

5-2002

# Complementary and Alternative Medicines: The Knowledge, Attitudes and Practices of Dietitians in Maine

Jennifer Kristy Lawrance

Follow this and additional works at: <http://digitalcommons.library.umaine.edu/etd>



Part of the [Food Science Commons](#), and the [Human and Clinical Nutrition Commons](#)

---

## Recommended Citation

Lawrance, Jennifer Kristy, "Complementary and Alternative Medicines: The Knowledge, Attitudes and Practices of Dietitians in Maine" (2002). *Electronic Theses and Dissertations*. 89.  
<http://digitalcommons.library.umaine.edu/etd/89>

This Open-Access Thesis is brought to you for free and open access by DigitalCommons@UMaine. It has been accepted for inclusion in Electronic Theses and Dissertations by an authorized administrator of DigitalCommons@UMaine.

**COMPLEMENTARY AND ALTERNATIVE MEDICINES: THE KNOWLEDGE,  
ATTITUDES AND PRACTICES OF DIETITIANS IN MAINE**

By

Jennifer Kirsty Lawrance

B.Sc. University of Saskatchewan, 2000

A THESIS

Submitted in Partial Fulfillment of the

Requirements for the Degree of

Master of Science

(in Food Science and Human Nutrition)

The Graduate School

The University of Maine

May, 2002

**Advisory Committee:**

Dorothy Klimis-Zacas, Associate Professor of Clinical Nutrition, Advisor

Phil Pratt, Associate Director of Institutional Studies

Adrienne A. White, Associate Professor of Human Nutrition & Foods

© 2002 Jennifer Lawrance  
All Rights Reserved

# **COMPLEMENTARY AND ALTERNATIVE MEDICINES: THE KNOWLEDGE, ATTITUDES AND PRACTICES OF DIETITIANS IN MAINE**

**By Jennifer Kirsty Lawrance**

**Thesis Advisor: Dr. Dorothy Klimis-Zacas**

**An Abstract of the Thesis Presented  
in Partial Fulfillment of the Requirements for the  
Degree of Master of Science  
(in Food Science and Human Nutrition)  
May, 2002**

Consumer interest in complementary/alternative medicines (CAM) has increased substantially in the past thirty years. This is due to the growing knowledge of the link between diet and disease, as well as the cost and accessibility of health care. Despite substantial advances in the medical treatment of disease, many people seek patient-directed, nonprescription approaches to prevent and treat disease. In fact, it has been estimated that consumers spend over \$13 billion each year on CAM. More people are taking ownership of their own health, and have thus turned to nonprescription measures for the prevention and treatment of disease.

For the purpose of this research, CAM was defined as treatments and approaches to health outside the scope of traditional Western medicine, used in the prevention or treatment of disease. Three facets of CAM were studied, including nutrient supplements, functional foods and herbal products. Nutrient supplements were defined as nutrients taken to supplement the diet for the purpose of preventing or treating disease; functional foods as foods which provide a physiologic benefit in addition to its nutrient content and which may prevent or treat disease; and herbal products as products made from a plant with leaves, seeds, flowers or roots and used for preventing or treating disease, not as a seasoning.

Surveys were mailed to all dietitians and diet technicians (n=412) on the Maine Dietetic Association mailing list by a modified Dillman method. This involved a letter of intent, followed by the survey package, a reminder postcard, and a replacement survey package to non-responders. The rate of response to the survey was 63%. This high response rate to the survey is indicative of great interest in this topic.

This is one of the first published surveys regarding the knowledge, attitudes and practices of dietetics professionals about complementary and alternative medicine. The high response rate is indicative of great interest in CAM. Dietetic professionals in Maine are most confident in and satisfied with their knowledge of nutrient supplements and functional foods. They are much less confident in and satisfied with their knowledge of herbal products. Respondents believe in the safety and effectiveness of nutrient supplements and functional foods, but not herbal products. Dietetics professionals in Maine have partly incorporated CAM into their regular practice. Respondents do intend to integrate CAM into their future practice and provide CAM recommendations to clients. Dietetic professionals in Maine identified great interest in and a need for future training in CAM.

The results of this survey may aid the American Dietetic Association in the development of continuing education training requirements regarding complementary and alternative medicine, as well as undergraduate educational requirements to become a registered dietitian. It may also help educational institutions modify their programs to better prepare students to educate consumers and provide CAM counselling. The results will help the ADA determine interest in continuing education for conferences, workshops and educational materials.

## **DEDICATION**

This is dedicated to Jamie, Mom and Dad, and Keith and Rob, for their support and encouragement.

## **ACKNOWLEDGEMENTS**

This would not have been possible without all the respondents who took the time to fill out the survey. Thank you to all the graduates students and faculty in the Department of Food Science and Human Nutrition for their editing advice. Special thanks to Leslie Bouchard, Matt L'Italien and Pat Stoddard for all their help along the way. The insight, knowledge and advice of the committee, Dorothy Klimis-Zacas, Phil Pratt and Adrienne White made the process easier and the final product higher quality. Special thanks to Dr. Klimis-Zacas, my faculty advisor, for her time, patience and support.

## TABLE OF CONTENTS

DEDICATION.....	iii
ACKNOWLEDGEMENTS.....	iv
LIST OF TABLES.....	vii
LIST OF FIGURES.....	ix
Chapter 1 INTRODUCTION.....	1
Chapter 2 LITERATURE REVIEW.....	3
2.1 Complementary/Alternative Medicines.....	3
2.2 Components of Complementary/Alternative Medicines.....	7
2.3 Dietitians and CAM.....	10
2.4 Knowledge, Attitudes and Practices.....	11
2.5 Summary.....	12
Chapter 3 METHODS AND MATERIALS.....	14
3.1 Survey Instrument.....	14
3.2 Survey Mail-out.....	15
3.3 Data Collection.....	16
3.4 Data Analysis.....	16
Chapter 4 RESULTS.....	17
4.1 Demographic and Professional Data.....	17
4.2 Knowledge.....	21
4.3 Attitudes About CAM.....	24
4.4 Practices.....	29
4.5 Training Needs and Interests.....	32



Chapter 5 DISCUSSION.....	35
5.1 Overall Results.....	35
5.2 Survey Mail-out and Response.....	35
5.3 Knowledge.....	37
5.4 Attitudes.....	37
5.5 Practices.....	38
5.6 Training Needs and Interests.....	40
5.7 Limitations.....	41
5.8 Conclusions and Future Recommendations.....	41
REFERENCES.....	43
APPENDICES.....	49
Appendix A SURVEY INSTRUMENT.....	50
Appendix B FREQUENCY DISTRIBUTIONS.....	61
BIOGRAPHY OF THE AUTHOR.....	76

## LIST OF TABLES

Table 4.1	Demographics.....	20
Table B.1	Perceived Knowledge.....	62
Table B.2	Importance of Knowledge.....	62
Table B.3	Hours of Formal Education.....	63
Table B.4	Quality of Formal Education.....	63
Table B.5	Source of Informal Education.....	64
Table B.6	Satisfaction with Knowledge.....	64
Table B.7	Need to Know More.....	64
Table B.8	Safety of CAM.....	65
Table B.9	Effectiveness of CAM.....	65
Table B.10	Which Health Professionals Should Recommend CAM.....	65
Table B.11	Should CAM be Part of Regular Dietetics Practice?.....	65
Table B.12	Why Should CAM be Part of Regular Dietetics Practice?.....	66
Table B.13	Why Should CAM Not be Part of Regular Dietetics Practice?.....	66
Table B.14	Reason(s) for Increased Popularity of CAM.....	66
Table B.15	Frequency of Recommendation.....	67
Table B.16	Frequency of Recommendation by other Dietitians.....	67
Table B.17	Future Intention to Recommend.....	67
Table B.18	Who presently Provides CAM Counseling?.....	68
Table B.19	Most Important Areas to Learn About.....	68
Table B.20	Desirable Training Formats.....	69
Table B.21	Desirable Training Providers.....	69

Table B.22	Age.....	70
Table B.23	Gender.....	71
Table B.24	Practice Setting.....	71
Table B.25	Highest Degree.....	71
Table B.26	Route to Registration: Dietitians.....	71
Table B.27	Route to Registration: Diet Technicians.....	72
Table B.28	Area of Practice.....	72
Table B.29	Health Professionals Working With.....	72
Table B.30	Health Professionals Referred to for CAM.....	73
Table B.31	Years in Practice.....	74
Table B.32	Employment Status.....	75
Table B.33	Currently Seeing Clients.....	75
Table B.34	Number of Clients Seen per Week.....	75

## LIST OF FIGURES

Figure 4.1	Importance of Knowledge.....	21
Figure 4.2	Perceived Knowledge.....	22
Figure 4.3	Sources of Informal Education Dietitians.....	23
Figure 4.4	Sources of Informal Education Diet Technicians.....	23
Figure 4.5	Attitudes Regarding the Safety and Effectiveness of CAM.....	25
Figure 4.6	Who Should be Providing CAM Counseling?.....	26
Figure 4.7	Why Should CAM be a Regular Part of Dietetics Practice?.....	27
Figure 4.8	Why Should CAM Not be a Regular Part of Dietetics Practice?.....	28
Figure 4.9	Current Practices: Frequency of CAM Recommendation in the Past Year.....	30
Figure 4.10	Future Intention to Recommend CAM.....	31
Figure 4.11	Most Desirable Training Formats.....	32
Figure 4.12	Most Desirable Training Providers.....	33

## **Chapter 1**

### **INTRODUCTION**

Consumer interest in complementary/alternative medicines (CAM) has increased substantially in the past thirty years. This trend is due to the growing knowledge of the link between diet and disease, as well as the cost and accessibility of health care. More people are taking ownership of their own health, and have thus turned to nonprescription measures for the prevention and treatment of disease.

Health professionals, in general, have been slow to acknowledge both the worth and widespread use of CAM by the public. Research in the area of CAM is lacking. Much of the research performed to date has been regarding the safety, dangers and demographics of use, and not about the knowledge, attitudes and practices of health care professionals. This, however, is changing. Chang et al studied the knowledge and attitudes of pharmacists towards herbal medicine (1). Lee et al published their research into the knowledge, attitudes and practices of dietitians regarding the use of CAM (2). Slowly, the amount of data regarding the knowledge, attitudes and practices of health professionals is increasing.

Dietitians, in particular, are in an excellent position to educate the public about CAM in the context of nutrition-related disease prevention and treatment. Health professionals are a potentially reliable source of information for consumers. To date, however, they have been generally uninformed and lacking the knowledge for consultation regarding CAM. The paucity of data on this subject is hindering the ability of dietetic professionals to provide consumers with accurate and reliable information. In

order to educate dietetics professionals about CAM, more information is needed regarding their current knowledge, attitudes and practices. Thus, the objectives of this thesis were to identify the knowledge, attitudes and practices of dietetic professionals in Maine, regarding the use of nutrient supplements, functional foods and herbal products as complementary and alternative medicine. This data may be useful in the establishment of both educational and practice guidelines for the dietetics profession. The results of this research may also help ensure that dietetics professionals provide reliable and current consumer education about CAM.

## **Chapter 2**

### **LITERATURE REVIEW**

#### **2.1 Complementary/Alternative Medicines**

For the purpose of this research, CAM have been defined as treatments and approaches to health outside the scope of traditional Western medicine. CAM is used to refer to greater than one hundred and fifty different therapies with highly variable philosophies and practices (3). It includes products ranging from vitamin D supplements to ginkgo biloba, and practices ranging from Chinese herbs to prayer. The researchers studied three facets of CAM, including nutrient supplements, functional foods and herbal products. These three facets of CAM are encompassed in the Dietary Supplement Health and Education Act (DSHEA) definition of dietary supplements. DSHEA defines dietary supplements as products “intended to supplement the diet that contain at least one of the following: vitamin, mineral, herb or other botanical, amino acid; or dietary substance for use to supplement the diet by increasing total dietary intake; or concentrate, metabolite, constituent, extract or combination of any of the previously described ingredients” (4). Nutrient supplements are nutrients taken to supplement the diet for the purpose of preventing or treating disease (4,5,6). Functional foods are foods which provide a physiologic benefit in addition to its nutrient content and which may prevent or treat disease (4,5,6,7,8). Herbal products are products made from a plant with leaves, seeds, flowers or roots and used for preventing or treating disease, not as a seasoning (4,5,6).

Despite substantial advances in the medical management of disease, many people seek patient-directed, nonprescription approaches to prevent and treat disease (9,10,11). In fact, it has been estimated that consumers spend over \$13 billion each year on CAM (12). The US supplement industry grew 61% from \$8.6 billion in 1994 to \$13.9 billion in 1998 (13). Forty percent of these sales were vitamins, 29% herbs and botanicals, 10% sports nutrition products and 8% minerals (13). The Food and Drug Administration (FDA) estimated that there are over 29 000 supplements on the market, and approximately 1 000 new supplements are added to the market yearly (5).

Evaluation of the National Health and Nutrition Examination Survey (NHANES) III, the Hispanic Health and Nutrition Examination Survey (HHANES) and the National Health Examination Survey (NHES) indicates that women are more likely to take nutrient supplements than men; people in the western US more likely than people anywhere else in the country; and whites more likely than non-whites (14). The aging population of health-conscious baby boomers have made functional foods the leading trend in the US food industry (15). Interestingly, numerous researchers have indicated supplement users to have higher nutrient intakes from food (16-18), higher fruit and vegetable intakes (14,16), lower dietary fat and higher dietary fibre consumption (19). People living with a chronic disease who have had a duration of symptoms greater than one year, who are sceptical about conventional medicine and are unsatisfied with their clinic physicians are also more likely to use CAM (20).



Although CAM has frequently been defined as measures not in conformity with the standards of the medical community or not taught widely at North American medical schools, (20,21,22,23,24) medical schools are now beginning to incorporate CAM into their programs (10). The National Institutes of Health has also established the Office of Dietary Supplements (ODS) to investigate the potential role of dietary supplements in improving health care in the US (4,5). This change is an acknowledgement of the growing acceptance in the scientific community of the safety and efficacy of CAM, as well as the important acknowledgement that practitioners of traditional medicine have been too preoccupied with disease and has perceived health as a deviance from disease rather than disease as a deviance from health (24). Based on a recent study of American medical schools 64% of the responding schools offered courses in complementary or alternative medicine (25). However, the majority of these classes were electives (not required) and there was immense variability in content, format and requirements among these courses (25). The dependence of traditional medicine on expensive diagnostics and procedural interaction, ignoring the human aspect of health, has also contributed to the shift from conventional medicine to CAM (24). It has been implicated that CAM can have psychological benefits in patients living with a chronic disease, providing even more incentive to have educated health professionals, who can, in turn, educate the public (26).

There has been little research published to date about the knowledge, attitudes and/or practices of health care professionals in general, or of dietitians, regarding the use of CAM. The American Dietetic Association does have position papers on vitamin and mineral supplements, as well as function foods (7,8). With the increased usage and

popularity of CAM, it is imperative that practitioners of traditional medicine acknowledge the use of CAM and adopt practice guidelines for recommending compounds or products, advising patients and training recommendations for health professionals. Canadian general practitioners (GP's) are more likely to refer patients to alternative therapists (20). They are also more likely to have graduated from a Canadian medical school (23). Participants also identified more alternative approaches as useful in treating and preventing disease, than not useful (23).

Interestingly enough, despite the failure of traditional medicine to include CAM in regular practice, recent studies regarding supplement use by female physicians and pharmacy students have indicated that a higher percentage of health professionals do in fact take nutrient supplements than would be expected (27,28). One might postulate that although health professionals feel confident enough to consume nutrient supplements themselves and feel they will have beneficial health effects, they do not include them (or are not comfortable including them) as part of regular practice due to the lack of scientific data and professional guidelines. The lack of evidence-based medical information regarding potential drug interactions may also be a significant inhibitor to the inclusion of CAM as part of regular practice. In fact, the potential for drug interactions has lead to the development of policies disallowing the use of alternative therapies in some hospitals (29,30). This necessitates future studies regarding drug-CAM interactions.

## **2.2 Components of Complementary/Alternative Medicines**

There are many components of CAM and CAM means different things to different individuals. As previously discussed, CAM encompasses over one hundred and fifty different practices, with great variability in their philosophies, practices and products used. For the purpose of this research complementary/alternative medicines are defined as treatments and approaches to health outside the scope of traditional Western medicine. Popular components of CAM include chiropractic, acupuncture, herbal medicine, holistic medicine, naturopathy, functional foods, and nutrient supplements. In this study, three very popular nutrition-related facets of CAM were identified. Included in the DSHEA definition of dietary supplements, these are; nutrient supplements, functional foods and herbal products.

According to Packaged Facts Inc., a market research firm in New York, US consumers spent more than \$6.5 billion on dietary supplements in 1996 alone (31,32). This estimate is lower than is documented in the Nutrition Business Journal (13), however, the same products may not have been included in each estimate. Estimated annual US expenditures on dietary supplements rose steadily from \$3.3 billion in 1990 (32). According to the FDA, dietary supplements are any product intended for ingestion as a supplement to the diet, including vitamins, mineral, herbs, and amino acids and their metabolites. This definition does not necessarily encompass functional foods, which may well be the fastest growing sector of the food industry. However, the previously stated DSHEA definition of dietary supplements (4) does encompass functional foods.

It has been and will continue to be nearly impossible to track consumer spending on functional foods as dietary supplements.

Nutrient supplements are defined as a nutrient taken to supplement the diet for the purpose of preventing or treating disease. These include vitamins, minerals, sports nutrition supplements, meal supplements and macronutrient supplements (4,5,13). Although food is still generally believed to be the best source of nutrients, growing research is leading to greater acceptance of nutrient supplements for certain population groups (7). This new information is changing the practice of dietetics at a rapid rate. Unfortunately, it is not known how dietetic professionals are affected by or adapting to this change. It is the position of the American Dietetic Association that vitamin and mineral supplementation is appropriate when well-accepted, peer-reviewed, scientific evidence shows safety and effectiveness (7).

There are numerous definitions for functional foods, depending on which organization is referenced. For example, the International Food Information Council (IFIC) has defined them as; foods which provide health benefits beyond basic nutrition (32). Similarly, the International Life Sciences Institute of North America defines functional foods as those that, by virtue of physiologically active food components, provide health benefits beyond basic nutrition (33). The Institute of Medicine of the National Academy of Sciences, on the other hand, has a slightly different definition of functional foods. It defines functional foods as only those in which the concentrations of one or more ingredients have been manipulated or modified in order to enhance their contribution to a healthful diet (34).

Due to the lack of a universally accepted definition of functional foods, the following working definition of functional foods has been adopted for this study: a food that provides a physiologic benefit in addition to its nutrient content and which may have a beneficial effect on health. Functional foods are sometimes referred to as nutraceuticals, however the IFIC has identified that the term functional food was recognized more readily and preferred by consumers (35).

The American Dietetic Association (ADA) has identified expanding roles for the dietetics professional, including advising consumers on the appropriate intake of functional foods and how to best achieve intake goals to optimize health and potentially decrease the risk of preventable disease (8). In order to accomplish this, dietitians and diet technicians must be knowledgeable and comfortable educating consumers about functional foods. Lee et al found that dietitians were confident with their knowledge of functional foods (2).

Herbal products are, perhaps, the most controversial facet of CAM included in this study. The ADA does not yet have a position statement regarding herbal products, and there are many definitions available. The investigators have chosen to define herbal products as products made from a plant with leaves, seeds, flowers or roots and used for treating or preventing disease, *not* as a seasoning. This definition was adapted from the US Food and Drug Administration (FDA) (6). Herbal products pose new professional and ethical dilemmas for dietetics professionals. Herbal products may be used by clients as a medical intervention, as many consumers believe that herbal products can be used to treat and prevent diseases. Dietetics professionals must stay within their scope of practice, and

walk the fine line between recommending products or practices and diagnosing, treating, preventing, curing, advising and prescribing, which are defined in different states as the practice of medicine (36). The advice sought from dietitians by clients using herbals could potentially put dietitians at risk of illegally practicing medicine.

### **2.3 Dietitians and CAM**

Lee et al have published the only study to date regarding dietitians and CAM (2). Licensed dietitians (LD's) in Oregon thought themselves knowledgeable about functional foods and nutrient supplements, and were confident of the effectiveness and safety of functional foods and nutrient supplements in preventing and treating chronic illness (2). LD's displayed less confidence in the safety and efficacy of herbs for the same purposes, but also had a significantly lower perceived knowledge of herbs (2). This may not be surprising as training of dietitians in nutrient supplements and functional foods has increased, at least to a certain degree, in North American dietetics programs (2). Training dietitians in the area of herbs, however, is much less common in dietetics programs, leaving the onus on dietitians to continue their education in that area after graduation. This lack of training is unfortunate, as there is an overwhelming amount of information in the area of nutrition for dietitians to keep up with, but the CAM revolution continues at a rapid pace. Interestingly, a study of the knowledge and attitudes of pharmacists toward herbal medicine found that the average score on the herbal knowledge test was 6.3 out of a maximum 15 (1). Findings revealed that even pharmacists, the group of traditional health care professionals who receive the most formal and continuing education in CAM,

have a lot to learn. Clinicians have been urged to learn more about dietary supplements categorized as alternative therapies in order to help patients make informed decisions (21).

## **2.4 Knowledge, Attitudes and Practices**

As the objective of this research is to identify the knowledge, attitudes and professional practices of dietitians regarding the identified facets of CAM, the following is a brief review of the literature related to knowledge and attitudes. Professional practices are the application of knowledge or skills to exercise or pursuit of a profession, in this case, the practice of dietetics.

Knowledge is defined by Bloom as dealing with intellectual outcomes (37). Webster's Dictionary defines knowledge as "clear and certain mental application" (38). Bloom's cognitive domain includes a series of six learning outcomes, each outcome including the preceding outcome, identifying learning as a process of growth. The outcomes, in order of increasing complexity, are knowledge, comprehension, application, analysis, synthesis and evaluation. The outcomes are clearly intertwined, as one cannot be achieved without incorporation of the preceding outcomes (37). However, knowledge does not necessarily result in change. In order to apply knowledge of CAM to practice, dietetic professionals need to be motivated to change. There are many resistors to change, such as, inertia, timing, surprise, pressure, self-interest, misunderstanding and different assessments (39). In many cases, practitioners are the sole judge of the competency of their knowledge and their ability to make accurate recommendations to clients and other

professionals. The ADA Code of Ethics states the “dietetics practitioner assumes responsibility and accountability for personal competence in practice, continually striving to increase professional knowledge and skills and to apply them in practice” (40).

What people do with knowledge they possess is influenced by their attitudes. Meyers identifies attitudes as beliefs and feelings that predispose reactions (41). It is difficult to measure attitudes because they cannot be physically observed. However, self-reporting of attitudes was identified by Cook and Sellitz as an acceptable measure of attitude (42). Attitudes are influenced by many factors including, but not limited to, knowledge, experiences, culture, age, values and beliefs. Attitudes have the potential to influence behaviours and subsequently affect dietetic practice.

## **2.5 Summary**

Complementary/alternative medicines are growing areas of consumer interest as more consumers continue to take ownership of their health. This is an industry that will only continue to grow and, in turn, change the face of health care. Practitioners of traditional medicine are only beginning to accept and understand CAM. Health professionals, in general, are lacking the knowledge required to educate and inform consumers. There has been little research into the knowledge, attitudes and practices of dietitians or diet technicians with regards to CAM. More research is needed in order to establish educational and practice guidelines for the dietetics profession, as well as to ensure reliable and up-to-date consumer education in the area.



The objective of this study was to identify the current knowledge, attitudes and practices of dietetics professionals licensed in Maine regarding the use of nutrient supplements, functional foods and herbal products as CAM in both preventing and treating disease. The results of this research may contribute to the development of more current dietetic education programs, which incorporate CAM into the curriculum and produce professionals who are more knowledgeable and prepared to practice in an era where traditional and complementary approaches to health and disease meet. This research may also be used in the establishment of professional practice and education guidelines for dietetics professionals. Such guidelines will provide support for professionals and help ensure reliable and up to date consumer education.

## **Chapter 3**

### **METHODS AND MATERIALS**

#### **3.1 Survey Instrument**

The survey was developed following a thorough review of the literature. It was designed in such a way as to allow comparison with the only other similar survey published to date, by Lee et al (2). The survey questions were reviewed by my graduate committee and checked for validity. The survey was then modified based on recommendations made by the committee.

In-depth interviews were scheduled: one to be held with a sample of dietitians in Portland and two others with dietitians north of Augusta. The purpose of the interviews was to determine what kind of information dietitians felt should be gathered by such a survey and how this information could be beneficial to dietitians, the Maine Dietetic Association (MDA) and the American Dietetic Association (ADA). One interview was held in Portland at Maine Medical Center. Three dietitians, a recorder and the principal investigator (as facilitator) were present. Notes were taken by the recorder and point form notes were taken by the facilitator on a flip-chart to enhance participation. The interview was also audio-recorded. At the end of the session participants were given a copy of the survey and feedback was requested. The interview notes and tape were transcribed the day of the focus group by the facilitator. Phone interviews of the questions used in the in-depth interviews were conducted with two dietitians from north of Augusta.

Results of the interviews were used to modify the survey. The modified survey was then distributed to graduate students and faculty in the Department of Food Science and Human Nutrition at the University of Maine. Feedback regarding wording, format and readability was requested. The survey was then modified accordingly (Appendix A).

### **3.2 Survey Mail-out**

The survey was mailed out by a modified Dillman method (43,44). This mail-out method involved a letter of intent mailed 2 weeks before the initial survey mail-out, a reminder postcard 1 week after the survey mail-out, and a replacement survey mail-out mailed 1 week after the reminder postcard. The survey mail-out package consisted of a cover letter, the survey itself, a return envelope and a completion card. The completion card was to be mailed in separately from the completed survey, identifying the respondent to deter reminder mailings while maintaining anonymity. The completion card also allowed people who received the survey but were not dietitians or diet technicians to notify the researchers of this and avoid further mailings. The return envelope and completion card were self-addressed, however, due to an unfortunate postal billing misunderstanding, were not pre-stamped. To compensate for this a letter of explanation was mailed along with the reminder postcard and a stamp was included in this mailing. The return envelopes and completion cards in the replacement mail-out were pre-stamped.

Respondents were asked to complete and return the questionnaire by March 1, 2001. This cut-off date was specified in the cover letter, hoping to deter respondents from

setting the questionnaire aside to do later, and then forgetting to complete it. Notification of a cut-off date increases response rate significantly (45,46). University sponsorship is also expected to increase response rate (43). University of Maine letterhead was used for the letter of intent and survey cover letter, envelopes bearing the University of Maine letterhead were used for all mail-outs and as return envelopes. University sponsorship may increase response rate due to past benefits respondents have received (48).

### **3.3 Data Collection**

Surveys were collected by the principal investigator and given an identification number for data entry. Returned completion cards were recorded so as not to send a replacement questionnaire to respondents who had already completed the questionnaire or people who received the survey, but were not a dietitian or diet technician. Responses were entered into an Excel database by the principal investigator. Responses were coded numerically to allow statistical analysis.

### **3.4 Data Analysis**

Upon completion of data entry, the database was uploaded to SPSS. Statistical analyses were performed. Frequency distributions for all respondents together, and then dietitians and diet technicians separately were produced. Responses were also analyzed by age, job type, training needs and formats. Analyses were performed excluding “no responses”.

## **Chapter 4**

### **RESULTS**

#### **4.1 Demographic and Professional Data**

Table 4.1 presents demographic and professional data. Two hundred and sixty responses were received, a response rate of 63%. Of the respondents, 73% were dietitians and 26% were diet technicians. The mean age of respondents was just under 45 years, with dietitians at 45.1 and diet technicians at 42.42. The age range was 21 to 81 years for the group, 25 to 81 for dietitians and 21 to 71 for diet technicians. Ninety-six percent of respondents were female and only 1.9 per cent male. A slightly greater percentage of diet technicians were male than dietitians (4.3% compared with 1%). Forty-five per cent of dietitians and 45.5% of diet technicians practiced in a city, while 28.8% and 20.3%, respectively, practiced in a town. Only 12.6% of dietitians and 11.6% of diet technicians practiced in a rural setting.

In terms of highest degree completed, a very close percentage of dietitians and diet technicians completed a Bachelors degree, at 38.7% and 37.7% respectively. The two groups differed greatly regarding highest degree completed. Fifty-nine per cent of dietitians versus 4.3% of diet technicians indicated having completed a Master or Doctoral degree. As routes to registration differ between the two professionals, they were analysed separately. The most common route to registration for dietitians was dietetic internship, with 49.2% following this route. Almost 19% of dietitians became registered through a Masters program plus 6 month experience. A coordinated program, 3 year

planned experience and AP4 program were the route to registration for 8.9%, 8.4% and 6.8%, of dietitians.

About 4% of dietitians identified “other” as their route to registration. Their descriptions of “other” included being grandfathered in, a Masters program plus internship and a practicum. Almost eighty percent (79.7%) of diet technicians became registered through a 2 year program plus experience. Sixteen per cent of diet technicians completed a four-year Bachelor of Science in nutrition plus a diet technician experience to become registered.

Fifty per cent of respondents (49.7% of dietitians and 50.7% of diet technicians) practiced in the healthcare (clinical) setting. About sixteen per cent of respondents practiced in community programs (16.8% of dietitians and 14.5% of diet technicians). These two job types composed the greatest total respondent percentage, however 22.5% of dietitians were in private practice and 18.3% were in an educational setting (compared with only 1.4% and 5.8% of diet technicians). Eleven per cent of dietitians and 4.3% of diet technicians identified their practice area as public health. Government was the area of practice for 6.8% of dietitians and 1.4% of diet technicians, while a University practice setting was reported for ten times more dietitians than diet technicians. A small percentage of dietitians reported practicing in a research setting, while no diet technicians practiced in such a setting.

The average number of years in practice for dietitians was almost two times that for diet technicians. Dietitians also reported a much larger range in number of years in practice, ranging from one to fifty-nine years. More than half of both RD's and DTR's

had a full-time employment status, very few were retired and 9% were unemployed.

Some respondents voluntarily reported their reasons for unemployment, the reported reason being, taking time off to raise their children. Slightly more dietitians than diet technicians reported practicing part-time. Dietitians and diet technicians reported seeing a similar number of clients per week.

Table 4.1 Demographics

Characteristics	Dietitians (n = 191)	Diet Technicians (n = 69)	Total (n = 260)
<b>Age (yrs)</b>			
Mean	45.1	42.42	44.65
Range	25 - 81	21 - 71	21 - 81
<b>Sex</b>			
Female	97%	93%	96%
Male	1%	4%	2%
<b>Practice setting</b>			
City	45%	43%	45%
Town	29%	20%	36%
Rural	13%	12%	17%
<b>Highest degree</b>			
Bachelor's	39%	67%	38%
Master's/doctoral	59%	4%	45%
<b>Route to Registration</b>			
Dietetic Internship	49%	1%	36%
AP4	7%	1%	5%
Coordinated program	9%	0	7%
Master's + 6 mo. experience	19%	1%	14%
3 y planned experience	8%	0	6%
Other	4%	0	3%
2 y program + experience	0	80%	21%
4 y bachelor's + diet tech experience	0	16%	4%
Other	0	4%	1%
<b>Job Type</b>			
Healthcare	50%	51%	50%
Community	17%	14%	16%
Public health	11%	4%	9%
Educational	18%	6%	15%
Industry	3%	1%	2%
Government	7%	1%	5%
Private practice	22%	1%	17%
University	5%	1%	4%
Research	3%	0	2%
Other	13%	22%	15%
<b>Years in Practice</b>			
Mean	18.34	10.52	16.71
Range	1 - 59	1 - 28	1 - 59
<b>Employment Status</b>			
Full time	51%	59%	53%
Part time	32%	20%	29%
Unemployed	8%	12%	9%
Retired	4%	6%	5%
<b>Number of Clients Seen/week</b>			
1 - 5	14%	13%	14%
6 - 10	6%	7%	7%
11 - 15	7%	9%	8%
16 - 20	11%	4%	9%
> 20	24%	20%	23%



## 4.2 Knowledge

Figure 4.1 presents results of importance of knowledge for both dietitians and diet technicians. While nearly all dietetic professionals considered knowledge to be important/very important about nutrient supplements (96%), and functional foods (93%), somewhat less (80%) perceived knowledge of herbal products as important/very important. Figure 4.2 presents results of respondents' perceived knowledge. Fewer respondents considered themselves knowledgeable/very knowledgeable about nutrient supplements and functional foods, and only a small percent indicated knowledge of herbal products.

Figure 4.1 Importance of Knowledge

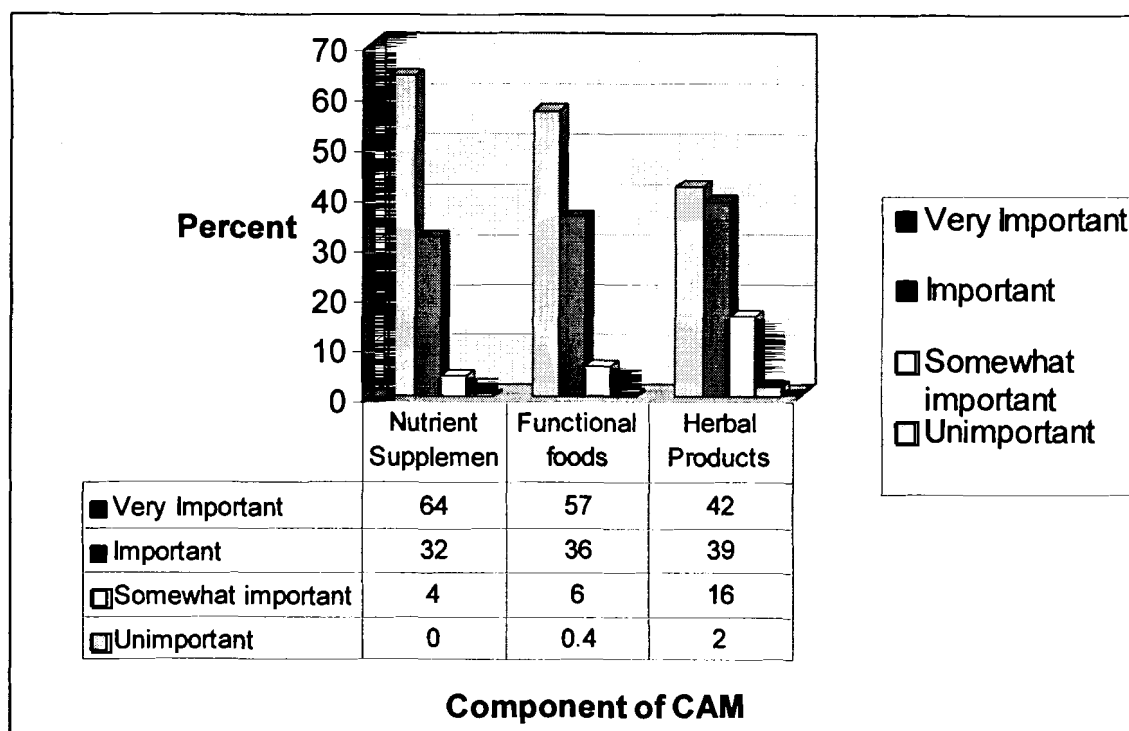
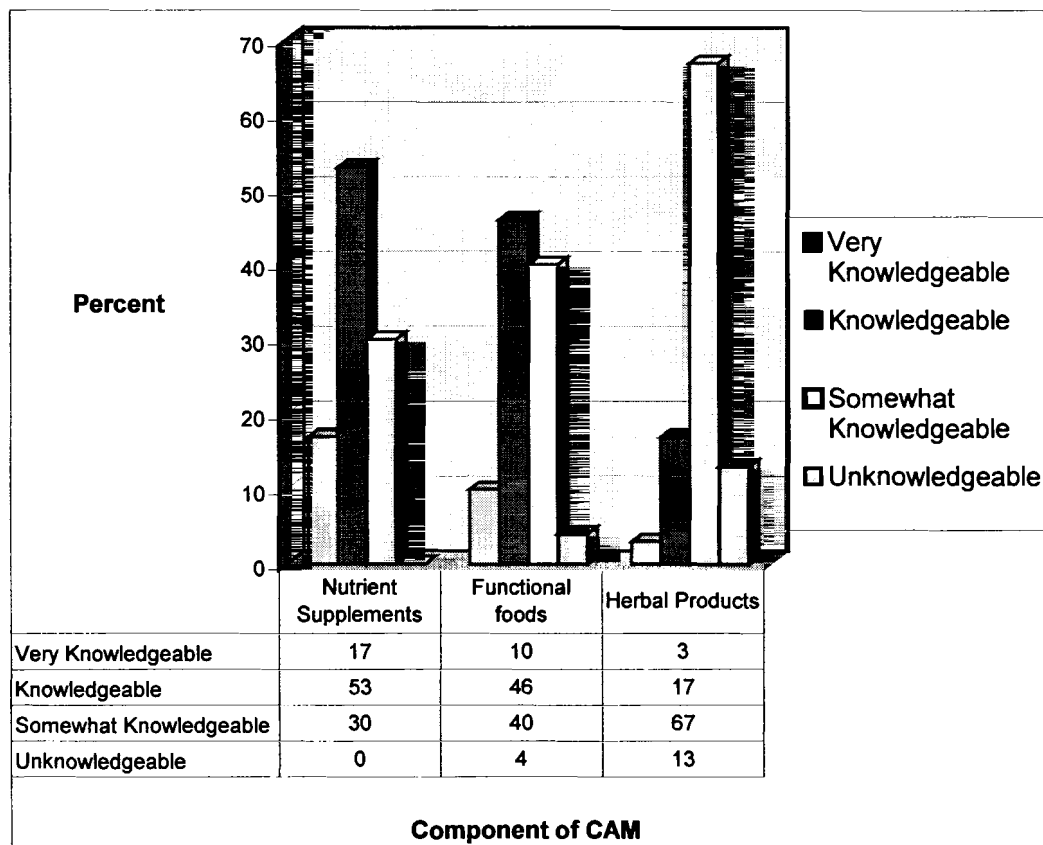


Figure 4.2 Perceived Knowledge



Over half of respondents were dissatisfied and only 1.5% were extremely satisfied with their overall knowledge of CAM (see Appendix B, Table B.6).

Figures 4.3 and 4.4 portray sources of informal education for dietitians and diet technicians respectively. Media was the largest source of informal education for dietitians and diet technicians combined. However, slightly more dietitians sought informal education from scientific journals than from the media. Respondents reported receiving more formal education about nutrient supplements and perceived the quality of that education to be higher than both functional foods and herbal products. Respondents had

the least amount of formal education about herbal products and reported the quality of that education to be the lowest (see Appendix B, Tables B.3 and B.4).

Figure 4.3 Sources of Informal Education: Dietitians

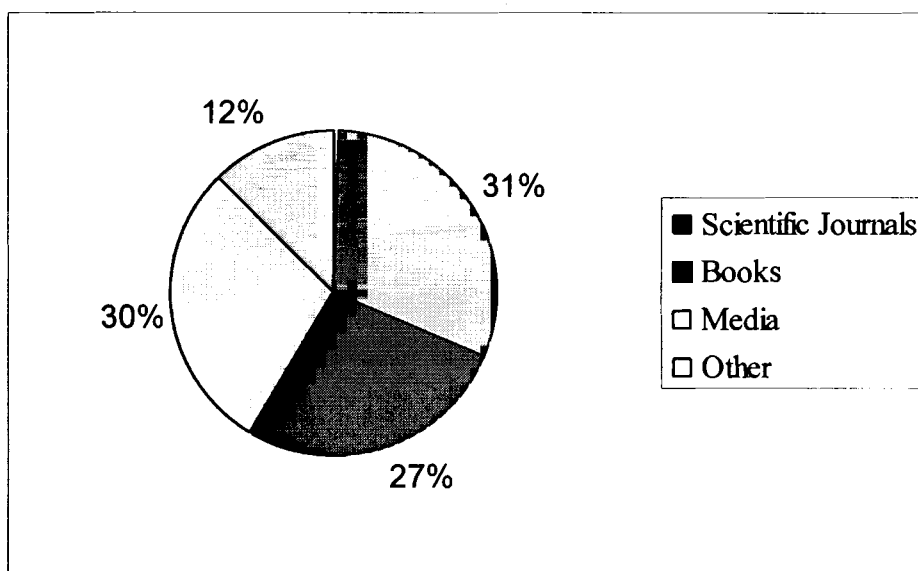
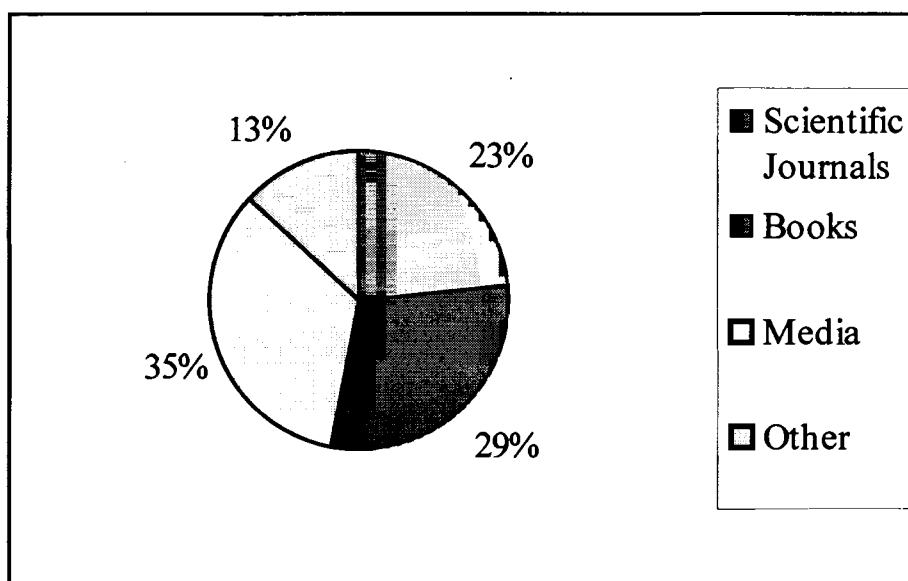


Figure 4.4 Sources of Informal Education: Diet Technicians



Respondents perceived the need to know more about each facet of CAM, particularly herbal products. Almost 90% of respondents felt the need to know more about herbal products, 72% about functional foods and 55% about nutrient supplements. Diet technicians reported a slightly greater need to know more about each component of CAM than dietitians (see Appendix B, Table B.7).

### **4.3 Attitudes About CAM**

Figure 4.5 presents the attitudes of respondents regarding the safety of CAM. Dietitians and diet technicians had very similar attitudes regarding the safety of each component of CAM. Respondents were most satisfied with the safety of functional foods and least satisfied with that of herbal products. Approximately 80% perceived nutrient supplements as being safe/very safe and slightly more, 85%, perceived functional foods as safe/very safe. Only 21% perceived herbal products to be safe, while 70% thought their safety was questionable and 5% thought herbal products to be unsafe.

Figure 4.5 also presents the attitudes of respondents regarding the effectiveness of each component of CAM in maintaining health, preventing and treating disease. Dietetics professionals were most satisfied with the effectiveness of nutrient supplements in maintaining health and preventing disease and least satisfied with herbal products. More than 80% of dietetics professionals reported nutrient supplements and functional foods to be effective in health maintenance, while only 39% for herbal products. Respondents were most satisfied with the effectiveness of functional foods in preventing disease. About three-quarters of respondents reported nutrient supplements as effective in

preventing disease, while almost 80% reported the same for functional foods. Only 30% of respondents perceived herbal products to be effective in preventing disease. Over 60% of respondents reported nutrient supplements as being effective in treating disease, while about 43% reported both functional foods and herbal products as effective in treating disease. Twenty percent of respondents reported that herbal products were not effective in maintaining health, and preventing or treating disease.

Figure 4.5 Attitudes Regarding the Safety and Effectiveness of CAM

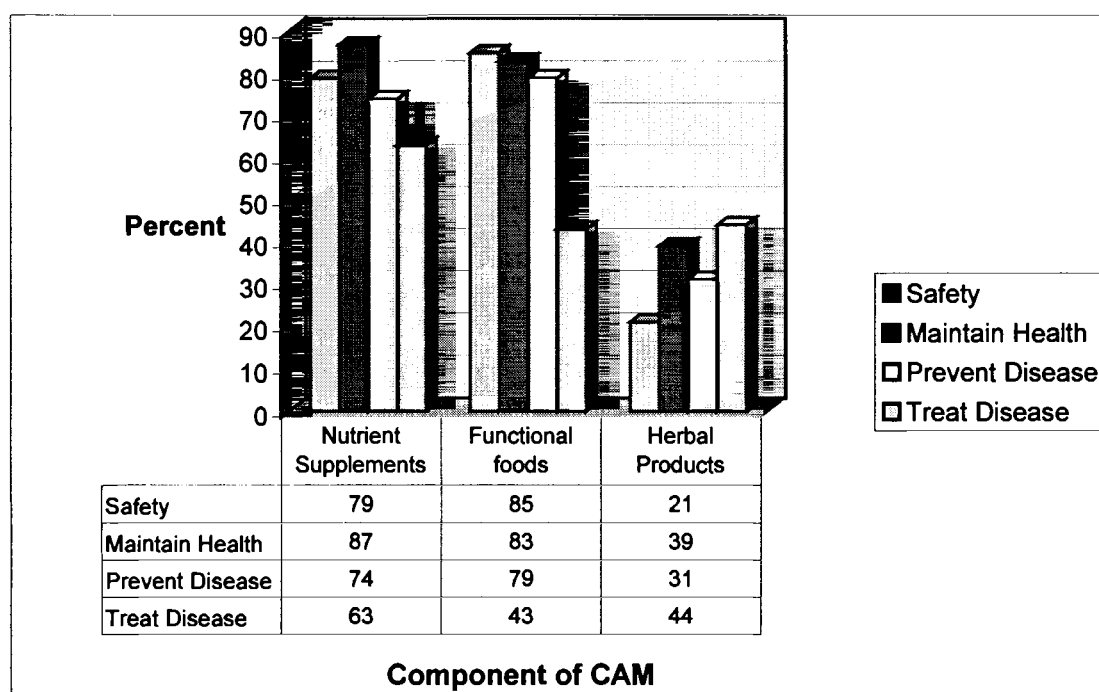


Figure 4.6 presents results of which health professionals should be providing CAM counselling. Almost 90% of respondents reported dietitians as the health professionals who should be recommending CAM, followed by physicians. Fifty-seven

percent of respondents thought pharmacists should be the health professionals recommending CAM. About one-third of dietetics professionals reported each of herbalists, naturopaths and chiropractors as the health professionals who should recommend CAM. Eighty-eight percent of respondents thought CAM should be a part of regular dietetics practice (Appendix B, Table B.11).

Figure 4.6 Who Should be Providing CAM Counseling?

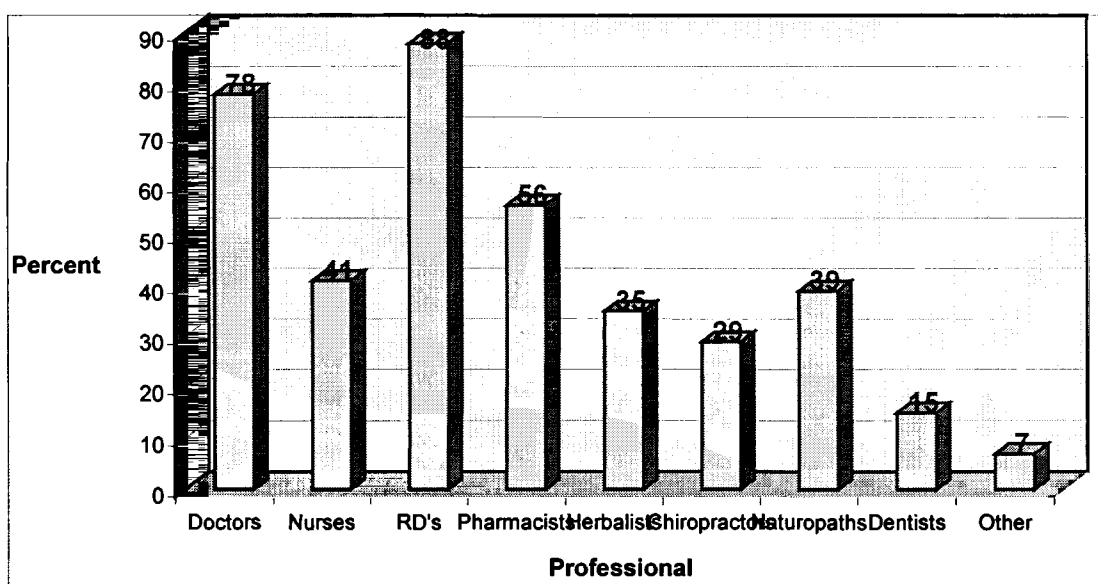


Figure 4.7 Why Should CAM be a Regular Part of Dietetics Practice?

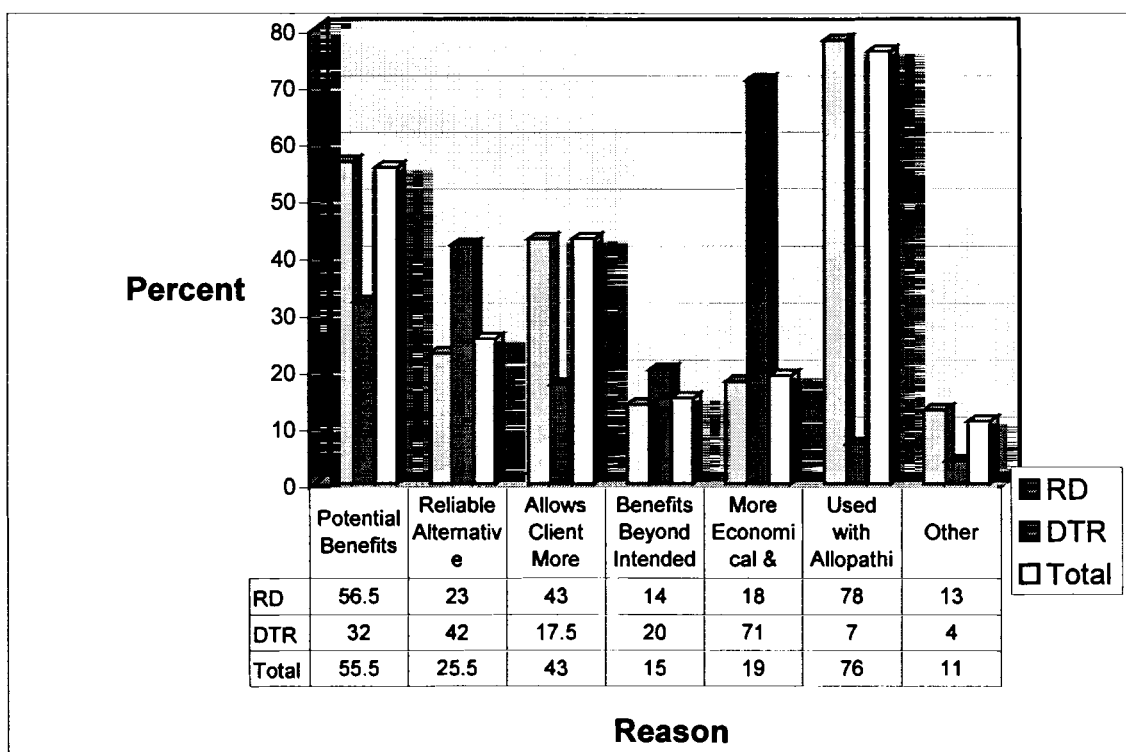
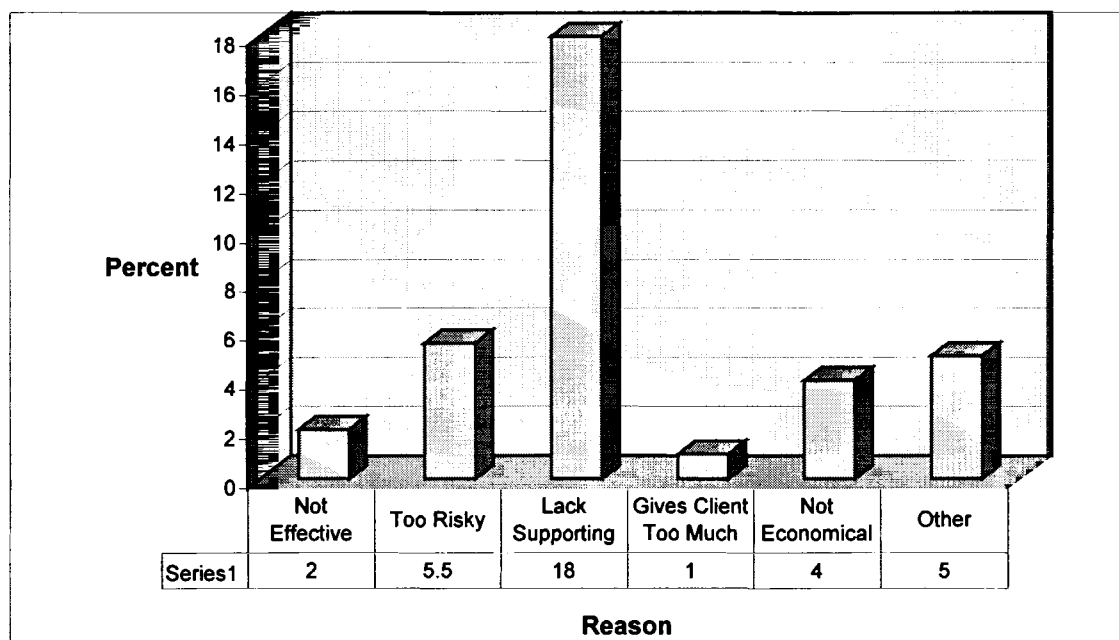


Figure 4.7 presents the reasons why CAM should be a regular part of dietetics practice. Respondents reported CAM should be a part of regular dietetics practice for numerous reasons, the most popular (76%) being that CAM could be used in combination with allopathic care. Of note, 78% of dietitians, but only 7% of diet technicians reported this reason as the number one reason. More dietitians (57%) than diet technicians (32%) believed CAM poses great potential benefits to clients. Forty-two percent of diet technicians reported CAM should be part of regular dietetics practice because it offers reliable alternatives to traditional medicine, only 23% of dietitians felt the same way. Forty-three percent of dietitians reported that CAM allows clients more control of their

own health care (only 17% of diet technicians agreed). Seventy-one percent of diet technicians versus 18% of dietitians reported CAM as being more economical and accessible to clients than traditional medicine. A closer percentage of dietitians and diet technicians, 14 and 20% respectively, reported CAM should be a part of regular dietetics practice because it has benefits beyond those intended.

Figure 4.8 presents reasons why CAM should not be part of regular dietetics practice. The majority of respondents responding to why CAM should not be part of regular dietetics practice felt that it lacks well-established supporting scientific evidence. Respondents also reported that CAM is too risky and not economical.

Figure 4.8 Why Should CAM Not be Regular Part of Dietetics Practice?





When asked the reasons for the increased popularity of CAM, 75% of respondents reported the major reason for the increased popularity of CAM being that it provides consumers more control of their own health and health care. Fifty-five percent felt it is more accessible than traditional medicine and 40% reported CAM as being more personal than traditional medicine. Respondents also reported other reasons for the increased popularity of CAM as it was less expensive than traditional medicine, it is an area in which more research is being conducted and regulatory bodies are trying to standardize it (Appendix B, Table B.14).

#### **4.4 Practices**

Figure 4.9 presents current practices of dietetics professionals. It shows the frequency of recommendation of each component of CAM in the past year. Dietitians and diet technicians differed in both their frequency of providing nutrient supplement recommendations and their perceived frequency of nutrient supplement recommendation by other dietitians. Sixty-one percent of dietitians reported recommending nutrient supplements greater than 12 times in the past year, while 14% reported never having recommended nutrient supplements. Thirty-seven percent of dietitians recommended functional foods greater than twelve times in the past year, while 21% never recommended functional foods. Only 2.6% of dietitians reported recommending herbal products greater than twelve times in the past year and 60% reported not having recommended herbal products at all.

Forty-six percent of diet technicians reported recommending nutrient supplements greater than twelve times in the past year and 17% never recommended nutrient supplements. While a closer percentage reported having recommended functional foods more than twelve times in the past year and not at all, 29 and 26% respectively. Seven percent of diet technicians reported recommending herbal products compared with 51% who did not recommend herbal products at all in the past year. Diet technicians differed little from dietitians in the perceived frequency of CAM recommendations by other dietitians. Dietitians reported their peers provided counselling about each facet of CAM more frequently than they themselves did in the past year (see Appendix B, Table B.15).

Table 4.9 Current Practices: Frequency of CAM Recommendation in Past Year

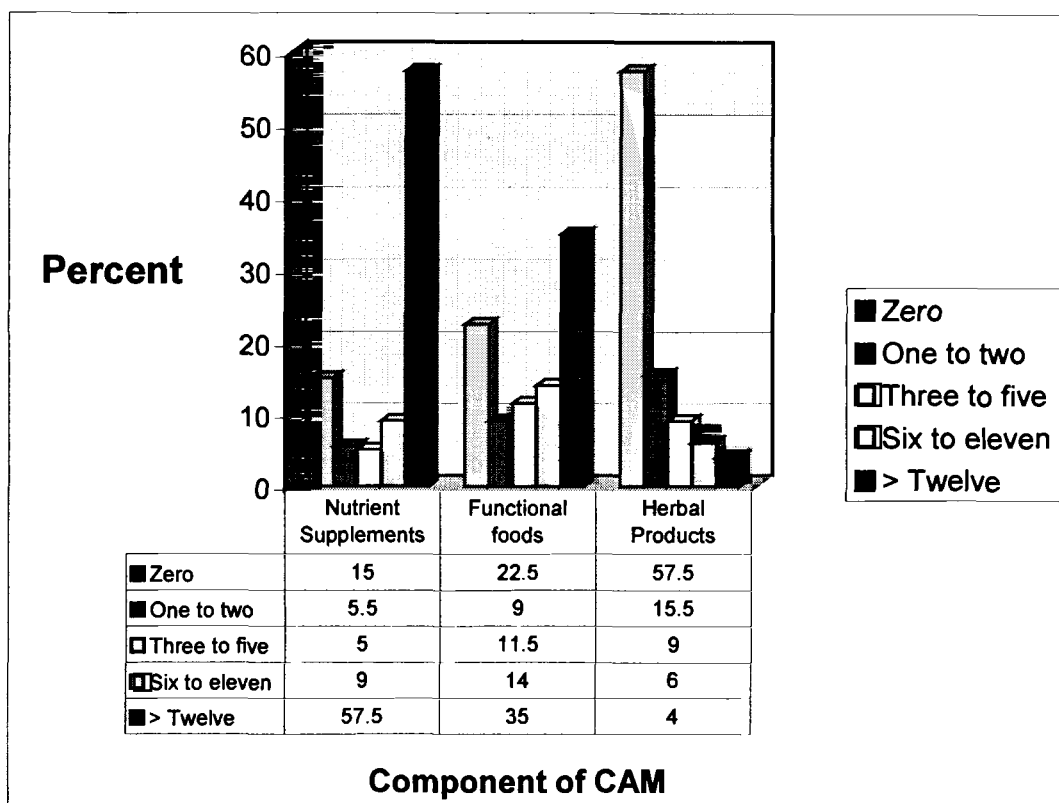
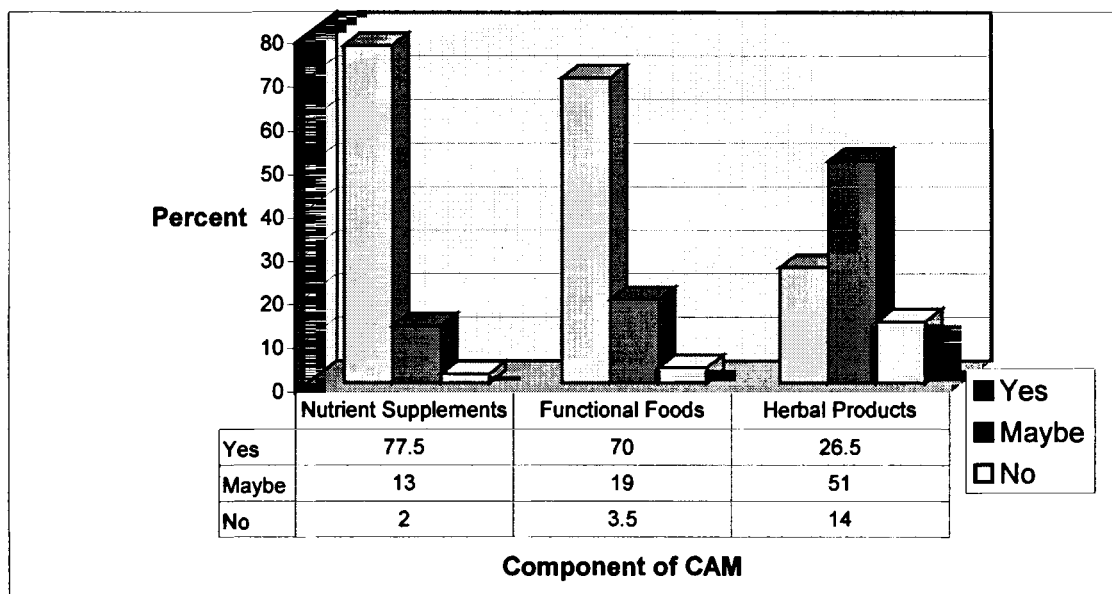


Figure 4.10 presents future intention to recommend each component of CAM.

Half of respondents were undecided as to whether they will recommend herbal products in the future and 14% did not intend to recommend them at all in the future. Almost 80% of dietitians and three-quarters of diet technicians intend to recommend nutrient supplements in the future. An equal percent, 70%, of dietitians and diet technicians intend to recommend functional foods, while only 25% of dietitians and 30% of diet technicians intend to recommend herbal products.

Figure 4.10 Future Intention to Recommend CAM



More respondents, about 90%, reported herbalists as the professionals who presently provided CAM counseling than any other professional. Slightly fewer, 84 and 80%, reported naturalists and chiropractors as professionals presently providing CAM

counseling. Sixty-eight percent of respondents reported dietitians as the health professionals providing CAM counseling. Only about 55% reported each of doctors and nurses as presently providing CAM counseling (See Appendix B, Table B.18).

#### 4.5 Training Needs and Interests

Figure 4.11 presents results for most desirable training formats. The most desirable formats for future training were conferences and workshops, at 71 and 70% respectively. Just over half of respondents were interested in fact sheets and brochures, 47% in information on the web and 43% in books, texts and articles. Less, one-third, were interested in university courses. Dietitians and diet technicians responded very similarly to their interests in future training formats.

Figure 4.11 Most Desirable Training Formats

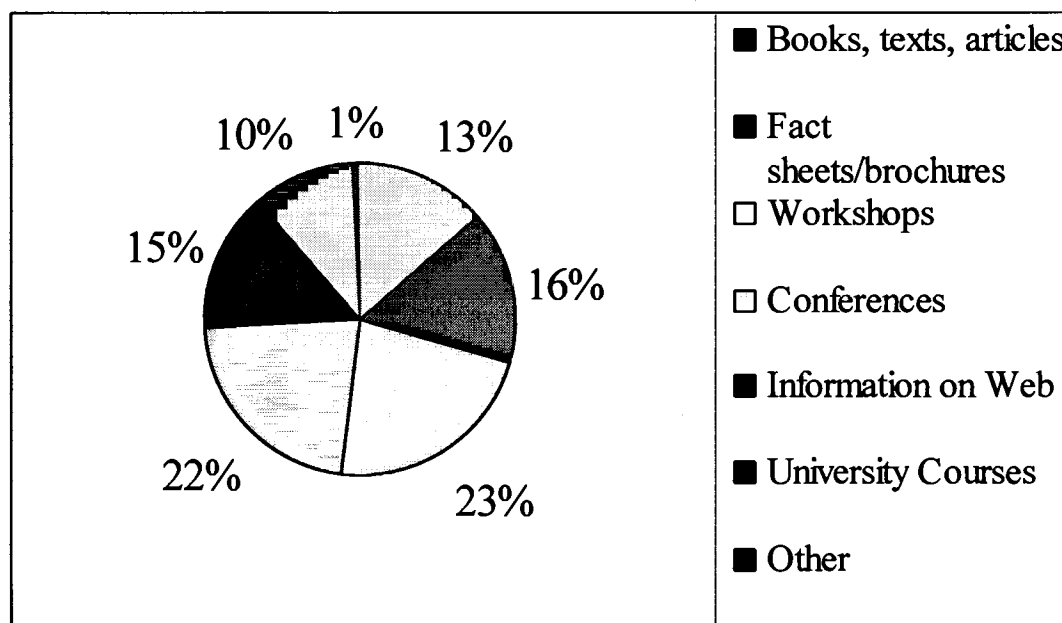


Figure 4.12 Most Desirable Training Providers

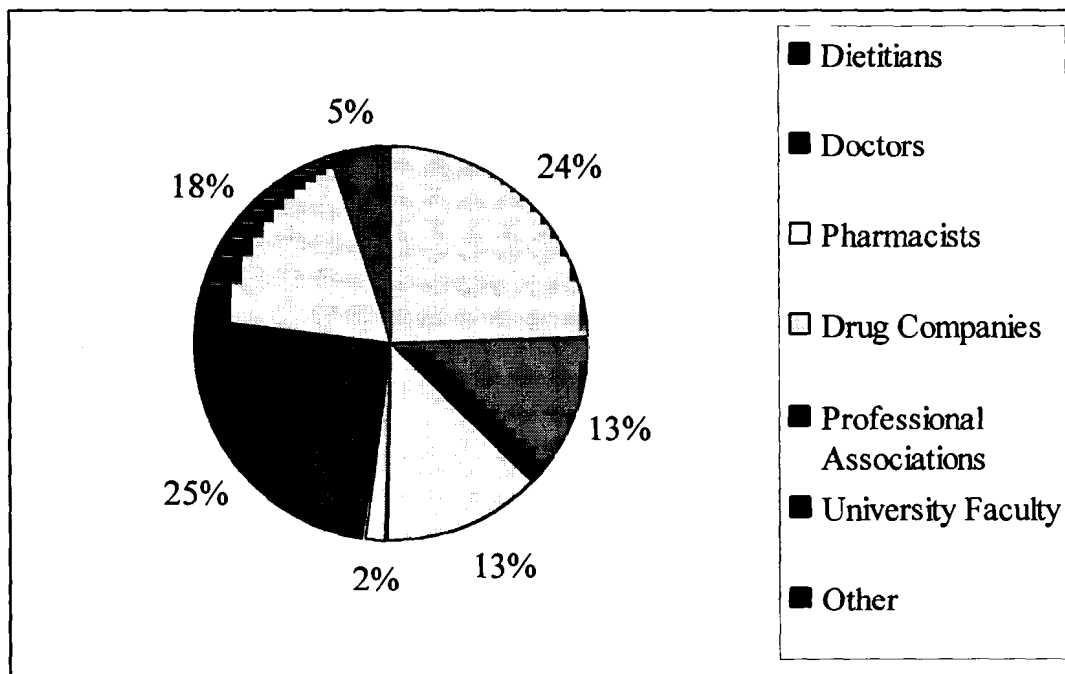


Figure 4.12 presents most desirable training providers. Almost three-quarters of respondents reported professional associations, such as ADA, as the desirable training provider. Seventy-one percent reported dietitians as a desirable training provider. Just over half of respondents viewed university faculty as a desirable training provider, An almost equal amount, 38 and 37% respectively, reported doctors and pharmacists as desirable training providers. Dietitians and diet technicians responses were very similar to this question.

Respondents reported more interest and importance in learning about the role of herbal products in maintaining health, and preventing and treating disease. Respondents were somewhat less interested in learning about the role of functional foods and least interested in nutrient supplements. However, over half of respondents were interested in future training. Seventy percent of respondents were also interested in learning about the emerging role of CAM in health (See Appendix B, Table B.19).

## **Chapter 5**

### **DISCUSSION**

#### **5.1 Overall Results**

This survey is one of the first published surveys regarding the knowledge, attitudes and professional practices of dietetics professionals about complementary and alternative medicine. The high response rate is likely indicative of great interest in CAM. Dietetic professionals in Maine are most confident in and satisfied with their knowledge of nutrient supplements and functional foods. They are much less confident in and satisfied with their knowledge of herbal products. Respondents believe in the safety and effectiveness of nutrient supplements and functional foods, but not herbal products. Dietetics professionals in Maine have partly incorporated CAM into their regular practice. Respondents do intend to integrate more CAM into their future practice and provide CAM recommendations to clients. Dietetic professionals in Maine identified great interest in and a need for future training in CAM. Respondent demographic data was comparable to national demographic data for dietetic professionals, as well as the data generated by the survey of dietitians in Oregon (2).

#### **5.2 Survey Mail-out and Response**

Dietetics professionals in Maine are interested in CAM. Measures were taken in the survey development and mail-out processes to generate a high response rate. The Dillman method for survey mail-out, involving a pre-notification, mailed survey, reminder postcard and replacement survey, has been shown to increase response rate

(43,44,47,48). Pre-notification by letter has also been shown to increase response rate to mailed surveys in many studies (47,49,50,51). The reasons for this are twofold: it alerts potential respondents of the up-coming survey, decreasing the chance that an interested respondent will unintentionally discard it, and it may also make the survey legitimate (47). A reminder postcard would be expected to increase response rate for two reasons. Obviously, the postcard reminds those who have not yet responded they have not completed the survey. Forgetting to complete the survey is a common reason for failing to respond to mailed surveys (43). Dillman also identified that the interest expressed in the reminder would be rewarding in the process of social exchange (43). In 33 of 36 comparisons, a follow-up postcard increased response rate (48).

First-class postage has been shown to generate a higher response rate than bulk-mail because bulk-mail is associated with junk mail, suggesting the survey is not important, and it does not receive the handling priority first-class mail does (43,48). However, because the surveys were sent out through the University of Maine mail system metered mail was used over surveys. Nine of 20 studies looking at the effect of metered mail instead of stamps found no increases in response due to stamped mail (44,53,55,56). The letters were sent on University of Maine letterhead. All these measures were taken to generate a higher response rate.



### **5.3 Knowledge**

Dietetics professionals in Maine perceived themselves to be knowledgeable about the components of CAM in study. Respondents considered themselves most knowledgeable about nutrient supplements. Fittingly, they also reported the greatest amount of formal education and a higher quality of education about nutrient supplements. Media being the greatest source of informal education about CAM poses an issue regarding the reliability of the information/knowledge dietetics professionals possess and may pass on to clients. Offering dietetics professionals more informal CAM education opportunities, such as online learning, quizzes in journals, brief pamphlets and fact sheets may decrease their reliance on the media as a convenient source of information.

### **5.4 Attitudes**

Respondents were relatively satisfied with the safety and effectiveness of nutrient supplements and functional foods. This finding is consistent with previous research regarding attitudes and professional and personal practices of health professionals (2,3,9,27,28). Respondents were much less satisfied with the safety and effectiveness of herbal products, consistent with the lack of evidence-based research and limited training health professionals receive about herbal products (1,2,3,11,20,21,22,27,28,30).

Despite reservations regarding their own knowledge and the safety and effectiveness of CAM, respondents perceived dietitians should be the health professionals providing CAM counseling. An almost equal amount reported that CAM should be a regular part of dietetics practice. These results necessitate increased training for dietetics professionals at the undergraduate and graduate levels, as well as through continuing

education for professionals. In order to provide accurate and reliable counseling, professionals themselves have to be well-educated and informed.

Dietetics professionals foresee CAM used in combination with allopathic care, and perceive it to be providing great potential benefits to clients. They also reported CAM as providing consumers greater control of their own health and health care. This is consistent with reports from both clients and health professionals (3,10,11,20,21,22,23,26,36).

## **5.5 Practices**

Respondents reported recommending nutrient supplements more frequently than functional foods in the past year. This finding was inconsistent with the reported greater effectiveness of functional foods. Dietitians perceived their peers provided CAM counseling more frequently than they themselves did. Dietetic professionals reported non-traditional practitioners such as chiropractors, naturopaths and herbalists as providing more CAM counselling than traditional health professionals. This perception is likely a reflection of the lower acceptance of CAM by the medical community and the lack of scientific evidence supporting its use (3,11,20).

Dietitians and diet technicians differed with respect to reasons CAM should be a regular part of dietetics practice. Dietitians envisioned the use of CAM in combination with, not as an alternative to, allopathic medicine. Use in combination with allopathic medicine would be a complementary therapy or complementary medicine. Diet technicians, however, saw CAM as an alternative to traditional medicine, thus as alternative medicines. Differences in overall education, as well as education about CAM

might account for the differing perceptions of CAM between dietitians and diet technicians.

Dietetics professionals in Maine were less likely to have recommended CAM in the past year than their counterparts in Oregon (2). However, it is well-established that people in the western U.S. are more likely to use CAM (14,22,24), and, therefore, the population of interest in the Oregon study may differ from the rest of the country with respect to their attitudes toward CAM. For this reason, the results of the Oregon study should not be generalized to other populations of dietitians, and further studies are warranted. Dietetics professionals in Maine might also be a unique group. Further studies are warranted throughout the U.S. to establish the knowledge, attitudes and practices of dietetics professionals. Further studies will help establish a norm.

Considering the lack of scientific evidence and low levels of training about herbal products, it was not surprising that almost 60% of respondents had not recommended herbs at all in the past year. Dietetic professionals reported receiving the most formal education about nutrient supplements, but were not overly satisfied with that education. Despite this, nutrient supplements were a regular part of dietetics practice. Functional foods are a relatively new aspect of nutrition and CAM and the average age of respondents was over forty. Despite this discrepancy, counseling about functional foods was a regular part of dietetics practice, regardless of age, formal education and satisfaction with education. Unfortunately, the greatest source of informal education about CAM for diet technicians was the media at over 70%.

Almost 65% of dietitians also sought the media for informal CAM education. Given the low levels of formal education reported, it is imperative that dietetics professional seek accurate and reliable sources for informal education in the future.

## **5.6 Training Needs and Interests**

The high level of interest in future training about herbal products is likely a reflection of the low levels of perceived knowledge and dissatisfaction with knowledge of herbal products. It is, however, incongruous with the reported low level of importance placed on knowledge of herbal products. Respondents were also least satisfied with the safety and effectiveness of herbal products. This in part, may be related to less reported hours of education and formal education about herbal products. It is also likely associated with the lack of scientific evidence supporting the use of herbal products. Despite the reported low level of importance of knowledge of herbal products, respondents felt dietitians should be providing CAM counselling.

Respondents were most interested in conventional training methods such as, conferences and workshops. Condensed educational sessions are appealing to professionals for whom time is short. A vast majority of respondents were looking to professional associations, particularly the American Dietetic Association (ADA) to provide future training. Respondents were also most interested in learning from peers. This is somewhat surprising given the general lack of knowledge about CAM among the dietetics profession. However, respondents did perceive other dietitians as practicing CAM more than they themselves did.

### **5.7 Limitations**

There were a few limitations to the survey. Firstly, the survey aimed to get a general idea about the knowledge, attitudes and practices of dietetic professionals, but there is so much variability between and within each component of CAM it seemed difficult at times for respondents to give general responses. More data needs to be gathered in this area. It would be particularly useful to survey each nutrition-related component of CAM individually (i.e. the survey was also more specific to dietitians than diet technicians and was originally designed for dietitians). More modifications could have been made when it was decided it would be valuable to include diet technicians as well. There were numerous comments on the survey indicating respondents had not read the definitions of each component of CAM provided in the survey.

### **5.8 Conclusions and Future Recommendations**

These results may aid the Maine Dietetic Association in the development of continuing education training requirements regarding complementary and alternative medicine, as well as undergraduate educational requirements to become a registered dietitian. It may also help educational institutions modify their programs to better prepare students to educate consumers and provide CAM counselling. The results will help the ADA determine interest in continuing education for conferences, workshops and educational materials.

The results may be useful in hastening the development of professional practice guidelines regarding CAM for dietetics professionals. A position paper from the American Dietetic Association clarifying the role of dietitians and their scope of practice

in CAM, as identified by Lee et al(2), would be one possibility. Future training for dietitians in the area of nutrient supplements, functional foods and herbal products is essential to maintain the profession as a nutrition authority.

The results of this research revealed the knowledge, attitudes and practices of dietetics professionals in Maine regarding the use of CAM. It sheds light on how often consumers seek the advice of dietetics professionals regarding CAM. It may, in turn, help the ADA, dietetics professionals, healthcare facilities and community programs develop educational programs that are relevant to consumers. Such preventive measures may increase the overall health of the population, decrease the potential for hazardous consumer use of CAM and decrease costs related to diseases for which CAM may be beneficial. Educational programs may also enhance the potential of CAM as a complement to allopathic medicine.

## REFERENCES

1. Chang ZG, Kennedy DT, Holdford DA, Small RE. Pharmacists' knowledge and attitudes towards herbal medicine. *Ann Pharmacother*. 2000;34:710-5.
2. Georgiou C, Lee YK, Raab C. The knowledge, attitudes and practices of dietitians licensed in Oregon regarding the use of functional foods, nutrient supplements and herbs as complementary and alternative medicine. *J Am Diet Assoc*. 2000;100(5):543-548.
3. Berman B, Singh BK, Ferentz K, Hartnoll S. Physicians' attitudes towards complementary or alternative medicine: a regional survey. *J Am Board Fam Prac*. 1995; 8(5):361-366.
4. Dietary Supplement Health And Education Act of 1994 (DSHEA), Pub L No. 103-417 108 Stat (1994).
5. Sarubin A. *The Health Professional's Guide to Popular Dietary Supplements*. Chicago, IL: American Dietetic Association; 2000.
6. US Food & Drug Administration. Economic Characterization of the Dietary Supplement Industry Final Report. *Center for Food Safety and Applied Nutrition*. March 1999.
7. American Dietetic Association. Position of the ADA - Vitamin and Mineral Supplementation. *J Am Diet Assoc*. 1996;96(1):73-77.
8. American Dietetic Association. Functional Foods - Position of ADA. *J Am Diet Assoc*. 1999;99:1278-1285.
9. Pearce KA, Boosalis MG, Yeager B. Update on vitamin supplements for the

- prevention of coronary disease and stroke. *Am Fam Phys*. 2000;62:1359-1366.
10. Freeman J, Landis J. Alternative/Complementary therapies. *South Dakota J Med*. 1997;50:65-66.
  11. Eisenberg D et al. Unconventional Medicine in the United States. *N Engl J Med*. 1993;328:246-252.
  12. Physicians' ethical obligations regarding alternative medicine. *J Am Med Assoc*. 1998;280(18):1623-1625.
  13. Industry Overview. *Nutrition Business Journal*. 1999;4(6):1-5.
  14. Ervin B, Wright J, Kennedy-Stephenson J. Use of dietary supplements in the US, 1988-94. *Vital and Health Stat*. June 1999; Series 11: No. 244.
  15. Meyer A. The 1998 top 100 R & D survey. *Food Processing*. 1998;58(8):32-40.
  16. Slesinski MJ, Subar AF, Kahle LL. Dietary intake of fat, fiber and other nutrients is related to the use of vitamin and mineral supplements in the United States: the 1992 National Health Interview Survey. *J Nutr*. 1996;126:3001-3008.
  17. Looker AC, Sempos CT, Johnson C, Yetley EA. Vitamin-Mineral supplement use; association with dietary intake and iron status of adults. *J Am Diet Assoc*. 1988;88:808-814.
  18. Pelletier DL, Kendall A. Supplement use may not be associated with better food intakes in all population groups. *Family Economics and Nutr Rev*. 1997;10:32-44.



19. Looker AC, Sempos CT, Johnson C, Yetley EA. Comparison of dietary intakes and iron status of vitamin-mineral supplement users and nonusers, aged 1-19 years. *Am J Clin Nutr.* 1987;46:665-672.
20. Sutherland LR, Verhoff MJ. Why do patients seek a second opinion or alternative medicine? *J Clin Gastroenterol.* 1994;19:194-197.
21. Freeman J, Landis J. Alternative/complementary therapies. *South Dakota J Med.* 1993; 328:246-252.
22. Houston DK, Johnson MA, Daniel TD, Poon LW. Health and dietary characteristics of supplement users in an elderly population. *Internat J Vit Nutr Res.* 1997; 67:183-191.
23. Verhoff MJ, Sutherland LR. Alternative medicine and General Practitioners. *Can Fam Phys.* 1995; 41:1005-1011.
24. Eisenberg DM et al. Trends in alternative medicine use in the United States, 1990-1997. *J Am Med Assoc.* 1998; 280:1569-1575.
25. Wetzel M, Eisenberg D, Kaptchuk T. Courses involving complementary and alternative medicine at US medical schools. *J Am Med Assoc.* 1998; 280:784-787.
26. Downer SM. Pursuit and practice of complementary and alternative medicine by cancer patients receiving conventional treatment. *Brit Med J.* 1994; 309(6947):86-89.
27. Frank E, Bendich A, Denniston M. Use of vitamin-mineral supplements by female physicians in the US. *Am J Clin Nutr.* 2000;72(4):969-975.

28. Ranelli PL, Dickerson RN, White KG. Use of vitamin and mineral supplements by pharmacy students. *Am J Hosp Pharm.* 1993;34:710-715.
29. Walker P. Evolution of a policy disallowing the use of alternative therapies in a health system. *Am J Health Sys Pharm.* 2000; 57(21):1984-1990.
30. Sugarman J, Burk L. Physicians' ethical obligations regarding alternative medicine. *J Am Med Assoc.* 1998;280:1623-1625.
31. Kurtzweil P. An FDA Guide to Dietary Supplements. *FDA Consumer.* September-October 1998.
32. International Food Information Council. Backgrounder: Functional foods. Food Insight Media Guide. Washington, DC. 1998.
33. Clydesdale FM. ILSI North America Food Component Reports. *Crit Rev Food Sci Nutr.* 1999;39(3):203-316.
34. Committee on Opportunities in the Nutrition and Food Sciences, Food and Nutrition Board, Institute of Medicine. Thomas PR, Earl R, eds. Opportunities in the Nutrition and Food Sciences: Research Challenges and the Next Generation of Investigators. Washington, DC: National Academy Press; 1994.
35. Schmidt DB, Morrow MM, White C. Communicating the benefits of functional foods. *Chemtech.* 1997; December;40-44.
36. Cohen MH. A fixed star in health care reform; the emerging paradigm of holistic healing. *Ariz St Law J.* 1995;27(1):79.

37. Bloom BS, Englehart MD, Furst EJ, Hill WH, Krathwohl DR. Taxonomy of educational objectives: the classification of educational objectives: Handbook I. Cognitive Domain. David McKay Co., Inc., New York, NY. 1956.
38. Random House Webster's Collegiate Dictionary. Random House Inc., New York, NY. 1996.
39. Bateman TS, Snell SA. Management: Building Competitive Advantage, 4<sup>th</sup> ed. Irwin McGraw-Hill. Chicago, IL. 1999.
40. Code of Ethics for the Profession of Dietetics. The American Dietetic Association. *J Am Diet Assoc.* 1999;99(1):109-113.
41. Meyers DG. Psychology, 4<sup>th</sup> ed. Worth Publishers Inc., New York, NY. 1995.
42. Cook SW, Sellitz C. A multiple-indicator approach to attitude measurement. *Psych Bull.* 1964;62:36.
43. Dillman DA. Mail and Telephone Surveys: The Total Design Method. John Wiley and Sons. New York, NY: 1978.
44. Dillman DA. Increasing mail questionnaire response in large samples of the general public. *Pub Op Quarterly.* 1972;36:254-257.
45. Vocino T. Three variables in stimulating responses to mailed questionnaires. *Pub Op Quarterly.* 1977;41(October):76-77.
46. Roberts W. Further evidence on using a deadline to stimulate response to a mail survey. *Pub Op Quarterly.* 1978;42:407-410.
47. Dillman DA, Frey JH. Contribution of personalization to mail questionnaire response as an element of a previously tested method. *J App Psychol.* 1974;59:297-301.

48. Fox R, Crask M, Kim J. Mail survey response rate. *Pub Op Quarterly*. 1988;52:467-491.
49. Jones WH, Lang JR. Sample composition bias in a mail survey: a comparison of inducement methods. *J Marketing Res*. 1980;17:69-76.
50. Parsons RJ, Medford TS. The effect of advance notice in mail surveys of homogeneous groups. *Pub Op Quarterly*. 1972;36:258-259.
51. Walker BJ, Burdick RK. Advance correspondence and error in mail surveys. *J Marketing Res*. 1977;14:379-382.
52. Brook LL. The effect of different postage combinations on response levels and speed of reply. *J Market Res Soc*. 1978;20:238-244.
53. Kernan JB. Are "bulk-rate occupants" really unresponsive? *Pub Op Quarterly*. 1971;35:420-424.
54. McCrohan KF, Lowe LS. A cost/benefit approach to postage used on mail questionnaires. *J Marketing*. 1981;45(winter):130-133.
55. Armstrong JS, Lusk EJ. Return postage in mail surveys. *Pub Op Quarterly*. 1987;51:233-248.
56. Peterson RA. An experimental investigation of mail-survey responses. *J Bus Res*. 1975;3:199-209.

## APPENDICES

**Appendix A**  
**SURVEY INSTRUMENT**

**Dietitians and Complementary  
and Alternative Medicine:  
*where are we now and where  
are we headed?***

Department of Food Science and Human Nutrition  
University of Maine

This survey is designed to find out what are the knowledge, attitudes and practices of dietitians in Maine regarding the use of nutrient supplements, functional foods and herbal products as components of complementary and alternative medicine.

All responses are completely confidential. Your consent to have your response included in the study is given by completing and returning the survey. Please do not include your name anywhere on the survey. If you would like to make any additional comments or suggestions, please do so on the enclosed comment page

The survey will take about 15 minutes to complete and can be returned in the pre-addressed, pre-stamped envelope provided.

Thank you very much for taking the time to complete this survey, your participation is greatly appreciated.

When completing this survey, please use these definitions:

- . Nutrient supplement - a nutrient taken to supplement the diet for the purpose of enhancing health, preventing disease or treating disease (e.g. manganese, calcium, vitamin C)
- . Functional food - a food that provides a physiologic benefit in addition to its nutrient content and which may prevent disease or enhance health (e.g. fish oils, soybeans, blueberries)
- . Herbal product - a product made from a plant with leaves, seeds, flowers or roots and used for enhancing health or preventing disease, not as a seasoning (e.g. echinacea, ginseng, chasteberry)
- . Complementary & alternative medicine - treatments and approaches to health outside the scope of traditional Western medicine, used to enhance health and treat or prevent disease



## Knowledge

1. How knowledgeable are you about each component of complementary and alternative medicine? (Please check the box that applies to your knowledge of each component.)

	Very knowledgeable	Knowledgeable	Somewhat knowledgeable	Unknowledgeable
Nutrient supplements	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Functional foods	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Herbal products	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2. To what extent do you think your knowledge of nutrient supplements, functional foods and herbal products is important?

	Very Important	Important	Somewhat Important	Unimportant
Nutrient supplements	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Functional foods	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Herbal products	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3. Please check the approximate number of hours of formal education you have received in each of the components of complementary and alternative medicine.

	0 hrs	1-5 hrs	6-10 hrs	11-15 hrs	>15 hrs
Nutrient supplements	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Functional foods	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Herbal Products	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

4. How do you perceive the quality of that formal education? (Please check the box that applies to the quality of education for each component.)

	Very Good	Good	Fair	Poor	Very Poor
Nutrient supplements	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Functional foods	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Herbal products	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

5. Where has your informal education about complementary and alternative medicine come from?

☒ 9 Scientific journals

☐ Books

☐ Media - TV, magazines, radio, the Internet

☐ Other (please explain) \_\_\_\_\_

6. How satisfied are you with your knowledge of complementary and alternative medicine?

☐ Extremely satisfied

☐ Moderately satisfied

☐ Satisfied

☐ Unsatisfied

☒ Extremely unsatisfied

7. Do you think you need to know more about each component of complementary and alternative medicine? (Please check the box before each component you need to know more about.)

☒ Nutrient supplements

☐ Functional foods

☒ Herbal products

☒ Other (please explain) \_\_\_\_\_

### Current & Future Practices

In answering the following set of questions, think back on the past 2 years of your professional practice.

8. How often in the past two years have you recommended the use of each component of complementary and alternative medicine to a patient/client?

	Nutrient Supplements	Functional Foods	Herbal Products
>12 times in a year	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
>6 times in a year	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3-6 times a year	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1-2 times a year	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
0 times a year	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

9. How often do you think dietitians in general recommend the use of complementary and alternative medicine to a patient/client?

	Nutrient Supplements	Functional Foods	Herbal Products
>12 times in a year	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
>6 times in a year	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3-6 times a year	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1-2 times a year	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
0 times a year	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

10. In the future do you intend to recommend complementary and alternative medicine to patients/clients for whom it may be beneficial?

	Yes	Maybe	No
Nutrient supplements	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Functional foods	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Herbal products	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

11. In your opinion, who presently provides counseling regarding complementary/alternative medicines? (Please check all that apply.)

<input type="checkbox"/> Doctors	<input type="checkbox"/> Chiropractors
<input type="checkbox"/> Nurses	<input type="checkbox"/> Naturopaths
<input type="checkbox"/> Dietitians	<input type="checkbox"/> Dentists
<input type="checkbox"/> Pharmacists	<input type="checkbox"/> Other _____

### Attitudes

In this section, please reflect on your professional attitudes toward complementary and alternative medicine.

12. To what extent do you believe complementary and alternative medicine are safe measures? (Please circle the number that corresponds to your answer for each component.)

	Very safe	Safe	Questionable	Unsafe
Nutrient supplements	1	2	3	4
Functional foods	1	2	3	4
Herbal Products	1	2	3	4

13. Do you believe complementary and alternative medicines are effective measures? (Please check all the boxes that apply for each component.)

	Nutrient supplements	Functional foods	Herbal products
Maintain health	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Prevent disease	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Treat disease?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
None of the above.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

14. Which health care professionals do you think should recommend the use of complementary and alternative medicine? (Check all that apply.)

<input type="checkbox"/> Doctors	<input type="checkbox"/> Chiropractors
<input type="checkbox"/> Nurses	<input type="checkbox"/> Naturopaths
<input type="checkbox"/> Dietitians	<input type="checkbox"/> Dentists
<input type="checkbox"/> Pharmacists	<input type="checkbox"/> Other _____

15. Do you think complementary and alternative medicine should be part of regular dietetics practice?

a. If yes, for what reason?

- ☐ Complementary and alternative medicine is a measure that has great potential benefits for the patient/client.
  - ☐ Complementary and alternative medicine is a reliable alternative to traditional medical options.
  - ☐ Complementary and alternative medicine allows the patient/client more control of their own care.
  - ☐ Complementary and alternative medicine has benefits beyond those intended.
  - ☐ Complementary and alternative medicine is more economical and accessible to patients/clients.
  - ☐ Other (please explain)
- 

b. If no, for what reason?

- ☐ Complementary and alternative medicine is not effective.
  - ☐ Complementary and alternative medicine is too risky.
  - ☐ Complementary and alternative medicine lacks a well-established body of scientific evidence to support its use.
  - ☐ Complementary and alternative medicine gives the patient/client too much control of their own health care.
  - ☐ Complementary and alternative medicine is not economical.
  - ☐ Other (please explain)
- 
- 
- 

16. Why do you think complementary and alternative medicine has gained popularity over the past 3 decades? (Check all that apply.)

- ☐ Consumers want more control of their health and health care & seek this through complementary and alternative medicine.
  - ☐ Complementary and alternative medicine is less expensive for consumers than traditional medicine.
  - ☐ Complementary and alternative medicine is more accessible than traditional medicine.
  - ☐ Complementary and alternative medicine is more personal than traditional medicine.
  - ☐ Other (please explain)
- 
- 
-

### Training Needs and Interests

17. What are the most important areas relating to complementary and alternative medicine that you would like to learn about? (Check all that apply.)
- 9            The role of nutrient supplements in maintaining health.
  - 9            The role of functional foods in maintaining health.
  - 9            The role of herbal products in maintaining health.
  - 9            Nutrient supplements in the prevention of disease.
  - 9            Functional foods in the prevention of disease.
  - 9            Herbal products in the prevention of disease.
  - 9            The use of nutrient supplements to treat disease.
  - 9            The use of functional foods to treat disease.
  - 9            The use of herbal products to treat disease.
  - 9            The emerging role of complementary and alternative medicine in health.
  - 9            Other (please explain) \_\_\_\_\_
18. If you are interested in receiving future training about complementary and alternative medicine, what training formats would be most desirable to you? (Check all that apply.)
- 9            Books, text, articles.
  - 9            Fact sheets and brochures.
  - 9            Workshops.
  - 9            Conferences.
  - 9            Information on the web.
  - 9            Other (please explain) \_\_\_\_\_
19. If you are interested in receiving future training, who would you most like to provide it?
- 9            Other dietitians
  - 9            Doctors
  - 9            Pharmacists
  - 9            Drug companies
  - 9            Professional associations (e.g. ADA, Apha).
  - 9            University faculty
  - 9            Other (please explain) \_\_\_\_\_

### Demographic Information

In order to analyze the data, we need to find out some information about yourself. Please check the appropriate box for each question.

20. I am \_\_\_\_\_ years of age.

21. I am: ☐ female ☐ male

22. I practice in: ☐ a city  
☐ a town  
☐ a rural setting

23. The highest educational degree I have completed:

- 9 Bachelor's degree  
 9 Master's degree  
 9 Doctoral degree

24. My route to registration was:

#### Dietitian

- ☐ Dietetic internship  
☐ AP4  
☐ Coordinated program  
☐ M.Sc + 6 month experience  
☐ 3 year planned experience  
☐ Other (please explain) \_\_\_\_\_

#### Diet Tech

- ☐ 2 year program + experience  
☐ 4 year B.S. nutrition + Diet Tech Experience  
☐ Other (please explain) \_\_\_\_\_

25. In what area of dietetics do you practice?

- 9 Healthcare (Clinical)  
 9 Community Program  
 9 Public Health  
 9 Educational  
 9 Industry  
 9 Government  
 9 Private Practice  
 9 University  
 9 Research  
 9 Other (please explain) \_\_\_\_\_

26. Which health professionals are you currently working with?

- ☐ Physicians  
☐ Nurses  
☐ Dietitians  
☐ Social Workers  
☐ Other (please explain) \_\_\_\_\_  
☐ None

27. In your current practice, to whom do you refer to for complementary/alternative medicines? (Please check all that apply.)

- |                          |             |                          |               |
|--------------------------|-------------|--------------------------|---------------|
| <input type="checkbox"/> | Doctors     | <input type="checkbox"/> | Chiropractors |
| <input type="checkbox"/> | Nurses      | <input type="checkbox"/> | Naturopaths   |
| <input type="checkbox"/> | Dietitians  | <input type="checkbox"/> | Dentists      |
| <input type="checkbox"/> | Pharmacists | <input type="checkbox"/> | Herbalists    |
| <input type="checkbox"/> | Other _____ |                          |               |

28. I have been practicing as a dietitian for \_\_\_\_\_ years.

29. My current employment status is: ☐ Full time  
☐ Part time  
☐ Unemployed

30. Are you currently seeing patients/clients? ☐ Yes ☐ No

If yes, how many do you see per week?

- ☐ 1-5  
☐ 6-10  
☐ 11-15  
☐ 16-20  
☐ >20

***Thank you very much for your time and cooperation.***



**Appendix B**  
**FREQUENCY DISTRIBUTIONS**

Table B.1 Perceived Knowledge

Value Label	RDs* (%)	DTs** (%)	Total (%)
<b>Nutrient Supplements</b>			
Very knowledgeable	19.9	10.1	17.3
Knowledgeable	56.5	43.5	53.1
Somewhat Knowledgeable	23.6	46.4	29.6
<b>Functional Foods</b>			
Very knowledgeable	9.9	11.6	10.4
Knowledgeable	49.2	37.7	46.2
Somewhat knowledgeable	36.6	47.8	39.6
Unknowledgeable	3.7	2.9	3.5
<b>Herbal Products</b>			
Very knowledgeable	2.1	4.3	2.7
Knowledgeable	16.8	17.4	16.9
Somewhat knowledgeable	67.0	68.1	67.3
Unknowledgeable	14.1	8.7	12.7

\*Registered Dietitians

\*\*Diet Technicians

Table B.2 Importance of Knowledge

Value Label	RDs* (%)	DTs** (%)	Total (%)
<b>Nutrient Supplements</b>			
Very important	67.5	52.2	63.5
Important	29.3	40.6	32.3
Somewhat important	2.6	7.2	3.8
<b>Functional Foods</b>			
Very important	59.2	50.7	56.9
Important	34.6	40.6	36.2
Somewhat important	4.7	8.7	5.8
Unimportant	0.5	0	0.4
<b>Herbal Products</b>			
Very important	47.6	27.5	42.3
Important	39.3	37.7	38.8
Somewhat important	10.5	31.9	16.2
Unimportant	2.1	2.9	2.3

\*Registered Dietitians

\*\*Diet Technicians

Table B.3 Hours of Formal Education

Value Label	RDs* (%)	DTs** (%)	Total (%)
<b>Nutrient Supplements</b>			
0	2.1	4.3	2.7
1 – 5	25.1	21.7	24.2
6 – 10	17.8	20.3	18.5
11 – 15	12.0	17.4	13.5
>15	42.4	36.2	40.8
<b>Functional Foods</b>			
0	6.8	8.7	7.3
1 – 5	40.8	36.2	39.6
6 – 10	23.6	21.7	23.1
11 – 15	14.1	7.2	12.3
>15	13.6	26.1	16.9
<b>Herbal Products</b>			
0	13.6	17.4	14.6
1 – 5	49.7	46.4	48.8
6 – 10	24.6	23.2	24.2
11 – 15	4.7	5.8	5.0
>15	6.3	7.2	6.5

\*Registered Dietitians  
\*\*Diet Technicians

Table B.4 Quality of Formal Education

Value Label	RDs* (%)	DTs** (%)	Total (%)
<b>Nutrient Supplements</b>			
Very good	29.8	17.4	26.5
Good	47.6	46.4	47.3
Fair	12.0	31.9	17.3
Poor	5.8	2.9	5.0
Very poor	1.6	1.4	1.5
<b>Functional Foods</b>			
Very good	13.6	14.5	13.8
Good	42.9	37.7	41.5
Fair	24.6	36.2	27.7
Poor	8.4	8.7	8.5
Very poor	5.2	2.9	4.6
<b>Herbal Products</b>			
Very good	8.4	4.3	7.3
Good	30.4	24.6	28.8
Fair	27.2	40.6	30.8
Poor	15.2	21.7	16.9
Very poor	11.5	7.2	10.4

\*Registered Dietitians  
\*\*Diet Technicians

Table B.5 Sources of Informal Education

Source	Dietitians (%)	Diet Technicians (%)	Total (%)
Scientific journals	69.1	49.3	63.8
Books	58.1	60.9	58.8
Media	64.4	72.5	66.5
Other	26.2	27.5	26.5

Table B.6 Satisfaction with Knowledge

Level of Satisfaction	Dietitians (%)	Diet Technicians (%)	Total (%)
Extremely satisfied	2.1	0	1.5
Moderately satisfied	17.3	15.9	16.9
Satisfied	24.1	24.6	24.2
Unsatisfied	52.1	56.5	53.5
Extremely unsatisfied	2.1	2.9	2.3

Table B.7 Need to Know More

Component	Dietitians (%)	Diet Technicians (%)	Total (%)
Nutrient supplements	53.9	59.4	55.4
Functional foods	70.7	76.8	72.3
Herbal products	87.4	91.3	88.5
Other	5.2	14.5	7.7

Table B.8 Safety of CAM

Safety	Nutrient Supplements (%)			Functional Foods (%)			Herbal Products (%)		
	Dietitians	Diet Technicians	Total	Dietitians	Diet Technicians	Total	Dietitians	Diet Technicians	Total
Very Safe	24.1	21.7	23.5	35.1	42	36.9	1.6	4.3	2.3
Safe	55	58	55.8	48.7	44.9	47.7	17.3	21.7	18.5
Questionable	17.8	17.4	17.7	13.1	11.6	12.7	70.7	68.1	70
Unsafe	0	0	0	0.5	0	0.4	5.8	2.9	5

Table B.9 Effectiveness of CAM

Measures	Nutrient Supplements (%)			Functional Foods (%)			Herbal Products (%)		
	Dietitians	Diet Technicians	Total	Dietitians	Diet Technicians	Total	Dietitians	Diet Technicians	Total
Maintain Health	88	85.5	87.3	82.7	82.6	82.7	38.2	42	39.2
Prevent Disease	77	66.7	74.2	80.1	76.8	79.2	28.3	37.7	30.8
Treat Disease	63.9	60.9	63.1	40.3	49.3	42.7	41.9	47.8	43.5
None	1.6	1.4	1.5	4.2	0	3.1	20.4	17.4	19.6

Table B.10 Which Health Professionals Should Recommend CAM

Health Professional	Dietitians	Diet Technicians	Total
Doctors	76.4	81.2	77.7
Nurses	40.3	43.5	41.2
Dietitians	88.5	87	88.1
Pharmacists	59.2	49.3	56.5
Herbalists	32.5	40.6	34.6
Chiropractors	25.7	39.1	29.2
Naturopaths	36.6	44.9	38.8
Dentists	14.7	15.9	15
Other	5.8	10.1	6.9

Table B.11 Should CAM be Part of Regular Dietetics Practice?

Response	Dietitians	Diet Technicians	Total
Yes	88.5	87	88.1
No	7.9	10.1	8.5

Table B.12 Why Should CAM be Part of Regular Dietetics Practice?

Reason	Dietitians	Diet	Total
		Technicians	
Great potential benefits for clients	56.5	31.9	55.4
Reliable alternatives to traditional medicine	23	42	25.4
Allow client more control of own care	42.9	17.4	42.7
Have Benefits beyond those intended	14.1	20.3	15
More Economical and accessible to clients	18.3	71	18.8
Can be used together with allopathic care	78	7.2	76.2
Other	12.6	4.3	11.2

Table B.13 Why Should CAM not be Part of Regular Dietetics Practice?

Reason	Dietitians	% Diet Technicians	Total
Are not effective	1	4.3	1.9
Are too risky	4.7	7.2	5.4
Lack well-established supporting scientific evidence	19.9	13	18.1
Give client too much control of care	0.5	1.4	0.8
Are not economical	3.1	5.8	3.8
Other	3.7	8.7	5

Table B.14 Reason(s) for Increased Popularity of CAM

Reason	Dietitians	% Diet Technicians	Total
Provide consumers more control of health and health care	74.9	75.4	75
Less expensive for consumers than traditional medicine	37.7	37.7	37.7
More accessible than traditional medicine	58.1	47.8	55.4
More personal than traditional medicine	45	27.5	40.4
An area in which more research is being conducted	28.8	37.7	31.2
Regulatory bodies are trying to standardize	12.6	20.3	14.6
Other	18.3	13	16.9

Table B.15 Frequency of Recommendation

Frequency	Nutrient Supplements (%)			Functional Foods (%)			Herbal Products (%)		
	Diet			Diet			Diet		
	Dietitians	Technicians	Total	Dietitians	Technicians	Total	Dietitians	Technicians	Total
> 12	61.3	46.4	57.3	37.2	29	35	2.6	7.2	3.8
6 to 11	7.3	14.5	9.2	15.7	10.1	14.2	5.8	5.8	5.8
3 to 5	5.8	2.9	5	9.9	15.9	11.5	8.4	11.6	9.2
1 to 2	4.2	8.7	5.4	9.4	7.2	8.8	16.2	13	15.4
Zero	13.6	17.4	14.6	20.9	26.1	22.3	59.7	50.7	57.3

Table B.16 Frequency of Recommendation by other Dietitians

Frequency	Nutrient Supplements (%)			Functional Foods (%)			Herbal Products (%)		
	Diet			Diet			Diet		
	Dietitians	Technicians	Total	Dietitians	Technicians	Total	Dietitians	Technicians	Total
> 12	72.8	63.8	70.4	46.6	47.8	46.9	8.4	10.1	8.8
6 to 11	4.7	7.2	5.4	15.2	23.2	17.3	7.9	7.2	7.7
3 to 5	5.8	11.6	7.3	14.7	8.7	13.1	23.6	23.2	23.5
1 to 2	0.5	1.4	0.8	5.2	4.3	5	27.2	29	27.7
Zero	1	1.4	1.2	2.1	1.4	1.9	13.1	15.9	13.8

Table B.17 Future Intention to Recommend

Response	Nutrient Supplements (%)			Functional Foods (%)			Herbal Products (%)		
	Diet			Diet			Diet		
	Dietitians	Technicians	Total	Dietitians	Technicians	Total	Dietitians	Technicians	Total
Yes	78.5	73.9	77.3	69.6	69.6	69.6	25.1	30.4	26.5
Maybe	11.5	17.4	13.1	18.3	20.3	18.8	51.3	49.3	50.8
No	2.1	1.4	1.9	3.7	2.9	3.5	14.7	11.6	13.8

Table B.18 Who Presently Provides CAM Counseling?

<b>Health Professional</b>	<b>%</b>		
	<b>Dietitians</b>	<b>Diet Technicians</b>	<b>Total</b>
Doctors	52.9	62.3	55.4
Nurses	56.5	47.8	54.2
Dietitians	66	73.9	68.1
Pharmacists	54.5	47.8	52.7
Herbalists	91.1	82.6	88.8
Chiropractors	83.8	66.7	79.2
Naturopaths	87.4	72.5	83.5
Dentists	18.3	10.1	16.2
Other	10.5	14.5	11.5

Table B.19 Most Important Areas to Learn About

<b>Area of Interest</b>	<b>%</b>		
	<b>Dietitians</b>	<b>Diet Technicians</b>	<b>Total</b>
Role of nutrient supplements in maintaining health	50.8	52.2	51.2
Role of functional foods in maintaining health	62.3	65.2	63.1
Role of herbal products in maintaining health	71.7	68.1	70.8
Nutrient supplements in disease prevention	53.4	52.2	53.1
Functional foods in disease prevention	66	60.9	64.6
Herbal products in disease prevention	69.6	65.2	68.5
Use of nutrient supplements to treat disease	52.9	52.2	52.7
Use of functional foods to treat disease	60.2	62.3	60.8
Use of herbal products to treat disease	67.5	60.9	65.8
Emerging role of complementary/alternative medicine in health	68.1	75.4	70
Other	4.7	4.3	4.6



Table B.20 Desirable Training Formats

<b>Format</b>	<b>Dietitians</b>	<b>Diet Technicians</b>	<b>Total</b>
Books, texts, articles	40.8	49.3	43.1
Fact sheets and brochures	51.3	52.2	51.5
Workshops	71.7	66.7	70.4
Conferences	72.3	68.1	71.2
Information on the web	47.6	44.9	46.9
University courses	33	33.3	33.1
Other	2.1	5.8	3.1

Table B.21 Desirable Training Providers

<b>Provider</b>	<b>Dietitians</b>	<b>Diet Technicians</b>	<b>Total</b>
Other dietitians	70.7	71	70.8
Doctors	39.8	33.3	38.1
Pharmacists	37.7	36.2	37.3
Drug companies	5.8	7.2	6.2
Professional associations (e.g. ADA)	73.3	71	72.7
University faculty	55	42	51.5
Other	13.6	13	13.5

Table B.22    Age

Age	% Dietitians    Diet Technicians		Total
	Dietitians	Diet Technicians	
21	0	1.4	0.4
25	1.6	2.9	1.9
26	1	0	0.8
27	1	0	0.8
28	0.5	0	0.4
29	0	1.4	0.4
30	3.1	1.4	2.7
31	1	0	0.8
32	1.6	5.8	2.7
33	1.6	2.9	1.9
34	3.1	2.9	3.1
35	1.6	2.9	1.9
36	2.6	2.9	2.7
37	2.1	1.4	1.9
38	1.6	4.3	2.3
39	3.1	1.4	2.7
40	7.9	2.9	6.5
41	2.6	2.9	2.7
42	3.1	2.9	3.1
43	2.1	4.3	2.7
44	6.3	5.8	5.8
45	4.2	10.1	5.8
46	4.7	2.9	4.2
47	4.7	4.3	4.6
48	3.1	2.9	3.1
49	3.7	2.9	3.5
50	3.1	1.4	2.7
51	1.6	1.4	1.5
52	2.6	2.9	2.7
53	3.1	1.4	2.7
54	3.7	1.4	3.1
55	1	1.4	1.2
56	0.5	4.3	1.5
57	2.6	0	1.9
58	2.1	0	1.5
59	1	1.4	1.2
60	0	2.9	0.8
61	1	0	0.8
62	1	1.4	1.2
63	0.5	0	0.4
64	0.5	0	0.4
66	1	0	0.8
68	0.5	0	0.4
70	0.5	0	0.4
71	0	1.4	0.4
74	0.5	0	0.4
75	0.5	0	0.4
81	0.5	0	0.4

Table B.23 Gender

<b>Gender</b>	<b>%</b>		<b>Total</b>
	<b>Dietitians</b>	<b>Diet Technicians</b>	
Female	97.4	92.8	96.2
Male	1	4.3	1.9

Table B.24 Practice Setting

<b>Gender</b>	<b>%</b>		<b>Total</b>
	<b>Dietitians</b>	<b>Diet Technicians</b>	
City	45	45.5	44.6
Town	28.8	20.3	26.5
Rural	12.6	11.6	12.3

Table B.25 Highest Degree

<b>Degree</b>	<b>%</b>		<b>Total</b>
	<b>Dietitians</b>	<b>Diet Technicians</b>	
Bachelor	38.7	37.7	38.5
Master/Doctoral	59.2	4.3	44.6

Table B.26 Route to Registration: Dietitians

<b>Route</b>	<b>%</b>
Dietetic Internship	49.2
AP4	6.8
Coordinated Program	8.9
MS + 6 month experience	18.8
3 year planned experience	8.4
Other	4.2

Table B.27 Route to Registration: Diet Technicians

<b>Route</b>	<b>%</b>
2 year program + experience	79.7
4 year BS nutrition + diet tech experience	15.9
Other	4.3

Table B.28 Area of Practice

<b>Area</b>	<b>%</b>		
	<b>Dietitians</b>	<b>Diet Technicians</b>	<b>Total</b>
Healthcare (Clinical)	49.7	50.7	50
Community Program	16.8	14.5	16.2
Public Health	11	4.3	9.2
Educational	18.3	5.8	15
Industry	2.6	1.4	2.3
Government	6.8	1.4	5.4
Private Practice	22.5	1.4	16.9
University	5.2	1.4	4.2
Research	3.1	0	2.3
Other	13.1	21.7	15.4

Table B.29 Health Professionals Working With

<b>Health Professional</b>	<b>%</b>		
	<b>Dietitians</b>	<b>Diet Technicians</b>	<b>Total</b>
Physicians	68.6	49.3	63.5
Nurses	69.1	58	66.2
Dietitians	56.5	58	56.9
Social workers	54.5	47.8	52.7
Other	28.8	15.9	25.4
None	9.9	13	10.8

Table B.30 Health Professionals Referred to for CAM

<b>Health Professional</b>	<b>%</b>		<b>Total</b>
	<b>Dietitians</b>	<b>Diet Technicians</b>	
Physicians	27.2	27.5	27.3
Nurses	4.7	4.3	4.6
Dietitians	26.2	39.1	29.6
Pharmacists	24.1	17.4	22.3
Herbalists	6.8	4.3	6.2
Chiropractors	2.1	4.3	2.7
Naturopaths	8.4	4.3	7.3
Dentists	0.5	0	0.4
Other	13.1	1.4	10

Table B.31 Years in Practice

Years	% Dietitians      Diet Technicians		Total
1	1.6	1.4	1.5
1.5	0.5	0	0.4
2	1	5.8	2.3
2.5	1	0	0.8
3	1	1.4	1.2
4	1	1.4	1.2
5	2.6	10.1	4.6
5.5	0.5	0	0.4
6	2.6	1.4	2.3
7	0.5	5.8	1.9
8	0.5	1.4	0.4
9	3.1	1.4	2.7
10	2.6	7.2	2.3
11	4.7	1.4	5.4
12	2.6	5.8	2.3
13	0.5	1.4	0.8
14	2.6	2.9	2.7
15	7.9	5.8	7.3
16	3.1	1.4	2.7
17	3.1	1.4	2.7
18	4.2	0	3.1
19	0.5	0	0.4
20	8.9	1.4	6.9
21	2.1	1.4	1.9
22	2.1	1.4	1.9
23	1.6	1.4	1.5
24	1.6	0	1.2
25	5.2	1.4	4.2
26	1.6	0	1.2
27	1	0	0.8
28	1.6	1.4	1.5
29	0.5	0	0.4
30	5.2	0	3.8
32	1.6	0	1.2
34	0.5	0	0.4
35	0.5	0	0.4
36	1	0	0.8
37	0.5	0	0.4
39	1	0	0.8
40	1	0	0.8
41	0.5	0	0.4
44	0.5	0	0.4
45	0.5	0	0.4
53	0.5	0	0.4
59	0.5	0	0.4

Table B.32 Employment Status

<b>Employment Status</b>	<b>%</b>		
	<b>Dietitians</b>	<b>Diet Technicians</b>	<b>Total</b>
Full time	51.3	59.4	59.4
Part time	31.9	20.3	20.3
Unemployed	7.9	11.6	11.6
Retired	4.2	5.8	5.8

Table B.33 Currently Seeing Clients

<b>Seeing Clients</b>	<b>%</b>		
	<b>Dietitians</b>	<b>Diet Technicians</b>	<b>Total</b>
Yes	61.8	53.6	59.6
No	33	43.5	35.8

Table B.34 Number of Clients Seen per Week

<b># of Clients Seen</b>	<b>%</b>		
	<b>Dietitians</b>	<b>Diet Technicians</b>	<b>Total</b>
1 to 5	14.1	13	13.8
6 to 10	6.3	7.2	6.5
11 to 15	7.3	8.7	7.7
16 to 20	11	4.3	9.2
> 20	23.6	20.3	22.7

## **BIOGRAPHY OF THE AUTHOR**

Jennifer Lawrance was born in Castries, St. Lucia on March 23<sup>rd</sup>, 1978. She spent her childhood in Castries and Mocimboa de Praia, Mozambique before returning to Canada with her parents. She and her family spent a few years in Smithers, British Columbia and then moved to Thunder Bay, Ontario. Her family settled in Sioux Lookout, Ontario where Jennifer spent her youth and adolescence. She attended Queen Elizabeth District High School until transferring to Hammarosjkold High School in Thunder Bay to complete high school. She attended the University of Saskatchewan and in 2000 obtained a Bachelor's of Science degree in Nutrition. Jennifer began studies in the Food Science and Human Nutrition graduate program at The University of Maine. She completed her Dietetic Internship at Maine Medical Center in December 2001.

Upon completing her Masters, Jennifer plans to return to Sioux Lookout and work in public health nutrition. Jennifer is a candidate for the Master of Science degree in Food Science and Human Nutrition from The University of Maine in May, 2002.