CHAPTER III
METHODOLOGY

The goal of this study was to assess the attitudes, beliefs, and perceived nutrition counseling competence of primary-care physicians, as well as the perceived dietary education needs of older, low-income adults with diet-related chronic diseases and conditions. The study involved the conduction of two separate surveys in 37 counties in Southwest and the western side of Central Virginia. One survey was of primary-care physicians and the other of older, low-income participants enrolled in the Food Stamp Nutrition Education Program (FSNEP). Southwest Virginia was chosen as the site of this study as it is generally designated as an under-served area, both for medical care and for availability of registered dietitians. This designation of being under-served is defined as a low proportion of primary-care physicians to total population, and/or a high number of elderly individuals, and/or a high number of low-income individuals within a given area as defined by the federal medically under-served area guidelines.\textsuperscript{69}

This study was approved by the University Institutional Review Board for Research involving Human Subjects at Virginia Tech. An informed consent form (see Appendix A) was signed by each participating FSNEP client. Physicians were not required to sign an informed consent form.

SUBJECTS SURVEYED

Physicians. In 1994, Virginia had 21.7 physicians for every 10,000 people. This was slightly lower than the national average of 23.5 physicians for every 10,000 people. In the United States, there were just over 233,000 primary-care physicians who comprised 38.6% of the total population of 605,000 active physicians. General/family practitioners accounted for 12.1% (73,000) of the total.\textsuperscript{56}

Physicians’ names and addresses were obtained from a comprehensive list of all primary-care
physicians in Southwest and the western section of Central Virginia obtained from the Southwest Virginia Health System Agency. Every physician on the list designated as family/general practitioner or internist was surveyed. Pediatricians, obstetricians, and gynecologists were excluded from the study since their patient population is generally too young to be referred to community nutrition education programs that emphasize chronic disease management. The target area was primarily composed of non-metropolitan areas, although some locations, such as Danville, Lynchburg, and Roanoke, were metropolitan. Of the 37 counties and independent cities surveyed, twenty were served by FSNEP, one by the Expanded Food and Nutrition Education Program (EFNEP), fourteen by both FSNEP and EFNEP, and two were not served by either program. See Table 1 for a list of the number of primary-care physicians surveyed in each county.

**FSNEP clients/patients.** A convenience sample of patients with chronic diseases and conditions was recruited from among low-income participants enrolled in FSNEP in Southwest and Central Virginia between October 1997 and March 1998. Eleven Program Assistants employed throughout Southwest and Central Virginia were required to submit photocopies of the front page of potential participants’ family records. The FSNEP clients were required to have a limited income (150% or less of the federal poverty guidelines, see Table 2), be aged 40 years or older, have a diet-related chronic disease or condition, and have been enrolled in FSNEP for four months or less. Designated diet-related chronic diseases and conditions included cardiovascular disease, elevated blood lipid levels, elevated cholesterol, hypertension, obesity/overweight, osteoporosis, and type 2 diabetes. The Program Assistants were asked to record all diet-related chronic diseases and conditions reported by the client and the client’s income on the photocopied family records. The researchers chose 66 clients meeting the criteria to be surveyed.

Newly-enrolled FSNEP clients were surveyed to avoid any bias that previously-enrolled clients may have due to completion of most or all of the FSNEP lessons. Clients who had a diet-related chronic disease or condition and were aged 40 years or older represented...
potential enrollees in free community nutrition education programs that provide chronic disease management.

**DEVELOPMENT OF THE QUESTIONNAIRES**

**Physician questionnaire.** The goal of the survey (see Appendix B) was to provide a better understanding of primary-care physicians’ attitudes, beliefs, and current practices concerning nutrition. Questions about the physicians’ patient profiles were included to obtain an estimate of the number of older, low-income chronic disease patients who are normally seen by primary-care physicians. The physicians’ beliefs on the importance of nutrition in health maintenance were obtained to secure an idea of physicians’ attitudes about the value of nutrition professionals and nutrition education programs. Furthermore, desirable and undesirable attributes of nutrition education programs were assessed to better target physicians in the future to establish a referral system with FSNEP. Questions concerning the physicians’ current level of nutrition counseling and referrals to outside nutrition sources were included to provide insight into whether or not chronic disease patients are generally receiving needed dietary counseling.

In order to maximize the response rate, questions were worded to be concise and to require minimal consideration before answering. There were no open-ended questions as these have been shown to decrease response rates. Questions had a line for the physician to include additional answers, if appropriate. Confidentiality was maintained by placing a pre-assigned identification number on each questionnaire, which was used instead of the physician’s name to designate that particular survey.

**FSNEP client questionnaire.** The client questionnaire (see Appendix C) was designed by the investigators in this study to be appropriate for low-income individuals. Simple terminology was used since this group generally has poor literacy skills. The questionnaire included questions on the clients’ health status and number of times they visit a primary-care physician. Several questions were included on the clients’ perceptions of the amount and
quality of nutrition counseling provided by their primary-care physician. If many clients are dissatisfied with the dietary education they receive, this would indicate a need for referrals to community nutrition education programs. The amount of discussion with primary-care physicians about the clients’ financial situations was covered as well. Since free community nutrition education programs often have income eligibility limits, a physician must either know that a patient has a limited income or be willing to ask about the patient’s financial situation before a referral can be made. Confidentiality was achieved by assigning each client an identification number that was written on the survey. Identification numbers were used, instead of names, in referring to answers or comments on individual questionnaires.

PILOT TESTING OF SURVEYS
A pilot test of the physician survey was conducted with three family physicians in Floyd, Virginia. The physicians were handed the survey and were required to return the survey to the researchers by mail. Two groups of FSNEP clients were administered the client survey by one of the researchers. Two clients were interviewed individually in Roanoke, Virginia, while seven clients were surveyed in Giles, Virginia in a group setting. Clients were asked about the clarity of the questions and their suggestions were used to modify the survey. None of the pilot group participants were included in the main survey.

ADMINISTRATION OF THE SURVEYS
Physician survey. The questionnaire was initially mailed to 299 family/general practitioners and 241 internists in Southwest and the western section of Central Virginia. Instructions on how to complete the questionnaire, an explanation of the study, and a self-addressed, pre-paid return envelope were included with each survey. A second mailing was sent four weeks after the initial mailing to all non-respondents, along with a letter restating the importance of each physician’s participation. A thank you letter was mailed to all responding physicians three weeks later (see Appendix D).

FSNEP client survey. The participating FSNEP Program Assistants were sent a list of clients, with assigned identification numbers, who were to be interviewed. Several alternate
client names were provided in case a client decided not to or could not participate. If a Program Assistant did not have at least six currently-enrolled clients to survey, they were instructed to interview clients enrolled over the next month in FSNEP who met the study criteria. In these instances, the researchers reviewed each case to verify that the selected client met the proper criteria.

The Program Assistants were responsible for conducting the client interviews and then returning the completed survey to the researchers. Phone numbers were provided in case the Program Assistant or client had a question or concern about the study. Participating Program Assistants received training (see Appendix E) on how to administer the questionnaire in a professional, un-biased manner during training sessions conducted by the principal investigator. Three of the Program Assistants were trained over the phone due to their inability to be present at any of the training sessions. Program Assistants in some locations interviewed a disproportionate number of clients due to a lack of eligible participants in other areas.

**ANALYSIS OF THE RESULTS**

Questionnaire results were entered into the statistical program SPSS. After compiling the data, the researchers analyzed the general attitudes and beliefs of the primary-care physicians concerning nutrition and its role in chronic disease prevention and management. Comparisons were made between prevention and management in this regard. Physicians’ nutrition counseling and referral practices were analyzed in relation to both low-income patients and patients of all income levels. Positive and negative attributes of nutrition education services were compiled. FSNEP client perceptions of the amount and quality of physician nutrition counseling and referrals were also analyzed. Comparisons were made between physician and client responses. Correlations were made between various factors using Kendall’s tau b bivariate correlation test. Paired sample and two sample t-tests were used to test for significant differences between mean values. The chi-squared test and the z-test of proportions were used to test for significant differences in proportions among various
questions.

**TIMELINE FOLLOWED**

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<tr>
<th>Action</th>
<th>Date</th>
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<tr>
<td>Physician pilot study conducted</td>
<td>Late November 1997</td>
</tr>
<tr>
<td>Proposal defense</td>
<td>December 10, 1997</td>
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<tr>
<td>Pilot study conducted with clients</td>
<td>Early January 1998</td>
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<tr>
<td>First mailing of physician survey</td>
<td>Late January</td>
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<tr>
<td>Program Assistants required to submit list of FSNEP clients</td>
<td>Mid January</td>
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<tr>
<td>Second mailing of physician survey</td>
<td>Early March</td>
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<tr>
<td>Client surveys conducted</td>
<td>Mid to late February</td>
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<tr>
<td>Data analyzed</td>
<td>Early April</td>
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<tr>
<td>Study completed</td>
<td>Mid June, 1998</td>
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