information, improvement of clinical dietetics practices, educational preparation, and preprofessional preparation. In the demographic information section, each respondent was asked to provide his/her education level, specialty area, and number of years worked as a clinical dietitian.

In the second section, improvement of clinical dietetics practices, respondents were asked to rate their perceived importance of 17 items on various issues in clinical dietetics for improving their current practices. In the third section, educational preparation, respondents were asked to rate their perceived importance of various topics \( n = 17 \) for dietetics educational preparation. In the last section, preprofessional preparation, respondents were asked to rate their perceived importance of items related to the supervised practice \( n = 8 \). In this section, respondents also were asked to indicate their recommendation for the desirable length of internship. A Likert-type scale with two anchors \( 1 = \) Not important and \( 5 = \) Very important) was used for the last three sections.

An eight-member expert panel reviewed the questionnaire for content, clarity, and format of each item and general directions. Panel members consisted of dietetics educators and public health dietitians who had worked in the clinical setting. Individual panel members provided recommendations for improvement of the questionnaire. Revisions were made, based on appropriate suggestions. The instrument was pilot tested with 13 clinical dietitians from a large Illinois hospital prior to the field test. Recommendations from pilot test participants were incorporated into the questionnaire, as appropriate.
Questionnaires with cover letters were mailed to the sample (n = 1,200). Three weeks after questionnaires were sent, follow-up postcards were mailed to remind respondents to return their completed questionnaires.

Data analyses

Data analyses were conducted to obtain descriptive statistics, to make comparisons between and among data sets from different demographic groups, and to assess correlations between variables. The Statistical Package for the Social Sciences for Windows (SPSS/PC, version 7.0, 1995, SPSS, Chicago, IL) was used to analyze data. Frequencies, mean scores, standard deviations, and crosstab distributions were computed for all items. Pearson and linear-to-linear association chi-square tests were employed to compare data distributions between the different demographic groups and assess linearity. To compare mean scores between and among groups with different demographic characteristics, analysis of variance (ANOVA) and t-tests were applied. Pearson bivariate correlations (two-tailed) were calculated to assess associations between variables.

For meaningful comparisons and correlations, respondents were clustered into groups. Clinical managers (n=35) and clinical dietitians with some management responsibilities (n=32) were merged into one group, "clinical dietitians with management responsibilities" (n = 67). The number of years employed in clinical dietetics was grouped in five-year increments.
Results

Response rate

Of 1,200 questionnaires mailed, 400 questionnaires were returned (33.3%). Among returned questionnaires, 342 questionnaires (28.5%) were usable (i.e., responses from clinical dietitians and clinical managers). The other 58 questionnaires were excluded because they were from either administrative dietitians, retired clinical dietitians, or dietetics interns. Because of the limitation of the sampling method, which included ADA members other than clinical dietitians and clinical managers, the response rate was relatively low.

Demographic characteristics

Demographic characteristics of respondents are listed in Table 1. Almost one-half of respondents held bachelor’s degrees (48.5%), and most of respondents (80.4%) were clinical dietitians without management responsibilities. Of 342 respondents, 177 respondents had a specialty area. Respondents’ specialty areas are listed in Table 1. The number of years employed in clinical dietetics ranged from < 1 year to 45 years, with an average of 14.2 years.

Improving clinical dietetics practice

The mean scores and standard deviations (SDs) of 17 items related to improving clinical dietetics practice are listed in Table 2. Respondents rated the importance of each item for improvement of their current practices using a scale of 1 = Not important and 5 = Very important. Collaboration with other healthcare professionals was rated the highest among all items (mean = 4.46), with 314 respondents (92.7%) rating the importance of this item as either 4 (n = 125) or 5 (n = 189) on the 5-point Likert scale. There were 9 items with
mean scores > 4.00. The lowest importance rating was for *employee management skills*, with a mean score of 3.36.

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**Table 2 Here**

*Importance of topics in didactic education for improved dietetics practice*

Respondents were asked to rate the importance of 17 listed topics for educational preparation for improved or expanded clinical dietetics practice. As shown in Table 3, among all items, *computer skills* was rated highest (mean = 4.33) with 297 respondents (87.8%) rating it as either 4 or 5, followed by *enteral/parenteral nutrition* (mean = 4.11), *presentation skills* (mean = 4.07), and *evaluation of cost-effectiveness* (mean = 4.03). More than three-fourths of respondents rated the importance of these items as either 4 or 5.

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**Table 3 Here**

*Awareness of psychological and behavioral characteristics of patients* (mean = 3.99), *standardized language for clinical dietetics assessment, interventions, and outcomes* (mean = 3.99), *geriatrics* (mean = 3.96), and *physical assessment skills* (mean = 3.93) were rated also important with > 70% of respondents rating either 4 or 5. Mean score of importance rating for only one item was < 3.00.

*Importance of items for improving preprofessional preparation for future clinical dietitians*

Mean scores and standard deviations of items regarding improvement of preprofessional preparation are listed in Table 4 with percentages of respondents who rated items either 4 or 5. Most (85.5%) respondents indicated *more practicum experiences in clinical nutrition services* was important for preprofessional preparation for future clinical
dietitians (i.e., giving ratings of either 4 or 5). Importance of training with other health team members was rated second highest, followed by learning to be more flexible in job situations. Over 60% of respondents (n = 213) indicated that length of internship was important in preprofessional preparation. When respondents were asked to recommend the desirable length of an internship, some indicated with a range of months, and others indicated with a single number of months. When a single number was given, it was used as both the minimum and maximum value. The mean score for the minimum length of an internship was 10.3 months with a range of 3 – 24 months (SD = 2.79), and the suggested maximum length was 11.4 months with a range of 4 – 24 months (SD = 2.64). Most respondents indicated that 12 months was an adequate length of time for an internship (i.e., 46.5% indicated 12 months as minimum, and 66.1% indicated 12 months as maximum).

Comparisons of data between groups

Results showed statistically significant differences between some responses of dietitians with (n = 177) and without specialty areas of practice (n = 165). Pearson chi-square test results indicated that more respondents with a specialty area rated the importance of advanced certification for improvement of current practice higher (mean = 3.83) than the other group (mean = 3.37, P < 0.001). Clinical dietitians practicing in specialty areas rated the importance of specialization of clinical practice significantly higher (mean = 3.80) than respondents without a specialty (mean = 3.16) with P < 0.001. These results may imply that respondents with a specialty perceived specialization of practice and advanced certification that they have acquired as valuable for the improvement of clinical dietetics practices. The
mean score of importance of outcome research data for improving clinical dietetics practice was also significantly (P < 0.01) higher for clinical dietitians with (mean = 3.86) than without a specialty area (mean = 3.51).

For educational preparation of future clinical dietitians, clinical dietitians with a specialty area rated the importance of research methods for outcome evaluation significantly (P < 0.001) higher (mean = 3.84) than those without a specialty area (mean = 3.30). The only item that respondents without a specialty area rated significantly higher (P < 0.05) than those with a specialty area was more training on clinical pathways (mean = 3.72 for without and 3.50 with a specialty area of practice).

Items with statistically significant differences between clinical dietitians with (n=67) and without (n=275) management responsibilities are listed in Table 5. When responses from these two groups were compared, respondents with management responsibilities perceived the broader scope of dietetics practices as more important. Business, entrepreneurial, and management approach to clinical dietetics; employee management skills; market expansion for clinical dietitians; and active involvement with legislative issues were rated higher by respondents with management responsibilities than by those without management responsibilities.

| Table 5 Here |

When asked about educational preparation of future dietitians, respondents with management responsibilities rated the importance of evaluation of cost-effectiveness higher than the other group. Subjects such as marketing, human resource management, and accounting and budgeting also were rated higher by respondents with management
responsibilities than those without these responsibilities. *Learning to be more flexible in job situations* also was rated higher by respondents with management responsibilities than the other group. On the other hand, clinical dietitians without management responsibilities perceived items that are related to clinical practice (i.e., specialization of clinical practice, enteral/parenteral nutrition, awareness of the psychological and behavioral characteristics of patients, and more training in a specialized area) as more important than clinical dietitians with management responsibilities.

There were significant differences in three items related to the length of employment as clinical dietitians. Analysis of variance (ANOVA) results showed significant differences in importance ratings of economics ($P=.032$), accounting/budgeting ($P=.020$), and proficiency in computer/technology ($P=.016$) from clinical dietitians with different numbers of years in the clinical dietetics profession. Linear-by-linear association chi-square tests also indicated that response patterns of these items among groups had significant linear relationships. However, Pearson chi-square test results failed to reject the null hypothesis of “no differences among groups.”

**Correlations**

Table 6 shows significant correlation coefficients between the number of years worked as a clinical dietitian (NYCD) and other variables. Most coefficients have modest magnitudes, but the number of responses aided the determination of statistically significant of correlation coefficients. NYCD was associated negatively with the importance of *market expansion for clinical dietitians* to improve the level of clinical dietetics practices ($r = -0.117$, $P < 0.05$).
Proficiency in computer and technology was associated positively with NYCD (r = 0.181, P < 0.001). Items related to educational preparation; computer skills, economics, accounting and budgeting, and statistics were associated positively with NYCD. These correlations suggest that the longer respondents had worked as clinical dietitians, the more they felt the needs for computer skills, accounting/budgeting, and statistics in their current practices.

Discussion

Results of this study show that clinical dietitians rated many items related to the improvement of dietetics practice as important. Importance of collaboration with other healthcare professionals was rated highest among all variables. Also, for preprofessional preparation, training with other healthcare professionals was recognized as important. These results may indicate that as clinical dietitians report to medical practice centers and work with other medical team members, they perceive the increased importance of collaboration with other teams (13).

Proficiency in computer/technology utilization also was rated high by most respondents as a way of improving dietetics practice. Most respondents also indicated that computer skills was important for improving their current practices. The linear-to-linear chi-square test and Pearson correlation coefficients showed that as NYCD increased, respondents rated the importance of proficiency of computer utilization for improving practice and computer skills for education higher. These results may indicate a lack of computer availability and education for clinical dietitians who started their career many years ago.
These results also may mean that current computer utilization in clinical dietetics has become more prevalent, and the ability to use them is more important than in previous studies (13).

Proficiency in more than one area of clinical dietetics also was rated high, implying that as downsizing occurs, clinical dietitians may be more likely to perform nutrition intervention in more than one area of clinical dietetics. On the other hand, it may mean that when clinical dietetics personnel leave the organization due to layoffs or attrition, the remaining staff must extend their performances to other areas of clinical dietetics.

Passage of MNT legislation and reimbursement for clinical dietetics services were rated relatively high for improving clinical dietetics practice. However, evaluation of current practice effectiveness and outcome research data were not perceived to be as important as the other items discussed above for improving practice. Furthermore, for educational preparation, importance of the evaluation of cost-effectiveness was not rated as high as some other topics. Clinical dietitians with management responsibilities rated this item as more important than those without management responsibilities. Based on these data, one might conclude that clinical dietitians, especially those without management responsibilities, need to become more aware of the importance of cost-effectiveness of MNT.

Braverman noted that future clinical dietitians should be prepared for expanded professional roles by developing skills that do not fall within the traditional job description. These included management, marketing, and budgeting skills. She contended that educators should prepare students for a changing job environment (8). Clinical dietitians with management responsibilities recognized these needs more, since they perceived a broader
scope of the dietetics practice to be more important, than clinical dietitians without management responsibilities.

For preprofessional preparation, most respondents rated the importance of more practicum experience high, yet fewer respondents rated the importance of length of internship high. These results may imply that respondents value the quantity of practicum experiences more highly than the length of the internship. Although the largest group of respondents indicated that 12 months was a desirable length, there was a large range of responses in perceived desirable length of an internship.

More involvement with legislative issues during preprofessional preparation was rated moderately important (mean = 3.30), although the importance of the passage of MNT legislation was rated high to improve clinical dietetics practice (mean = 4.27). These results may imply that respondents perceive involvement in legislative issues should occur after they start the practice rather than during the preparation period for their practice.

Standardized language to describe clinical dietitians' assessment, intervention, and outcome was rated as important among topics related to didactic education subjects. A standardized language becomes a basis for not only consistent documentation, but also computerization of clinical nutrition documentation. Researchers found that physicians were more likely to follow the clinical dietitians' recommendations when automated documentation processes were used (14).

Learning to be more flexible with the job situations was perceived to be important as a part of preprofessional preparation. This may imply that many aspects of clinical dietitians' jobs, such as hours of work and responsibilities, have changed from traditional settings (13).
Clinical dietitians, especially those who have management responsibilities and are currently working in acute care hospitals, perceived that flexibility is important in an ever-changing job environment.

**Recommendations**

The results may not be generalizable because the sample was drawn from eight ADA Area 2 states. Further research is recommended in other regions of the U.S. to determine nationwide perceptions of clinical dietitians.

The questionnaire used in this study was generated from recommendations made by 16 clinical dietetics experts. Although results provided perceptions of clinical dietitians on some items related to improvement of their practices and preparation for future clinical dietitians, items included were not all-encompassing. More research is recommended to identify a more inclusive list of important items for improving clinical dietetics practices and preparation for future practice as well as to assess the perceived importance of those items.

Further research is recommended with dietitians from different healthcare organizations (e.g., long-term care facilities) and dietitians with different job settings (e.g., community, administrative, and consultant dietitians) to evaluate differences in perceptions regarding preparation and improvement for dietetics practice.

Dietetics educators are urged to recognize changes in clinical dietetics jobs due to current healthcare trends and incorporate those changes into dietetics education. As didactic educators and preceptors of supervised practice recognize current practices and apply them to the preparation for the future dietetics professionals, dietitians may become better prepared.
References


Table 1
Demographic characteristics of respondents

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>No. of respondents</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Education (n=342)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bachelor's degree</td>
<td>166</td>
<td>48.5</td>
</tr>
<tr>
<td>Some graduate work toward master's degree</td>
<td>66</td>
<td>19.3</td>
</tr>
<tr>
<td>Master's degree</td>
<td>102</td>
<td>29.8</td>
</tr>
<tr>
<td>Some graduate work toward Ph.D. degree</td>
<td>5</td>
<td>1.5</td>
</tr>
<tr>
<td>Ph.D. degree</td>
<td>3</td>
<td>0.9</td>
</tr>
<tr>
<td><strong>Current position classification (n=342)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clinical dietitians</td>
<td>275</td>
<td>80.4</td>
</tr>
<tr>
<td>Both clinical dietitians and clinical manager</td>
<td>32</td>
<td>9.4</td>
</tr>
<tr>
<td>Clinical managers</td>
<td>35</td>
<td>10.2</td>
</tr>
<tr>
<td><strong>Specialty area of practice (n=177)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Critical care&lt;sup&gt;a&lt;/sup&gt;</td>
<td>41</td>
<td>23.1</td>
</tr>
<tr>
<td>Diabetes mellitus</td>
<td>31</td>
<td>17.5</td>
</tr>
<tr>
<td>Cardiac/Cardiac Rehab</td>
<td>24</td>
<td>13.6</td>
</tr>
<tr>
<td>Oncology</td>
<td>21</td>
<td>11.9</td>
</tr>
<tr>
<td>Renal</td>
<td>17</td>
<td>9.6</td>
</tr>
<tr>
<td>Pediatrics</td>
<td>15</td>
<td>8.5</td>
</tr>
<tr>
<td>Mental health&lt;sup&gt;b&lt;/sup&gt;</td>
<td>12</td>
<td>6.8</td>
</tr>
<tr>
<td>Long-term care&lt;sup&gt;c&lt;/sup&gt;</td>
<td>9</td>
<td>5.1</td>
</tr>
<tr>
<td>Other&lt;sup&gt;d&lt;/sup&gt;</td>
<td>7</td>
<td>3.9</td>
</tr>
<tr>
<td><strong>No. of years as clinical dietitian (n=338; mean = 14.2, min = &lt; 1, max = 45 years)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>≤ 5 years</td>
<td>64</td>
<td>18.9</td>
</tr>
<tr>
<td>&gt; 5 and ≤ 10 years</td>
<td>67</td>
<td>19.8</td>
</tr>
<tr>
<td>&gt; 10 and ≤ 15 years</td>
<td>71</td>
<td>21.0</td>
</tr>
<tr>
<td>&gt; 15 and ≤ 20 years</td>
<td>52</td>
<td>15.4</td>
</tr>
<tr>
<td>&gt; 20 years</td>
<td>84</td>
<td>24.9</td>
</tr>
<tr>
<td><strong>No. of years working at current hospital (n=335; mean = 9.9, min = &lt; 1, max = 35 years)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>≤ 5 years</td>
<td>124</td>
<td>37.0</td>
</tr>
<tr>
<td>&gt; 5 and ≤ 10 years</td>
<td>78</td>
<td>23.3</td>
</tr>
<tr>
<td>&gt; 10 and ≤ 15 years</td>
<td>61</td>
<td>18.2</td>
</tr>
<tr>
<td>&gt; 15 and ≤ 20 years</td>
<td>29</td>
<td>8.7</td>
</tr>
<tr>
<td>&gt; 20 years</td>
<td>43</td>
<td>12.8</td>
</tr>
</tbody>
</table>

<sup>a</sup> Critical care includes nutrition support, intensive care unit, burn, surgery, and neurology.

<sup>b</sup> Mental health includes eating disorders and psychiatric.

<sup>c</sup> Long-term care includes geriatrics.

<sup>d</sup> Other category includes wellness, clinical nutrition management, and ambulatory care.
Table 2
Importance ratings of items for improvement of dietetics practice (N=331–339\textsuperscript{a})

<table>
<thead>
<tr>
<th>Items</th>
<th>Mean±SD\textsuperscript{b}</th>
<th>% rated 4 or 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collaboration with other healthcare professionals</td>
<td>4.46±0.70</td>
<td>92.7</td>
</tr>
<tr>
<td>Proficiency in computer/technology utilization</td>
<td>4.32±0.73</td>
<td>88.5</td>
</tr>
<tr>
<td>Passage of medical nutrition therapy legislation</td>
<td>4.27±0.97</td>
<td>83.5</td>
</tr>
<tr>
<td>Proficiency in more than one area of clinical dietetics</td>
<td>4.24±0.80</td>
<td>86.7</td>
</tr>
<tr>
<td>Reimbursement of clinical dietetics services</td>
<td>4.24±1.06</td>
<td>80.9</td>
</tr>
<tr>
<td>Promotion of nutrition services</td>
<td>4.20±0.88</td>
<td>82.8</td>
</tr>
<tr>
<td>Improved time management</td>
<td>4.11±0.88</td>
<td>79.4</td>
</tr>
<tr>
<td>Ability to change diet orders</td>
<td>4.07±1.00</td>
<td>77.2</td>
</tr>
<tr>
<td>Evaluation of current practice effectiveness</td>
<td>4.05±0.81</td>
<td>77.6</td>
</tr>
<tr>
<td>Active involvement with legislative issues</td>
<td>3.77±1.07</td>
<td>64.4</td>
</tr>
<tr>
<td>Physical assessment skills</td>
<td>3.76±0.97</td>
<td>63.7</td>
</tr>
<tr>
<td>Outcome research data</td>
<td>3.69±1.13</td>
<td>60.9</td>
</tr>
<tr>
<td>Advanced certification</td>
<td>3.61±1.12</td>
<td>56.4</td>
</tr>
<tr>
<td>Business/entrepreneurial/management approach to clinical</td>
<td>3.53±1.01</td>
<td>55.5</td>
</tr>
<tr>
<td>dietetics</td>
<td>3.49±1.14</td>
<td>48.5</td>
</tr>
<tr>
<td>Expanded market for clinical dietitians</td>
<td>3.49±1.06</td>
<td>52.8</td>
</tr>
<tr>
<td>Specialization of clinical dietetics</td>
<td>3.36±1.12</td>
<td>46.8</td>
</tr>
</tbody>
</table>

\textsuperscript{a} Numbers of respondents vary from 331 to 339 due to missing data.
\textsuperscript{b} Scores ranged with two anchors: 1=Not important and 5=Very important.
Table 3
Importance ratings of items regarding didactic education subject for improved or expanded clinical dietetics practice (N=336–339⁷)

<table>
<thead>
<tr>
<th>Items</th>
<th>Mean±SD</th>
<th>% rated 4 or 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computer skills</td>
<td>4.33±0.77</td>
<td>87.8</td>
</tr>
<tr>
<td>Enteral/parenteral nutrition</td>
<td>4.11±0.94</td>
<td>78.0</td>
</tr>
<tr>
<td>Presentation skills</td>
<td>4.07±0.90</td>
<td>76.6</td>
</tr>
<tr>
<td>Evaluation of cost-effectiveness</td>
<td>4.03±0.86</td>
<td>77.5</td>
</tr>
<tr>
<td>Awareness of the psychological and behavioral characteristics of patients</td>
<td>3.99±0.94</td>
<td>74.1</td>
</tr>
<tr>
<td>Standardized language for outcome documentation that best describes clinical dietitians’ assessment, intervention, and outcome</td>
<td>3.99±0.94</td>
<td>72.6</td>
</tr>
<tr>
<td>Geriatrics</td>
<td>3.96±0.97</td>
<td>74.2</td>
</tr>
<tr>
<td>Physical assessment skills</td>
<td>3.93±0.98</td>
<td>72.7</td>
</tr>
<tr>
<td>Specialty training</td>
<td>3.81±1.03</td>
<td>66.5</td>
</tr>
<tr>
<td>Time management</td>
<td>3.76±1.03</td>
<td>67.6</td>
</tr>
<tr>
<td>Ethics</td>
<td>3.73±0.98</td>
<td>61.6</td>
</tr>
<tr>
<td>Research methods for outcome evaluation</td>
<td>3.58±1.15</td>
<td>56.9</td>
</tr>
<tr>
<td>Marketing</td>
<td>3.47±1.02</td>
<td>52.1</td>
</tr>
<tr>
<td>Human resource management</td>
<td>3.28±1.10</td>
<td>41.7</td>
</tr>
<tr>
<td>Statistics</td>
<td>3.17±1.02</td>
<td>37.3</td>
</tr>
<tr>
<td>Accounting/budgeting</td>
<td>3.15±1.12</td>
<td>40.5</td>
</tr>
<tr>
<td>Economics</td>
<td>2.92±1.07</td>
<td>31.0</td>
</tr>
</tbody>
</table>

⁷ Numbers of respondents vary from 336 to 339, depending on items due to missing data except specialty training (n=185).

b Scores ranged with two anchors: 1=Not important and 5=Very important.
Table 4
Importance ratings of items of preprofessional preparation for future dietetics practitioners
(N=323-339\textsuperscript{a})

<table>
<thead>
<tr>
<th>Items</th>
<th>Mean±SD\textsuperscript{b}</th>
<th>% rated 4 or 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>More practicum experience in clinical nutrition services</td>
<td>4.25±0.74</td>
<td>85.5</td>
</tr>
<tr>
<td>Training with other health team members</td>
<td>4.21±0.74</td>
<td>84.0</td>
</tr>
<tr>
<td>Learning to be more flexible in job situations</td>
<td>4.10±0.92</td>
<td>78.2</td>
</tr>
<tr>
<td>Length of internship</td>
<td>3.87±0.98</td>
<td>65.9</td>
</tr>
<tr>
<td>More training on clinical pathways</td>
<td>3.60±0.88</td>
<td>59.0</td>
</tr>
<tr>
<td>More training in a specialized area</td>
<td>3.53±0.94</td>
<td>49.0</td>
</tr>
<tr>
<td>More involvement with legislative issues</td>
<td>3.30±0.95</td>
<td>42.4</td>
</tr>
<tr>
<td>Less clinical emphasis</td>
<td>2.23±0.96</td>
<td>8.3</td>
</tr>
</tbody>
</table>

\textsuperscript{a} Numbers of respondents vary from 323 to 339, depending on items due to missing data except specialty training (n=185).

\textsuperscript{b} Scores ranged with two anchors: 1=Not important and 5=Very important.
Table 5
Comparison of perceptions on improvement of dietetics practices and educational preprofessional preparation between clinical dietitian groups with and without management responsibilities

<table>
<thead>
<tr>
<th>Items</th>
<th>With management $(n = 67^a)$</th>
<th>Without management $(n = 275^b)$</th>
<th>P&lt;sup&gt;c&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improvement of clinical dietetics practices</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Active involvement with legislative issues</td>
<td>4.08±0.97</td>
<td>3.70±1.08</td>
<td>.011</td>
</tr>
<tr>
<td>Employee management skills</td>
<td>3.91±1.00</td>
<td>3.23±1.11</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Business/entrepreneurial/management approach to clinical dietetics</td>
<td>3.86±0.88</td>
<td>3.45±1.02</td>
<td>.003</td>
</tr>
<tr>
<td>Expanded market for clinical dietitians</td>
<td>3.67±1.18</td>
<td>3.29±1.18</td>
<td>.028</td>
</tr>
<tr>
<td>Specialization of clinical practice</td>
<td>3.22±1.06</td>
<td>3.56±1.05</td>
<td>.022</td>
</tr>
<tr>
<td>Educational preparation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Evaluation of cost-effectiveness</td>
<td>4.34±0.71</td>
<td>3.96±0.88</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Enteral/parenteral nutrition</td>
<td>3.89±0.95</td>
<td>4.17±0.93</td>
<td>.038</td>
</tr>
<tr>
<td>Human resource management</td>
<td>3.78±1.10</td>
<td>3.15±1.06</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Marketing</td>
<td>3.76±0.98</td>
<td>3.40±1.02</td>
<td>.009</td>
</tr>
<tr>
<td>Awareness of the psychological and behavioral characteristics of patients</td>
<td>3.75±1.08</td>
<td>4.05±0.89</td>
<td>.021</td>
</tr>
<tr>
<td>Accounting/budgeting</td>
<td>3.74±1.05</td>
<td>3.01±1.09</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Preprofessional preparation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Learning to be more flexible in job situations</td>
<td>4.34±0.83</td>
<td>4.04±0.93</td>
<td>.014</td>
</tr>
<tr>
<td>More training in a specialized area</td>
<td>3.22±0.94</td>
<td>3.61±0.92</td>
<td>.002</td>
</tr>
</tbody>
</table>

<sup>a</sup> The actual number of responses per item varies from 63 to 67 due to missing data.
<sup>b</sup> The actual number of responses per item varies from 268 to 275 due to missing data.
<sup>c</sup> Results from t-test. These results were based on 44 t-tests. Therefore, results may contain false positive outcomes, and items with a marginal P value should be interpreted with caution.
Table 6
Significant correlation coefficients between the number of years working as clinical dietitians and items regarding respondents' perceptions

<table>
<thead>
<tr>
<th>Items</th>
<th>n</th>
<th>r</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improvement of clinical dietetics practices</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Proficiency in computer and technology utilization</td>
<td>335</td>
<td>0.181</td>
<td>.043</td>
</tr>
<tr>
<td>Market expansion for clinical dietitians</td>
<td>301</td>
<td>-0.117</td>
<td>.001</td>
</tr>
<tr>
<td>Educational preparation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Computer skills</td>
<td>335</td>
<td>0.221</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Economics</td>
<td>332</td>
<td>0.178</td>
<td>.001</td>
</tr>
<tr>
<td>Accounting and budgeting</td>
<td>335</td>
<td>0.165</td>
<td>.002</td>
</tr>
<tr>
<td>Statistics</td>
<td>334</td>
<td>0.157</td>
<td>.004</td>
</tr>
</tbody>
</table>

*a These results were based on correlation among 36 items. Therefore, results may contain false positive outcomes, and items with a marginal P value should be interpreted with caution.
GENERAL CONCLUSIONS

The purposes of this research were to identify changes in clinical dietetics staffing, activities of clinical dietitians, and department structure due to cost reduction activities; and to assess perceptions of clinical dietitians on improvement of clinical dietetics practice and preparation of future dietitians. To accomplish these purposes, this research was designed using two types of studies: qualitative and quantitative. The qualitative study provided the basis for development of the quantitative questionnaire. The quantitative study assessed changes in clinical dietetics and perceptions of clinical dietitians on various issues.

This dissertation included two articles based on the quantitative study. In the first article — changes in clinical dietetics, results revealed that dietetics department structure, staffing patterns in clinical dietetics, and activities of clinical dietitians were impacted by cost reduction activities in healthcare systems.

More than one-third of respondents reported that full time equivalents (FTEs) of clinical dietitians have declined during the last five years. Clinical dietitians experienced increases in caseloads, high-risk patient interventions and referrals, clinical decision-making (diagnosis) and intervention based on nutrition assessment, and outpatient education. They also reported having limited time for inpatient instruction. Many respondents reported they are now involved to a greater extent with administrative, clerical, and dietetic technicians' duties than they previously had been involved.

Because of the changes in clinical dietitians' activities, it might be expected that there would be an increase in the amount of delegation of their responsibilities to dietetic support staff. However, results showed that only limited delegation took place. Simplified meal preparation processes, including a reduction in number of menu and snack selections, were
used more frequently during the last five years than previously. This may create difficulty in offering a variety of food choices for patients’ nutritional needs. Approximately one-half of respondents indicated they were less satisfied with their jobs, and one-fourth disagreed that downsizing changes have led to improved patient care.

The impact of downsizing activities increased as hospital size (hospital bed counts) increased. When compared with respondents in smaller hospitals, more respondents in larger hospitals reported having experienced downsizing activities and dietetics staff reduction. More specifically, respondents in larger hospitals were involved less with clerical or technicians’ responsibilities and used more simplified meal preparation methods than those in smaller hospitals.

Correlation results indicated that as clinical dietitians are involved with more high-risk patient interventions and nutrition interventions based on nutrition assessment, they perceived greater job satisfaction. In contrast, when they performed dietetics support staff responsibilities, they tended to have a lower job satisfaction.

Results reported in the second article — perceptions of clinical dietitians on improvement of clinical dietetics practice and preparation — revealed many items that clinical dietitians perceived to be important. Collaborating with other healthcare professionals was rated as the most important item for improvement of the dietetics practice by over 90% of respondents. For educational preparation, training with other healthcare professionals was rated as important by over 80% of respondents. These results may imply that as changes in dietetics occur, clinical dietitians need to be more involved as medical team members.
Proficiency in using computers and the need for enhanced computer education were rated as important by most respondents. This may mean that computer use has become more common in clinical dietetics, and respondents may see an enhancement of their practices with the use of computers.

Being proficient in more than one area of clinical dietetics also was perceived to be important, implying that many clinical dietitians are likely to perform nutrition intervention in more than one area of clinical dietetics. Also, it may mean that clinical dietitians are forced to extend their practices to other areas as FTEs decrease.

Although passage of medical nutrition therapy (MNT) legislation and reimbursement for clinical dietetics services were rated as important, evaluation of cost-effectiveness and outcomes were not perceived to be as important as other items for improving the practice. In addition, learning about evaluating cost-effectiveness of nutrition intervention during the preparation for dietetics practice was not rated as important as some other topics. Considering that cost-effectiveness of nutrition intervention has been emphasized for demonstrating the value of MNT, the respondents did not seem to appreciate the importance of cost-effectiveness. The need for demonstration of the cost-effectiveness of MNT may require greater emphasis by the ADA and dietetics educators to increase the awareness of clinical dietitians.

For topics related to the improvement of education for future clinical dietitians, a wider scope of practice was recommended. In general, management, marketing, and accounting and budgeting; which are nontraditional responsibilities of clinical dietitians; were perceived to be moderately important. Clinical dietitians with management
responsibilities perceived these nontraditional responsibilities to be more important than clinical dietitians without management responsibilities.

For preprofessional preparation, most respondents rated more hands-on practicum experiences to be important, yet fewer respondents rated the length of internship as important. Although the largest group of respondents indicated that 12 months is a desirable length for an internship, there was a sizable variation in the perception of what is a desirable internship length.

Increased involvement in legislative issues in educational and preprofessional preparation was rated with moderate importance, although the passage of MNT legislation was rated as important. These results may imply that respondents perceived involvement in legislative issues should occur after they start their practice rather than during the preparation period.

Standardized language to describe clinical dietitians' assessment, intervention, and outcome was rated as important among topics related to didactic education subjects. A standardized language becomes a basis for consistent documentation and for automation (i.e., use of computer) of clinical nutrition documentation. When computers were used, physicians were more likely to follow clinical dietitians' recommendations than when they were not used.

Learning to be flexible was perceived to be an important part of preprofessional preparation. This may be due to clinical dietitians being given variable work hours and nontraditional assignments, such as blood pressure and glucose monitoring. Clinical dietitians, especially those who have management responsibilities, regarded flexibility as an important quality in a changing job environment.
Several limitations were found in this research. First, the sample for the study was taken from a specific geographical area. Therefore, results obtained from this study may not be generalizable to other geographic regions within or outside the U.S. Second, only clinical dietitians and clinical managers working in acute care hospitals participated in the quantitative survey, so results may not be generalizable to other types of dietetics practices.

Third, the quantitative questionnaire was based on recommendations of only 16 dietetics experts. Thus, the questionnaire does not encompass all possible issues related to the improvement of clinical dietetics practice and/or educational and preprofessional preparation.

Finally, the questionnaire was long; it included over 100 items. Respondents may have become fatigued while completing the latter portion of the questionnaire, and this may have led to some inaccurate responses.

Additional studies on clinical dietetics staff in other regions of the U.S. should be conducted to assess the impact of downsizing activities. Further research is recommended with other types of healthcare organizations (e.g., long-term care facilities) as well as dietitians in other job settings (e.g., community, consultant, and administrative dietitians) to evaluate differences in perceptions regarding preparation and improvement for dietetics practice.

Further, each of the topics in this study — changes in clinical dietetics, improvement of clinical dietetics practice, didactic education preparation, and preprofessional preparation for future clinical dietitians — should become the focus of an assessment instrument to obtain a more inclusive picture of the topic. A shorter, more focused questionnaire would
provide more detailed information and reduce the fatigue factor, thereby increasing the accuracy of responses.
APPENDIX A

HUMAN SUBJECTS REVIEW COMMITTEE APPROVAL
Information for Review of Research Involving Human Subjects
Iowa State University
(Please type and use the attached instructions for completing this form)

1. Title of Project: Changes in clinical dietetics in Iowa: Impacts of cost reduction in healthcare systems.

2. I agree to provide the proper surveillance of this project to insure that the rights and welfare of the human subjects are protected. I will report any adverse reactions to the committee. Additions to or changes in research procedures after the project has been approved will be submitted to the committee for review. I agree to request renewal of approval for any project continuing more than one year.

Junhee Kwon, MS
Typed name of principal investigator
Mar 5, 1998
Date
Signature of principal investigator

Hotel, Restaurant, and Institution Management
Department
11 MacKay Hall
Campus address
294-1730 (Departmental Office)
Phone number to report results

3. Signatures of other investigators

Date
Relationship to principal investigator

Mar. 5, 1998 Co-Major Professor
Mar. 5, 1998 Co-Major Professor

4. Principal investigator(s) (check all that apply)

Faculty
Staff
Graduate student
Undergraduate student

5. Project (check all that apply)

Research
Thesis or dissertation
Class project
Independent Study (490, 590, Honors project)

6. Number of subjects (complete all that apply)

1016 # adults, non-students
# ISU students
# minors under 14
other (explain)
# minors 14 - 17

7. Brief description of proposed research involving human subjects: (See instructions, item 7. Use an additional page if needed.)

The research project will include two parts: qualitative and quantitative. In the qualitative stage (Stage I), 16 experts in the dietetics' profession from 8 states (IA, MI, MN, MO, NE, ND, SD, and WI) will be asked to complete an open ended questionnaire about current changes in clinical dietetics and other related questions. Subjects will be contacted by phone calls prior to data collection to give their consent to participate. When subjects agree to participate in the study, the questionnaire will be sent. Audio-tape recorded, follow-up interviews will be conducted with selected subjects. Confidentiality of subjects and their responses will be guaranteed. The analysis of qualitative data transcripts from these interviews will be used to generate the quantitative questionnaire for Stage II.

In Stage II, 1000 clinical dietitians from eight states will be asked to complete a relatively short questionnaire. A cover letter will accompany the questionnaire explaining the study and the confidentiality of responses. Participation will be on a voluntary-basis.

The sampling method for Stage I is a convenience sampling method. Clinical dietetic directors who are working in large hospitals and are willing to participate in the study will be selected. For the Stage II, subjects are all clinical dietitians working in Iowa and randomly selected clinical dietitians from the other seven states.

The open-ended questionnaire to be used for Stage I is enclosed. The questionnaire for Stage II will be submitted after completing of Stage I.
8. Informed Consent: ☐ Signed informed consent will be obtained. (Attach a copy of your form.)
☐ Modified informed consent will be obtained: by phone calls for Stage I and cover letter for Stage II
☐ Not applicable to this project.

9. Confidentiality of Data: Describe below the methods you will use to ensure the confidentiality of data obtained. (See instructions, item 9.)
   In Stage I, each data collection instrument will be identified by name of the person being interviewed due to the nature of the data collection process. However, the data will be reported in summarized form. Individual data will not be reported with identification of subjects.
   In Stage II, code numbers will be used as personal identifiers for follow-up purposes only. Also, only summarized data will be reported in any publication.

10. What risks or discomfort will be part of the study? Will subjects in the research be placed at risk or incur discomfort? Describe any risks to the subjects and precautions that will be taken to minimize them. (The concept of risk goes beyond physical risk and includes risks to subjects' dignity and self-respect as well as psychological or emotional risk. See instructions, item 10.)
   There will be very little discomfort or risk to the subjects. To minimize any possible discomfort, an agreement prior to the Stage I data collection will be made with understanding that subjects can withdraw from the study at any time. In the Stage II, participation is voluntary after they read the cover letter explaining the study. If the subject completes the survey, it will be assumed they feel comfortable participating.

11. CHECK ALL of the following that apply to your research: None of the following applies
   ☐ A. Medical clearance necessary before subjects can participate
   ☐ B. Administration of substances (foods, drugs, etc.) to subjects
   ☐ C. Physical exercise or conditioning for subjects
   ☐ D. Samples (blood, tissue, etc.) from subjects
   ☐ E. Administration of infectious agents or recombinant DNA
   ☐ F. Deception of subjects
   ☐ G. Subjects under 14 years of age and/or ☐ Subjects 14 - 17 years of age
   ☐ H. Subjects in institutions (nursing homes, prisons, etc.)
   ☐ I. Research must be approved by another institution or agency (Attach letters of approval)

   If you checked any of the items in 11, please complete the following in the space below (include any attachments):

   Items A–E Describe the procedures and note the proposed safety precautions.

   Items D–E The principal investigator should send a copy of this form to Environmental Health and Safety, 118 Agronomy Lab for review.

   Item F Describe how subjects will be deceived; justify the deception; indicate the debriefing procedure, including the timing and information to be presented to subjects.

   Item G For subjects under the age of 14, indicate how informed consent will be obtained from parents or legally authorized representatives as well as from subjects.

   Items H–I Specify the agency or institution that must approve the project. If subjects in any outside agency or institution are involved, approval must be obtained prior to beginning the research, and the letter of approval should be filed.
Checklist for Attachments and Time Schedule

The following are attached (please check):

12. V Letter or written statement to subjects indicating clearly:
   a) the purpose of the research
   b) the use of any identifier codes (names, #'s), how they will be used, and when they will be removed (see item 17)
   c) an estimate of time needed for participation in the research
   d) if applicable, the location of the research activity
   e) how you will ensure confidentiality
   f) in a longitudinal study, when and how you will contact subjects later
   g) that participation is voluntary; nonparticipation will not affect evaluations of the subject

13. ■ Signed consent form (if applicable)

14. ■ Letter of approval for research from cooperating organizations or institutions (if applicable)

15. V Data-gathering instruments

16. Anticipated dates for contact with subjects:
   First contact 3/15/1998
   Last contact 12/31/1998

17. If applicable: anticipated date that identifiers will be removed from completed survey instruments and/or audio or visual tapes will be erased:

18. Signature of Departmental Executive Officer Nancy E. Bruns (Doe) 3/19/98
Department or Administrative Unit Hotel, Restaurant, and Institution Management Food Science and Human Nutrition

19. Decision of the University Human Subjects Review Committee:
   ■ Project approved   ■ Project not approved   ■ No action required
   X Project approved with the understanding the Stage II questionnaire will be submitted when it is completed.

   Patricia M. Keith 3/19/98
   Name of Committee Chairperson Signature of Committee Chairperson
APPENDIX B

LETTERS AND INSTRUMENT USED IN QUALITATIVE STUDY
March 23, 1998

Resource Person
Address

Dear Resource Person:

We are currently conducting research related to changes in clinical dietetics: impacts of cost reduction in healthcare systems. This research project is for Junehee Kwon's PhD dissertation at Iowa State University and is partially funded by the Iowa Dietetic Association.

The study includes two stages. In Stage I of the study, we need to identify two clinical dietetic directors or managers in each Area 2 state who can provide qualitative data for our research. Drs. Gilmore and Oakland have recommended that you as a resource person who may be willing to provide names, phone numbers, and addresses of three-to-four dietetic experts in your state.

The experts will be asked to fill out an open-ended questionnaires regarding (1) job changes in clinical dietetics due to cost reduction activities such as downsizing and restructuring, and (2) a vision for dietetics. After collecting data, some experts will be asked to participate in interviews, provide further clarification, and answer additional questions.

The information provided by dietetic experts will be used to generate a survey instrument to be used in Stage II. Randomly selected clinical dietitians from Area 2 states will be asked to complete the survey instrument.

Junehee will be calling you in four-to-seven days for your three-to-four recommendations as to who would be helpful for this research. Your corporation is greatly appreciated.

Sincerely,

Junehee Kwon, MS
Graduate Student
Depts. of HRIM & FSHN

Shirley A. Gilmore, PhD, RD, LD
Associate Professor
Department of HRIM

Mary J. Oakland, PhD, RD, LD
Associate Professor
Department of FSHN
My name is Junehee Kwon, a graduate student at Iowa State University. You should have received a letter from Drs. Gilmore and Oakland and me asking you to identify 3-4 dietetic experts.

Would you be willing to give some information about these dietetic experts who can provide in-depth, qualitative data on what are changes in clinical dietetics and on visions for clinical dietetics?

Name: ___________________ Current position: __________________________
Address: _________________________________________________________
______________________________________________________________
Phone numbers: ___________________________________________________

Name: ___________________ Current position: __________________________
Address: _________________________________________________________
______________________________________________________________
Phone numbers: ___________________________________________________

Name: ___________________ Current position: __________________________
Address: _________________________________________________________
______________________________________________________________
Phone numbers: ___________________________________________________

Name: ___________________ Current position: __________________________
Address: _________________________________________________________
______________________________________________________________
Phone numbers: ___________________________________________________

May I tell them that you referred them?
Yes / No
Thank you very much for your corporation.
May 15, 1998

Clinical Dietetic Expert
Address

Dear Clinical Dietetic Expert:

We are currently conducting research related to recent changes in clinical dietetics including impacts of cost reduction in healthcare systems. This research study by Junehee Kwon, a doctoral candidate in the Department of Hotel, Restaurant, and Institution Management and Food Science and Human Nutrition at Iowa State University is partially funded by the Iowa Dietetic Association.

The study includes two stages. In Stage I of the study, experts in clinical dietetics from ADA Area 2 states will provide qualitative data on the current trends and the future of the dietetic profession. In the process of identifying experts, Dr. Jan Goodwin referred you as a dietetic expert from North Dakota who may be willing to contribute to this study.

You will be asked to complete an open-ended questionnaire regarding (1) job changes in clinical dietetics due to cost reduction activities such as downsizing and restructuring, and (2) a vision for clinical dietetics. After collecting data, you may be asked to participate in interviews to check our perceptions of the responses from the expert panel.

Total time for completing the questionnaire will be approximately 30 minutes. If you are asked to be interviewed, it will also take about 30 minutes. The interview questions will be sent prior to the interview so that time can be used more efficiently.

The data will be used for developing a survey instrument for Stage II. Registered dietitians in Area 2 who are currently working as clinical dietitians in healthcare systems will be asked to complete the questionnaire.

Confidentiality of data is guaranteed. You may withdraw from participation at any time. However, your continuous participation is very important for the study and possibly for the future of the dietetic profession.

Junehee will be calling you in four-to-seven days to confirm your participation. If you agree to participate, a set of questions will be mailed to you. Your participation will be greatly appreciated.

Sincerely,

Junehee Kwon, MS
Graduate Student
Depts. of HRIM & FSHN

Shirley A. Gilmore, PhD, RD, LD
Associate Professor
Department of HRIM

Mary J. Oakland, PhD, RD, LD
Associate Professor
Department of FSHN
July 14, 1998

Clinical Dietetic Experts
Address

Dear Clinical Dietetic Expert:

Thank you for agreeing to participate in the research study: *Changes in clinical dietetics: Impacts of cost reduction in healthcare systems*. Your participation is very important to us. Please complete the enclosed open-ended questionnaire and return it in the stamped, self-addressed envelope included in this packet.

Please provide as thorough answers as you can. There is no limitation on what and how much information to include. If more space is needed, use the back of the questionnaire. Please return the completed questionnaire by July 31, 1998.

As we explained in the last letter, the data will be used for developing a survey instrument (questionnaire) for use in the next stage of this research project. The questionnaire will be mailed to registered clinical dietitians who are currently working in healthcare systems.

We will contact you by phone if we have further questions or need further clarification on any data you have provided. At that time, we will set a convenient time for a 30-minute interview.

Thank you again for your participation. If you have any questions or concerns, please contact us. We will look forward to seeing your responses.

Sincerely,

Junehee Kwon, MS
Graduate Student
Depts. of HRIM & FSHN
Phone: 515-232-1875
Fax: 515-294-8551
email: jkwon@iastate.edu

Shirley A. Gilmore, PhD, RD, LD
Associate Professor
Department of HRIM
Phone: 515-294-9740
Fax: 515-294-8551
email: sgilmore@iastate.edu

Mary J. Oakland, PhD, RD, LD
Associate Professor
Department of FSHN
Phone: 515-294-2536
Fax: 515-294-6193
email: moakland@iastate.edu
Questionnaire

1. What are the changes in clinical dietitians' jobs due to cost reduction activities, such as downsizing and restructuring in hospitals that you have observed or heard about?

2. Regarding question number 1, how do you think those changes occur?

3-a. What are the changes, due to cost reduction activities, in dietetic support staff (such as dietetic technicians, dietetic clerks or secretaries, kitchen staff, and/or middle management)?

3-b. What is the impact of these support staff job changes on the clinical dietitians' jobs?
4. How can the clinical registered dietitians increase their professional level of the dietetic practice in the changing healthcare system? Please, be specific.

5. What changes in educational and/or experience (e.g., internship) preparation are needed so that clinical dietitians will perform these roles (described in question 4) successfully?

Thank you very much for your participation.
APPENDIX C

LETTERS AND INSTRUMENT USED IN QUANTITATIVE STUDY
March 17, 1999

Dear Clinical Dietitian:

We are conducting a research study: Changes in Clinical Dietetics: Impact of Cost Reduction in Healthcare Systems. The objectives of this study are to: (1) identify clinical dietitians' job changes due to downsizing and restructuring in hospitals, (2) assess clinical dietitians' perceptions on the future of dietetics and how to improve the professional level of practice, and (3) assess clinical dietitians' perceptions on how to prepare for the improved/expanded practice.

Participation is voluntary. However, your participation is very important for identifying current changes in clinical dietetics and needs for the future. The questionnaire will take approximately 15-20 minutes to complete.

The confidentiality of your response is guaranteed. The code number is for follow-up purposes, and results will be reported only in summarized form. We appreciate your participation in advance. If you have any questions regarding this questionnaire, please do not hesitate to contact us. After completing the questionnaire, fold as directed, and return by March 31, 1999.

Sincerely,

Junhee Kwon, MS
Graduate Student
Depts. of HRIM & FSHN

Shirley A. Gilmore, PhD, RD, LD
Associate Professor
Department of HRIM

Mary Jane Oakland, PhD, RD, LD
Associate Professor
Department of FSHN

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SECTION I. DEMOGRAPHIC DATA

This section is designed to obtain demographic information about you. Please respond to each question by checking the statement that best applies to you or fill in the blanks.

1. Please indicate the size of the community where your hospital is located.
   _______ Large metropolitan (> 1 million)       _______ Suburban (2,500 - 50,000)
   _______ Medium metropolitan (500,000 - 1 million) _______ Rural (< 2,500)
   _______ Small metropolitan (50,000 - 500,000)

2. How do you best describe the hospital that you are working for currently?
   _______ Community hospital         _______ Part of large healthcare system
   _______ Teaching hospital          _______ Regional hospital
   _______ Other: Please specify. ________________________
3. What is the size of your hospital?

- Less than 50 beds
- 51-100 beds
- 101-200 beds
- 201-300 beds
- 301-400 beds
- 401-500 beds
- More than 501 beds

4. How many clinical dietitians do you have in your hospital? _____ Full-time (FT) _____ Part-time (PT)

5. How many clinical dietetic managers do you have in your hospital? _____ FT _____ PT

6. Please indicate numbers of support staff:

- Dietetic Technician _____ FT _____ PT
- Dietetic Clerk _____ FT _____ PT

7. Has your hospital experienced downsizing in the last 5 years? _____ Yes _____ No

Has your hospital experienced downsizing prior to the last 5 years? _____ Yes _____ No  Specify when:

Please explain how it has affected the food & nutrition services department:

8. What is your specialty area of practice, if any?

9. How long have you worked as a clinical dietitian? _____ years _____ months

10. How long have you worked as a clinical dietitian in the current hospital? _____ years _____ months

11. What is your highest level of education attained?

- Bachelor's degree
- Master's degree
- PhD degree

Some graduate school toward master's
Some graduate school toward doctorate

12. How would you classify your current position? Check all that apply.

- Clinical dietitian
- Administrative dietitian
- Outpatient dietitian
- Clinical manager
- Consultant dietitian

SECTION II. CHANGES IN CLINICAL DIETETICS

A. Please indicate staffing changes in your department due to cost reduction during the last five years. Indicate each change by circling the appropriate number using the following categories:

1 = Increase (I)  2 = Decrease (D)  3 = No change (NC)  NA = Not applicable

<table>
<thead>
<tr>
<th>I</th>
<th>D</th>
<th>NC</th>
<th>NA</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>NA</td>
<td>1. Registered clinical dietitian full time equivalents (FTEs)</td>
</tr>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>NA</td>
<td>2. Dietetic technicians FTEs</td>
</tr>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>NA</td>
<td>3. Clinical managers FTEs</td>
</tr>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>NA</td>
<td>4. Dietetic clerk FTEs</td>
</tr>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>NA</td>
<td>5. Kitchen staff FTEs</td>
</tr>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>NA</td>
<td>6. Part time clinical dietitians' positions</td>
</tr>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>NA</td>
<td>7. On-call based coverage during evenings and weekends</td>
</tr>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>NA</td>
<td>8. Other: Please specify.</td>
</tr>
</tbody>
</table>
B. How much do you agree/disagree with the following statements regarding clinical dietitians' activity changes in your hospital? Indicate your response by circling the appropriate number using the following scale:

1 = Strongly disagree (SD)  2 = Disagree (D)  3 = Neutral (N)  4 = Agree (A)  5 = Strongly agree (SA)  NA = Not applicable

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th>Registered clinical dietitians</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>NA 1. have increased patient caseload.</td>
</tr>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>NA 2. are more involved with high-risk patient interventions.</td>
</tr>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>NA 3. have limited time for inpatient instructions.</td>
</tr>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>NA 4. perform more outpatient education.</td>
</tr>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>NA 5. perform dietetic technicians' duties because of reduced dietetic staff in the department.</td>
</tr>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>NA 6. are involved with more administrative duties.</td>
</tr>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>NA 7. are involved with less community service and outreach programs.</td>
</tr>
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<td>1</td>
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<td>5</td>
<td>NA 8. have new demands for their services due to expansion of hospital services.</td>
</tr>
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<td>1</td>
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<td>5</td>
<td>NA 9. perform more clerical duties.</td>
</tr>
<tr>
<td>1</td>
<td>2</td>
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<td>5</td>
<td>NA 10. perform more managerial duties in food production.</td>
</tr>
<tr>
<td>1</td>
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<td>5</td>
<td>NA 11. receive more high-risk patient referrals from other healthcare professionals.</td>
</tr>
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<td>5</td>
<td>NA 12. work in more than one facility to maintain full-time status.</td>
</tr>
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<td>5</td>
<td>NA 13. use more nutrition diagnosis (clinical decision making) in assessment.</td>
</tr>
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<td>5</td>
<td>NA 14. identify more nutrition interventions based on nutrition assessment results.</td>
</tr>
<tr>
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<td>5</td>
<td>NA 15. assess more practice outcomes of nutrition interventions.</td>
</tr>
<tr>
<td>1</td>
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<td>4</td>
<td>5</td>
<td>NA 16. are expected to perform more duties of other healthcare professionals.</td>
</tr>
</tbody>
</table>

If you strongly agree or agree with number 16, please specify who those professionals are.

C. To what extent have the following changes occurred during the last five years in your hospital? Indicate your response by circling the appropriate number using the following scale:

1 = Never (N)  2 = Seldom (S)  3 = Sometimes (ST)  4 = Frequently (F)  5 = Always (A)  NA = Not applicable

<table>
<thead>
<tr>
<th></th>
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<th>Clinical dietitians' duties have been delegated to</th>
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<tbody>
<tr>
<td>1</td>
<td>2</td>
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<td>4</td>
<td>5</td>
<td>NA a. dietetic students.</td>
</tr>
<tr>
<td>1</td>
<td>2</td>
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<td>4</td>
<td>5</td>
<td>NA b. dietetic technicians.</td>
</tr>
<tr>
<td>1</td>
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<td>5</td>
<td>NA c. dietetic clerks.</td>
</tr>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>NA d. foodservice supervisors or certified dietary manager.</td>
</tr>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>NA e. nursing staff.</td>
</tr>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>NA 2. Initial nutrition screening is done by nursing staff.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
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<th>Nutrition support is done by</th>
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<tbody>
<tr>
<td>1</td>
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<td>5</td>
<td>NA a. physicians.</td>
</tr>
<tr>
<td>1</td>
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<td>4</td>
<td>5</td>
<td>NA b. nursing staff.</td>
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<td>1</td>
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<td>NA c. clinical dietitians.</td>
</tr>
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<td>NA d. pharmacist.</td>
</tr>
<tr>
<td>1</td>
<td>2</td>
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<td>4</td>
<td>5</td>
<td>NA 4. Nutrition counseling/education is done by other healthcare professionals.</td>
</tr>
</tbody>
</table>

If this was done, please specify who those healthcare professionals are.
D. How much do you agree/disagree with the following statements about clinical dietetic changes during the last five years in your hospital? Indicate your response by circling the appropriate number using the following scale:

1 = Strongly disagree (SD)  
2 = Disagree (D)  
3 = Neutral (N)  
4 = Agree (A)  
5 = Strongly agree (SA)  
NA = Not applicable

<table>
<thead>
<tr>
<th>SD</th>
<th>D</th>
<th>N</th>
<th>A</th>
<th>SA</th>
<th>NA</th>
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<tbody>
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<td>1</td>
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<td>NA</td>
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<td>NA</td>
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<td>NA</td>
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</table>

1. Clinical dietitians' FTEs have moved to other cost centers to reduce departmental expenses.
2. Clinical dietitians are seeking outside consulting contracts to increase revenue.
3. Dietetic clerks or technicians are trained to perform expanded duties such as kitchen supervisor duties.
4. Clinical nutrition services and foodservice department have become different cost centers.
5. Clinical dietitians report to nursing administration.
6. Clinical dietitians report to medical practice centers (e.g., oncology, renal, pediatrics).
7. Office automation (e.g., utilization of computers) has increased.
8. More convenience/prepared foods are used due to reduced labor (e.g., prewashed and/or preportioned food items).
9. Menu cycles have become shorter.
10. Patients have fewer menu selections.
11. Patients have fewer snack selections.
12. Changes in clinical practice have improved the level of nutritional care for patients.
13. I am more satisfied with my job because of job changes during the last five years.
14. Please describe other changes that have occurred prior to the last five years.

SECTION III. IMPROVING CLINICAL DIETETIC PRACTICES

How important are the following items for improvement of your current practice? Rate the degree of importance for each item by circling the appropriate number with:

1 = Not important at all (NI)  
5 = Very important (VI)

<table>
<thead>
<tr>
<th>NI</th>
<th>VI</th>
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<tbody>
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</tbody>
</table>

1. Outcome research data
2. Reimbursement of clinical dietetic services
3. Passage of medical nutrition therapy (MNT) legislation
4. Business/entrepreneurial/management approach to clinical dietetics
5. Ability to change diet orders
6. Advanced certifications (e.g., CNSD, CDE)
7. Proficiency in computer/technology utilization
8. Specialization of clinical practice
9. Proficiency in more than one area of clinical dietetics
10. Physical assessment skills
11. Employee management skills
12. Improved time management
13. Evaluation of current practice effectiveness
14. Collaboration with other healthcare professionals
15. Expanded markets for clinical dietitians: e.g., media, marketing companies, and others:
   Please specify.
How important are the following items for improvement of your current practice?

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<tbody>
<tr>
<td>16. Promotion of nutrition services</td>
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<tr>
<td>17. Active involvement with legislative issues</td>
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<tr>
<td>18. Other improvements of professional level of clinical dietetic practice: Please specify.</td>
<td>3</td>
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</table>

SECTION IV. EDUCATIONAL PREPARATION

A. How important is more education on the following topics to improve/expand your current practice? Rate the degree of importance for each item by circling the appropriate number with:

1 = Not important at all (NI) 5 = Very important (VI)

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<tbody>
<tr>
<td>1. Economics</td>
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<tr>
<td>2. Time management</td>
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<td>3. Awareness of the psychological and behavioral characteristics of patients</td>
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<td>4. Ethics</td>
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<tr>
<td>5. Evaluation of cost effectiveness</td>
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<tr>
<td>6. Statistics</td>
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<tr>
<td>7. Marketing</td>
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<td>8. Human resource management</td>
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<tr>
<td>9. Computer skills</td>
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<td>10. Accounting/budgeting</td>
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<td>11. Presentation skills</td>
<td>11</td>
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<tr>
<td>12. Physical assessment skills</td>
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<tr>
<td>13. Research methods for outcome evaluation</td>
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<tr>
<td>14. Standardized language for outcome documentation that best describes clinical dietitians' assessment, intervention, and outcome</td>
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<tr>
<td>15. Geriatrics</td>
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<tr>
<td>16. Enteral/parenteral nutrition</td>
<td>16</td>
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<tr>
<td>17. Specialty training: Please specify.</td>
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</table>

B. How important are the following items for improving educational and experience preparation of future dietetic practitioners? Rate the degree of importance for each item by circling the appropriate number with:

1 = Not important at all (NI) 5 = Very important (VI)

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<tbody>
<tr>
<td>1. Length of internship</td>
<td>1</td>
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<tr>
<td>What should be the length of time for an internship?</td>
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<tr>
<td>2. More practicum experiences in clinical nutrition services.</td>
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<tr>
<td>3. Training with other health team members</td>
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<tr>
<td>4. More training in a specialized area</td>
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<tr>
<td>5. Less clinical emphasis</td>
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<td>6. More training on clinical pathways</td>
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<tr>
<td>7. More involvement with legislative issues</td>
<td>8</td>
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<tr>
<td>8. Learning to be more flexible in job situations (e.g., hours, job assignment)</td>
<td>9</td>
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</tbody>
</table>
Thank you very much for your participation.

Please fold this questionnaire so the address shows, tape (no staple please), and mail.
IOWA STATE UNIVERSITY
OF SCIENCE AND TECHNOLOGY
April 9, 1999

We’re Still Waiting for Your Response!

Dear Clinical Dietitian:

Three weeks ago, a questionnaire *Changes in Clinical Dietetics: Impact of Cost Reduction in Healthcare Systems* was sent to you. If you’ve already completed and returned it to us, thank you. Your participation is very important to understand current changes in clinical dietetics and clinical dietitians’ perceptions on important issues. If you are working as a clinical dietitian or clinical manager in an acute care hospital, please complete the questionnaire and return it as soon as possible. If you need a new copy of questionnaire, please contact me. Thank you very much for your participation.

Sincerely,

Junehee Kwon, MS

email: jkwon@iastate.edu
REFERENCES

ADA urges Congress to expand Medicare coverage for medical nutrition therapy. (1995).
   *Journal of The American Dietetic Association, 95, 974.*

   *Journal of The American Dietetic Association, 81, 555-559.*


*Journal of The American Dietetic Association, 94,* 420-424.


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I thank my committee members, Drs. Mack C. Shelley, Paula McMurray-Schwarz, Janice T. Dana, and Manju B. Reddy, for their support. I also thank Dr. Mary B. Gregoire for her support as the department head and as a mentor.

To my husband, Jim Thompson, I give special thanks for his assistance, support, and numerous hours of editing. I could not have completed this manuscript without his help. To my son, Kyle, I give a big hug and lots of kisses for being a source of joy when I was down.

To my parents, Younwonwng Kwon and Taeboon L. Kwon, I extend my love and appreciation for all the support, especially, during the last two months. I also thank my brother and sisters for their prayers.

To my dearest friends, Dr. Frances Kayona and Tere Masini and to Rev. and Mrs. Kim, I give thanks for their friendship and being there for me when I needed them most. To my friends from Youido-Baptist Church, I extend my gratitude for their prayers, friendship, and unforgettable memories through the web-site, youido.org. To the departmental secretary, Chloris, I express appreciation for her support during my many years in the program. To my editor, Rebecca Shivvers, I give thanks for her immediate and helpful feedback.

I thank the members of the Iowa Dietetic Association for funding this research.

Above all, I give thanks to my Lord, Jesus Christ, for giving me the strength and peace that I needed to complete this long journey.