# AN ANALYSIS OF NUTRITION EDUCATION RECEIVED BY SENIOR CITIZENS IN THE STATE OF VIRGINIA TITLE III CONGREGATE MEALS

by

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Thesis submitted to the Faculty of the
Virginia Polytechnic Institute and State University
in partial fulfillment of the requirements for the
degree of

MASTER OF SCIENCE

in

Human Nutrition and Foods

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May, 1988

Blacksburg, Virginia

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(ABSTRACT)

The nutrition education component of the Virginia Agency on Aging congregate meal program of both rural and urban sites was studied. The focus of the study was the frequency of formal nutrition education, the source of the nutrition information received, the type of educational techniques that appeared to be most successful, the nutrition education background of the person offering the educational lesson, and whether or not there was positive response in dietary changes as a result of the nutrition education.

A questionnaire distributed by mail was completed by 121 congregate meal sites throughout the Commonwealth. Analysis of all components revealed no significant difference between the nutrition education received in rural and urban sites in Virginia.

Most meal sites received nutrition education at least once a month. The attendance rate by the seniors was the same as the attendance rate of other educational programs as reported in 80 percent of the meal sites. Most sites used materials the employee classified as professional sources. The study

indicated that 77 percent of the site employees perceived an improvement in the dietary habits of the elderly as the result of the nutrition education provided by the congregate meal program.

ACKNOWLEDGMENTS

The author wishes to acknowledge the following people for making this research possible:

Charles, Elisa, and Lynette Poland, without whose support and tolerance this manuscript would never have been completed;

Dr. Janet Johnson for the many hours, telephone consultations, and the guidance which she contributed;

Dr. Ann Hertzler and Dr. William McAuley for their guidance and contributions;

Dr. Camilla Brooks for her time as consultant regarding calculation and interpretation of statistics; and the

Virginia Area Agency on Aging employees whose cooperation made this study a reality.

TABLE OF CONTENTS

LIST OF TABLES

# INTRODUCTION

The congregate meals for the elderly, which is authorized in Title III of the amended Older Americans Act, provides meals in congregate settings to those over 60 years of age. In addition to providing at least one nutritionally balanced meal, this service may include nutrition education activities and other services deemed appropriate for participants. The focus of this study is the formal nutrition education component of the Title III congregate meals in the state of Virginia. The purpose is to determine the nature of nutrition education that the senior participant is receiving from the nutrition education component of the congregate meal program. Of specific concern are the following: (a) What type of information do they receive, and what is the source of this information? (b) What is the nutrition education background of the person offering the educational lesson? (c) What methods of education appear to be best received by the participants? (d) How often do seniors receive formal nutrition education? (e) And how does the site employee feel that the seniors are responding to this information?

One goal of the study is to determine if the mandate for nutrition education in the Title III congregate meals is being carried out throughout the state. Another goal is to ascertain if there is a need for more accurate or a different

type of nutrition information than is currently available. In this era of reduction of appropriations for social services, including nutrition education, it is necessary to review the current programs and possibly seek more effective methods, and to determine the type of educational method that the site supervisor feels is the most successful. The nutrition education of the senior citizen is of concern at this time because there are so many conflicting nutritional theories currently being disseminated in society. Seniors, particularly those on a limited income, need accurate and understandable nutrition information (1).

A review of the current literature will focus on the methods of nutrition education used with the senior population, an overview of the congregate meals for seniors nationally, and a general review of the nutritional problem of this particular population. The methodology used to gather and analyze data will be described, and the results will be reported and summarized. Conclusions from the data will be formed concerning the nutrition education component of the Title III Congregate Meal Program in the State of Virginia.

# REVIEW OF THE LITERATURE

## TYPES OF NUTRITION EDUCATION OF THE SENIOR CITIZEN

Nutrition education was defined by Hickman as a ". . . planned activity to inform individuals about the available facts and information which will promote improved food selection, eating habits, and health and nutrition related practices" (2:18). Nutrition education of approximately one hour per month is sponsored by the congregate meal program. Although the form of nutrition education may and should vary among congregate meal sites, it is more than the implied knowledge obtained by eating the nutritious food that is served to the participants. Nutrition education is a planned program separate from the consumption of a meal. The purposes of nutrition education for the congregate meal site are (2):

- To assist the elderly in obtaining the best nutritional services available given their resources;
- To inform the elderly of community sponsored nutrition programs that encourage and promote sound nutritional habits and good health;
- To advise the elderly person in making sound food choices to maximize the food dollar; and

- To facilitate, where feasible, the elderly person in the area of special diets and special menus which may be required.

There is general agreement regarding the need for nutrition education for the elderly. This is reflected in Corinne H. Robinson's statement, that ". . . during the next quarter of a century a major concern must be . . . to bring nutrition out to the adult population (3:127)." This is especially germane for senior citizens. However, there is little agreement on the proper type of program to perform the task of nutrition education of the elderly. A variety of approaches have been utilized (4, 5, 6, 7, 8) with various degrees of success. In working with the elderly in a nursing home setting Kim, Shriver, and Campbell found that informal discussions, demonstrations, audience participation and individual counseling were preferred methods over the traditional classroom lecture (4). However, the less traditional educational approaches listed above had limited success as measured by change in nutrient intake (4). Kim, Shriver and Campbell's research examined nutrition education of seniors living in a nursing home environment so the results should not be extrapolated to the non-institutional elderly.

APPROACHES TO NUTRITION EDUCATION OF THE ELDERLY

Nutrition education considered successful for the non-institutionalized elderly was developed in Florida (5). The "friendly visitors program," trained cohorts to help their less able neighbors with food selection, food shopping and food preparation. The nutrition module consisted of units concerning basic nutrition, social aspects of nutrition, dietary interviewing, geriatric nutrition, basic diet therapy, and nutrition labeling and food marketing. The Florida program for the home bound elderly received positive feedback from participants and community leaders.

The use of the public service announcement (PSA) on television was one of the least effective approaches to encourage the elderly to improve the nutrient quality of their diets through appropriate food choices. Since watching television is a popular leisure activity of the elderly, television appeared to be an ideal tool for disseminating nutrition education to a large segment of the population. However a study conducted in Des Moines, Iowa, showed low recall of the PSA and no real change in reported food intake. The target food items included in the PSA, designed to improve certain nutrient intake, were not adopted (7, 8).

Research from England presented a longitudinal project investigating the need for and the effectiveness of nutrition education in a pre-retirement population (9). The study

indicated that pre-retirement was a good time to present nutrition education for the young-elderly. Lifestyle changes accompanying retirement and concerns for financial and physical well being appeared to make the young-elderly receptive to nutrition education. Nutrition education, occurred in this program approximately six months before retirement, followed by a short and long-term assessment of the nutritional status of the individual to determine the degree of the participant's understanding and utilization of the nutrition concepts (9). Was the nutrition education successful in modifying behavior? Although additional research is required to answer this question, the goal in this program was to provide nutrition education for the young-elderly ". . . to encourage not only survival, but a healthier survival with improved quality of life (9:26)."

A mini nutrition education program for senior citizens was used successfully in California (10). This program was originally designed to be used at the Title VII Senior Nutrition Meal Program, but since has been used successfully with senior citizens in a variety of other settings (10). The California program was a series of seven demonstrations specifically geared toward the nutrition problems and concerns of the elderly. Although each "mini program" covered a single concept, the information was presented in an entertaining manner, was designed for useful daily

application, and was illustrated with large and colorful visual aids. The presentation included a discussion period to answer questions and summary handouts were given to the attendee to provide reinforcement to the nutrition education.

## LIMITATIONS TO NUTRITION EDUCATION OF OLDER PEOPLE

A number of articles in the literature outline the general needs and expectations of nutrition education for the elderly (11, 12, 13). Parham listed the nutritional problems of the elderly as well as the expectations of dietary improvement and the limiting factors of effectiveness, when nutrition education programs are presented to the elderly. (11). Caliendo and Smith in a study of nutrition education in Maryland indicted the present system of nutrition education by stating, "Nutrition education must do more than read facts . . . Those who rated their health higher, and had higher nutrition knowledge scores, had less adequate dietary quality . . . Knowledge didn't insure its application (12:76)." Shannon and Smiciklas-Wright discussed the nutritional problems and the nutritional status of the elderly, and advantages of varying educational methods for increased instructional effectiveness of nutritional education. There was a lack of a follow up program to measure behavior change in the elderly dietary intake. The

authors emphasized the need for an adequate system of evaluation of nutrition education programs for the elderly (13).

Mellinger identified the lack of a method for materials and nutrition programs developed for the elderly to be shared as a limiting factor of nutrition education. There is a need to have a dissemination system established so that states could share materials, expertise, and most importantly utilize program dollars more efficiently (14). The lack of utilization of expertise from different areas of the country was illustrated by Hickman (2). He discussed nutrition education of Area Agencies on Aging which cooperate with the Cooperative Extension Service within states, and found coordination between the states was lacking.

## THE CONGREGATE MEAL PROGRAM FOR SENIORS

In 1968, the first Agency on Aging supporting congregate meals for the elderly began as a research project under Title IV of the Older Americans Act of 1965. A new Title VII, in 1972, authorized funds for local community nutrition services to serve older people with the greatest economic need, and to reduce their social isolation (15). Primarily as a result of the 1972 amendments to the Older Americans Act, funds were authorized for the national congregate meals program for the elderly. The activity of nutrition education was included.

Nutrition education was one of the eight supportive services to be provided, or made available, under the provisions of these amendments. In 1978, amendments to the Older Americans Act consolidated Titles III, V, and VII into a new Title III, and provided separate funds for social services, home delivered meals, and congregate meals. The nutrition education component and outreach were the only two remaining services of the original eight that could still be funded as part of the congregate meal program (2).

Since the participants in the congregate meal program usually receives only a portion of the daily food consumption in the meal served at the congregate meal site, they must consume appropriate food at other meals in order to maintain or improve their health. The meals of the congregate meal site is legislated to provide at least one-third of the RDAs for those over 55 (16). Nutrition education is provided to the elderly person to encourage healthy food choices and promote a healthy life-style.

The effectiveness of the congregate meal for seniors at nutrition sites has been studied to see if there is an improvement in the nutritional status of the elderly participant (17, 18, 19, 20, 21). Joering reported that the nutritive intake of participants in the Cincinnati Meals Program was greater than that of non-participants. The study revealed that calcium and riboflavin intake were much higher

when the half pint of milk offered with the meal was consumed (19). An evaluation of the nutritional status in Nebraska research of thirty congregate meal participants showed that 93 percent of the participants consumed diets providing at least 70 percent of the RDAs for the thirteen nutrients calculated (20). In Missouri, Kohrs determined that the congregate meals for seniors can improve the nutritional health of those at risk for vitamin A and ascorbic acid deficiencies (20, 21). In Colorado, test results were similar to those of Missouri, revealing that the nutrition status of the senior was improved as a result of participation in a congregate meal program. The percentage of non-participants with low serum protein levels was approximately two times greater than that of participants in the Colorado congregate meal program (15).

Studies dealing with the congregate meal program, but not the educational component, have included a variety of topics relative to ethnic food choices, nutrient analysis of food consumed, and quality of service. Chen's study on minority participants of the program revealed that Black and Mexican Americans preferred American food rather than ethnic food while the Chinese American elderly preferred ethnic food to the traditional American diet (22). Stallings, Grainger, Davis, and Lin analyzed meals served in South Carolina congregate meal sites and determined that the average meal,

with or without a serving of milk, exceeded the RDAs for 18 percent for protein, 41 percent for fat, and 34 percent of carbohydrates (23). A study that did not deal with either the nutritional intake or food preferences but focused on the technical problem of determining the dietary intake was Hansen and Dorsey's experimental program. The study implemented an observation system for assessing on site dietary intake of congregate meal participants instead of the diet recall method (24). Elderly participants who were trained as the observers administered the program at the site. The researchers felt that the observation system was more effective than diet recall (24).

Two additional studies were completed which related to the congregate meal program (25, 26). These are not limited to nutrient intake, but are germane for an understanding of the overall program. One is Burkhardt's study of the factors affecting the demand for congregate meals at nutrition sites (25). The demand for meals was dependent upon the quality of the services provided by the site, not the conventional demographic measures of need.

The most extensive study of the effectiveness of the congregate meals for seniors throughout the United States was a longitudinal study surveyed in 1976 and again in 1982 (26). The same individuals were interviewed in 1976 and again in 1982 to determine if there had been any changes in the

effectiveness of the program. Nutrition education was only one component of this three volume study which was conducted for the Administration on Aging. The 1982 part of the study revealed that nutrition education was one of the most available support services throughout the United States (26). But there was considerable variation in the intensity and frequency of nutrition education. Most programs were monthly or less. There is no evidence of change in availability of nutrition education, according to the studies in 1976 and 1982, nor was there a change in the content of the nutritional education received. Analysis of the various educational methods revealed an increased use of printed materials and group discussion techniques, although the traditional lecture method was still widely utilized.

## CONSIDERATIONS IN DEALING WITH AN OLDER POPULATION

Nutrition of a particular population can be defined as the ingestion and assimilation of food to provide the adequate nourishment for the body. But especially with the elderly population there are many factors in addition to the physiological problems of aging which impact upon the nutrients received. Although there are numerous factors affecting the quality of the diets received by this population, there are three main classifications of factors affecting food intake of the elderly. These factors are economic aspects of poor nutrition, social-psychological constituents relating to poor nutrition, and the physiological problems which combine to contribute to a nutritionally inadequate diet for the elderly. While these are separate components, frequently they overlap to contribute to a poor nutritional intake. The elderly population, like any other group of Americans, is a heterogenous population with some problems impacting certain individuals more severely than others.

### ECONOMIC CONSIDERATIONS

A problem contributing to the poor nutritional status of the elderly is the lack of economic resources, both at the individual and a societal level. One of the problems contributing to the lack of economic resources is poor

educational opportunity, low paying employment, or non-paying work and the lack of a pension. This is especially true of widowed homemakers. At this time the individual, frequently the old-elderly female, may have exhausted her financial resources and be forced to survive on social security. This is the group most at risk for nutritional deficiencies such as protein-calorie malnutrition and hunger.

The elderly's low economic status is an indirect determinant which can influence the quality and quantity of nutritional adequacy (27). The lack of convenient and accessible food sources because of poor mobility, the fear of criminal assault by those who reside in older neighborhoods in the inner city, and inadequate transportation can contribute to deficient dietary intake by this population. For example the lack of transportation for the rural elderly in Pennsylvania was a significant contributing factor in causing dietary deficiencies in calcium, calories and vitamin A. The deficiency in these nutrients was attributed to low consumption of perishable items like milk, because the elderly lacked public transportation to facilitate shopping (28).

The food purchasing practices of the elderly have been influenced by the changes that have evolved in the American diet over the past 50 to 80 years. Like most Americans, the elderly are consuming diets high in refined, processed foods,

and large amounts of animal protein and fats (29). The trend toward this diet whether born of economics, preference (30), or ignorance (31), is a determinant in the chronic diseases of the elderly. Malnutrition is not limited to the poor elderly. The more affluent also suffer from malnutrition. Their nutritional problems are the result of a lifetime of excesses. These are factors in 85 percent of the older population having one or more chronic diseases such as heart disease, hypertension, or type II diabetes. However, nutrition education and therapeutic nutrition intervention for these diseases have been documented to benefit these chronically ill seniors (32).

## SOCIAL-PSYCHOLOGICAL FACTORS

As with economic factors that determine the nutrient intake of the elderly, social-psychological factors are also interrelated between the individual and society. Social-psychological factors are explored by Pelcovits in an early overview of demonstration nutrition programs, in Title IV of the Older Americans Act. Pelcovits stated that one of the purposes of the nutrition program for the elderly was to break the link between poor nutrition and isolation (33). During the same year as the Pelcovits' study, 1971, Wienberg examined not only the isolation problem but the questions of food and culture, and food as a medium of socialization (34).

The Wienberg research discussed the importance of food and the eating process in a person's social life and the importance of realizing that it is not what is eaten but with whom it is eaten. Later research by Grotkowski and Sims revealed that socioeconomic status was positively related to the adequacy of the nutrient intake (35). Schafer in research comparing the social-psychological factors in the quality of the diets of single and married women found the most important factors explaining the quality of the diet of the elderly subjects were social influences (36). The significance of the social factor is indicated in the statement by Caliendo that, "The importance of the program meal as modifier of many factors that adversely affect the dietary intake of the elderly (such as income, loneliness, isolation, shopping difficulty, etc.) cannot be overstated (37:38)."

In addition to poverty, malnutrition among the elderly is related to the following factors: the lack of knowledge as to proper dietary practices which is assumed to be related to lower education levels (38), and especially serious among older persons, the high frequency of living and eating alone (39). Research completed in Missouri on socioeconomic factors involved with dietary intake suggested that those at nutritional risk included, not only persons with the least

education, but women, and persons who had experienced a drastic change in lifestyle (40).

The only research involving social influence and dietary intake of the elderly in Virginia was by McIntosh and Shifflett. Their study revealed that social support of close physical proximity (marriage, neighbors, or religious salience) instead of simple emotional attachments to relatives, friends, and community were significantly associated with higher intakes of calcium, vitamin A, vitamin C, and potassium (41).

The importance of economic, social, and psychological factors were explicitly stated in the Title VII - Nutrition Program for the Elderly - in the Older Americans Act of 1965 which stated in Section 701:

> Many elderly persons do not eat adequately because (1) they cannot afford to do so; (2) they lack the skills to select and prepare nourishing and well-balanced meals; (3) they have limited mobility which may impair their capacity to shop and cook for themselves; and (4) they have feelings of rejection and loneliness which obliterate the incentive necessary to prepare and eat a meal alone.

In over twenty years that this program has been in effect these are still the considerations which affect the nutritional quality of the diets the senior citizens receive.

## PHYSIOLOGICAL FACTORS IN NUTRITION AND AGING

The rate of physiological decline or change that occurs within the individual's cells and organ systems varies greatly among seniors. Chronic diseases may restrict or reduce the nutrient quality of the diet, but it is not within the scope of this research to detail the nutritional risks of the specific diseases which affect 85 percent of the elderly population (30). A general overview of the problems that affect the quality and quantity of the nutrients received by the seniors is presented.

The nutritional status of the elderly are affected by sensory impairments, altered gastrointestinal, cardiovascular, and endocrine functions, as well as changes in the musculoskeletal and renal systems (25). Sensory factors affecting nutrient intake were listed as vision and hearing as well as those of taste and smell. The inability of the aging eye to adapt easily to dim light or to focus clearly hindered the preparation of food and food shopping. In addition to hindering seniors from preparing their own food, many elderly with impaired vision were reluctant to eat in dimly lighted restaurants. Likewise, because of diminished hearing, the elderly were reported to be reluctant to eat in group settings because of the background noise that competed with communication (25). Kamath reported a decline in taste and smell acuity with age. The loss in taste has

been attributed to a decrease in the number of taste buds which reduced sensitivity to sweet, salt, bitter, and sour tastes (42).

Food intake was also restricted as a result of reduced salivary secretions or compromised dentition. Mastication was reported to be hindered by ill-fitting dentures, loose or missing teeth, periodontal disease, or an altered biting surface (25). Scheider reported half of the people in the United States over the age of 60 have lost all their teeth (43). The decline of proper mastication caused the seniors to replace more nutrient dense fibrous foods with softer, more moist carbohydrate foods. Such alterations not only affect the nutrient intake but may lead to or aggravate gastrointestinal disturbances (44). The most frequent gastrointestinal problem is constipation. Low fluid intake, diets low in fiber, physical inactivity, medications ingested, and reduced gastrointestinal motility all contributed to constipation in the aging population (25).

Other gastrointestinal changes associated with aging included reduced gastric secretion of hydrochloric acid, pepsin, intrinsic factor, and mucus; decreased pancreatic secretions; and gallbladder abnormalities. Glucose tolerance declined with age and was a contributing factor to adult onset diabetes (44).

Aging caused functional changes in the renal system which included a decline in the ability of that system to handle large amounts of waste products such as urea, sodium, and water (44). However, the older people were susceptible to dehydration produced by a decreased fluid intake resulting from a diminished thirst mechanism, and a self-imposed response to the inconvenience of frequent urination (25).

There was evidence that dietary habits and exercise affected changes in the musculoskeletal system. The general characteristics of musculoskeletal aging included a loss of bone mass, changes in joints, a decrease in both the size and number of muscle fibers, and reduction in overall muscle cell activity. Body fat increased at the expense of lean tissue mass, which resulted in a decrease in metabolically active tissue and a lower basal metabolic rate. Although all of these changes normally occur in aging, alterations in body composition are not evident among all elderly because diet and exercise are seen as controlling factors (25).

## NUTRIENT REQUIREMENTS OF THE POPULATION

One factor in research of the nutrient intake of the elderly is choosing a standard to measure the nutrient requirements of this population. Currently the RDAs are for the adult population aged 51 and older (16) and there is

evidence of need for a more accurate standard of measurement (45, 46, 47).

Suter and Russell found evidence that the 1980 RDAs for thiamin, riboflavin, and ascorbic acid were appropriate, but RDAs for vitamin A and folate were too high, and the RDAs for vitamin D, vitamin B-6, and vitamin B-12 were too low (16). Munro discussed the inadequacy of data available on nutrient requirements in the elderly. The RDA category for the elderly as anyone above the age of 55 years of age is too broad for such a heterogeneous group (45).

The use of nutrient supplementation was reported generally inappropriate and frequently excessive (48). The elderly who are deficient in specific nutrients were not receiving supplementation of those nutrients while the supplements they do take are often excessive and unnecessary. A study of a hundred elderly men and women revealed that the nutrients usually deficient were calcium, vitamin A, and thiamin. A wide variety of supplements were consumed but most supplements used were iron, niacin, and ascorbic acid at levels more than 10 times the recommended amounts (48). Likewise, a study in New Mexico revealed that excessive amounts of ascorbic acid supplementation was consumed. The elderly in this study appeared to have adequate nutrient intake except for vitamin D and calcium in women (49) and these were not the nutrient supplements consumed.

# METHODOLOGY

The research was conducted in the Commonwealth of Virginia, which includes both an urban and a rural population. The purpose of the research was to determine the nature of nutrition education that the senior participant was receiving from the nutrition component of the congregate meal program and if there were differences in rural and urban settings.

## SAMPLE

The research was conducted in Virginia at the congregate meals program for senior citizens which is under the jurisdiction of Virginia's Department for the Aging. The meal sites were located in a variety of settings such as church social halls or community centers and served a mid-day meal to individuals who are 60 years or older. Many meal sites operate five days a week but in the more rural areas they may operate on a three or two day a week schedule. All of the twenty-five Area Agencies on Aging in Virginia were requested to participate in the study. Twenty-three agreed. The questionnaire was sent to 196 individual congregate meal sites which represents 87 percent of the 226 congregate meal sites in the state. The answered questionnaires, (N-121) were returned by mail from the site supervisor.

## SURVEY INSTRUMENT

Research questions based on reviewed literature were formulated and designed for a questionnaire. The questionnaire with 13 questions was tested by employees in Area Agency on Aging congregate meal sites in Maryland. The area was chosen because of the similarity of urban and rural populations as in Virginia. The questionnaire was mailed to the individual site supervisors and returned by mail. Their written responses to the questionnaire resulted in elimination of two ambiguous questions and the addition of three open-ended questions. The revised questionnaire which contained ten multiple choice and three open-ended questions was sent by mail to 196 congregate meal sites. This questionnaire, collected in the spring of 1987, formed the base for the study (see Appendix A). Employees at the nutrition site answered questions about their perception of the effectiveness, materials used, and frequency of the nutrition education at the congregate meal sites.

## DATA ANALYSIS

Respondents were asked to indicate whether the site was predominately rural or urban. The individual site employee determined whether the location of that site was in a rural or urban area. The results of the questionnaire were compared for a difference between the urban and rural

populations by multiple comparison between populations. Responses of all sites were tested by chi-square and an analysis of contrasts using a significance level of .05 (50).

## RESULTS AND DISCUSSION

The purpose of the study was to survey the characteristics of nutrition education programs at congregate meal sites and determine if there were differences at a rural and an urban setting. The analysis of the data revealed no significant difference between a rural and an urban site with regard to frequency of nutrition education (Table 1). The questionnaire revealed only slight differences between congregate meal sites that had nutrition education monthly and those that presented it twice a month (Table 2). But there was a great difference between these categories and the ones that presented nutrition education less frequently. Only four sites presented nutrition education every other month, but 29 sites presented nutrition education occasionally, at no set time. There needs to be some assessment of the frequency of this nutrition education.

In the question of who provided the nutrition education at the site, categories with small responses were combined. Three categories of providers of nutrition education were formed. One included participants at the site or an employee at the site, a second category was composed of medical personnel including a physician, a hospital dietitian, or a public health nutritionist, and the third was home economists such as a home economics teacher or an extension agent. There was no significant difference between a rural

TABLE 1. FREQUENCY OF NUTRITION EDUCATION AT THE CONGREGATE MEAL SITES[1,2]

| | Percent of Total Responses | | | |
|---|---|---|---|---|
| Site | Occasionally | Monthly | Twice a Month | Total |
| Rural | 22% | 39% | 39% | 100% |
| Urban | 21% | 48% | 31% | 100% |

[1]Total of 120 responses

[2]No significant difference between rural and urban site (probability $<.05$)

TABLE 2. FREQUENCY OF NUTRITION EDUCATION AT THE CONGREGATE MEAL SITES[1]

| Frequency | Number of Sites |
|---|---|
| Twice a month | 40 |
| Monthly | 47 |
| Every other month | 4 |
| Occasionally | 29 |

[1]Total of 120 responses

and an urban population in the three categories (Table 3). The rural sites tended to use participants or employees more often than urban sites. The use of senior participants was the smallest category, but the use of 52 site employees was one of the largest. Home economics teachers and extension agents were utilized more than any other category. Medical care personnel and public health nutritionist provided the nutrition education in fairly similar numbers. But hospital dietitians were utilized for nutrition education in only eleven sites. The total number of responses to this question was 204 indicating that sites used more than one source to provide the nutrition education at the congregate meal sites (Table 4).

The question pertaining to the percentage of the participants attending the nutrition education did not reveal any significant difference between a rural and an urban site. In this question categories a and b were combined into one category, from 0 to 50%. Analysis revealed that both rural and urban sites had over 50% of the seniors attending more than 75% of the time (Table 5). There was a problem in the wording of the question which may have affected the results. Category number b in the questionnaire read from 25% to 49% instead of reading from 25% to 50%. It is also possible the mistake was not a factor in the results. One site manager

TABLE 3. PROVIDER OF NUTRITION EDUCATION AT CONGREGATE MEAL SITES[1,2]

| | Percent of Total Responses | | | |
|---|---|---|---|---|
| Site | Senior Participant or Site Employee | Medical Personnel | Home Trained Economic Personnel | Total |
| Rural | 40% | 30% | 30% | 100% |
| Urban | 26% | 37% | 37% | 100% |

[1]Total of 121 responses

[2]No significant difference between rural and urban sites (probability $<$ .05)

TABLE 4. PROVIDER OF NUTRITION EDUCATION AT CONGREGATE MEAL SITES[1]

| Provider | Number of Sites |
|---|---|
| Senior Site Participant | 8 |
| Site Employee | 52 |
| Public Health Nutritionist | 26 |
| Hospital Dietitian | 11 |
| Home Economics Teacher or Extension Agent | 56 |
| Medical Care Personnel | 33 |
| Other | 18 |

[1]Total of 204 responses (represents multiple responses)

TABLE 5. PARTICIPANTS IN NUTRITION EDUCATION PROGRAMS AT CONGREGATE MEAL SITES[1,2]

| | Percent of Total Responses | | | |
|---|---|---|---|---|
| Site | From 0 to 50% | 75% or less | More than 75% | Total |
| Rural | 19% | 28% | 53% | 100% |
| Urban | 27% | 13% | 60% | 100% |

[1]Total of 120 responses

[2]No significant difference between rural and urban sites (probability $<$ .05)

added a note saying, "All participants attend all of the programs because they are a captive audience." Since transportation was provided for the participants many are unable to leave until the bus returns them to their home. There were 66 sites where the audience rate of the nutrition education was greater than 75 percent. The other two categories were equal; 27 congregate meal sites had a participation rate from 0-50% and 27 congregate meal sites had a participation rate <75% (Table 6). Most of the congregate meal sites had at least 75% of the participants attending the nutrition education programs.

An analysis to determine if the nutrition education programs were better, equal, or worse attended than other site educational program shows no significant difference between rural and urban sites (Table 7).

A significant number of the sites reported the attendance for nutrition education programs was equivalent to other educational programs. A smaller number reported the attendance was less than or better than other programs (Table 8). The attendance pattern in 97 sites was equal to attendance of other congregate meal site educational programs. Nutrition education programs were reported as being better attended in 12 sites and less well attended in 12 sites.

TABLE 6. PARTICIPANTS IN NUTRITION EDUCATION PROGRAMS AT CONGREGATE MEAL SITES[1]

| Frequency | Number of Sites |
|---|---|
| 0 - 50% | 27 |
| <75% | 27 |
| >75% | 66 |

[1]Total of 120 responses

TABLE 7. ATTENDANCE OF NUTRITION EDUCATION PROGRAMS COMPARED WITH ATTENDANCE OF OTHER CONGREGATE MEAL SITE EDUCATIONAL PROGRAMS[1,2]

| | Percent of Total Responses | | | |
|---|---|---|---|---|
| Site | The Same | Less Attended | Better Attended | Total |
| Rural | 82% | 8% | 10% | 100% |
| Urban | 78% | 10% | 12% | 100% |

[1]Total of 120 responses

[2]No significant difference between rural and urban sites (probability $<.05$)

TABLE 8. ATTENDANCE OF NUTRITION EDUCATION PROGRAMS COMPARED WITH ATTENDANCE OF OTHER CONGREGATE MEAL SITE EDUCATION PROGRAMS[1]

| Attendance Pattern | Number of Sites |
|---|---|
| Attended Same | 97 |
| Better Attended | 12 |
| Less Attended | 12 |

[1]Total of 121 responses

In the question pertaining to the source of education materials utilized, categories were combined into two for analysis of the rural/urban sites. One category included extension office material and professional literature and the other was the popular press and food industry sources. Professional sources of educational material were utilized in both rural and urban sites much more heavily than the popular press and food industry sources. In comparing the percentage of the rural to urban sites, there was no significant difference (Table 9). Extension service publications were used much more extensively than any other. The use of professional literature, the popular press, and food industry and equipment industry sources of educational material were about the same. The total number of responses to this question was 188 which indicated use of more than one source of educational materials for congregate meal sites (Table 10).

A comparison of the format most often utilized for nutrition education showed no significant differences between rural and urban sites (Table 11). Seventy-one sites used the group participation format. This was the most frequently used type of nutrition education at the congregate meal sites. The lecture format was used less frequently. The format of demonstrations to present nutrition education was

TABLE 9. SOURCE OF EDUCATIONAL MATERIALS USED FOR NUTRITION EDUCATION AT THE CONGREGATE MEAL SITES[1,2]

| Site | Percent of Total Responses | | |
|---|---|---|---|
| | Professional Sources | Popular Sources | Total |
| Rural | 83% | 17% | 100% |
| Urban | 92% | 8% | 100% |

[1]Total of 117 responses

[2]No significant difference between rural and urban sites (probability $<.05$)

TABLE 10. SOURCE OF EDUCATIONAL MATERIALS USED FOR NUTRITION EDUCATION PROGRAMS AT CONGREGATE MEAL SITES[1]

| Source | Number of Sites |
|---|---|
| Extension publication | 76 |
| Professional literature | 32 |
| Popular press | 35 |
| Food Industry and Equipment Industry | 45 |

[1]Total of 188 responses (represents multiple responses)

TABLE 11. NUTRITION EDUCATION PROGRAM FORMAT USED AT CONGREGATE MEAL SITES[1,2]

| | Percent of Total Responses | | |
|---|---|---|---|
| Site | Lecture or Demonstration | Recipe & "Taste Party" or Group Participation | Total |
| Rural | 33% | 67% | 100% |
| Urban | 54% | 46% | 100% |

[1]Total of 117 responses

[2]No significant difference between rural and urban sites (probability $<.05$)

used by only 24 sites. The recipe/taste party approach was only used in 17 congregate meal sites. The total response to this question was 170 which indicates that congregate meal sites utilize a variety of educational methods (Table 12).

Senior participants access to nutritional guidance through congregate meal sites was not significantly different in rural or urban areas (Table 13). However both areas reported access to medical personnel. This researcher thinks the site employee is thinking of the frequent blood pressure checks by the public health nurse instead of dietary counseling. Rural participants utilize extension home economist more than dietitians, which may reflect the visibility of extension agents in the rural areas. The congregate meal participants had greater access to a nurse, than an extension home economist. There was less access to a dietitian, and even less to a physician through the congregate meal program (Table 14).

There was no significant difference between rural sites and urban sites on perceived dietary improvement as a result of the nutrition education program (Table 15). However, 83 participants showed an improvement in diet compared to 26 who showed no change, and one whose dietary habits were worse as a result of the education received at the congregate meal site (Table 16).

TABLE 12. NUTRITION EDUCATION PROGRAM FORMAT USED AT CONGREGATE MEAL SITES[1]

| Format | Number of Sites |
|---|---|
| Lecture | 58 |
| Demonstrations | 24 |
| Recipe/Taste Party | 17 |
| Group participation | 71 |

[1]Total of 170 responses (represents multiple responses)

TABLE 13. SENIOR PARTICIPANT'S ACCESS THROUGH CONGREGATE MEAL PROGRAMS TO MEDICAL OR NUTRITIONAL PROFESSIONALS[1,2]

| | Percent of Total Responses | | | |
|---|---|---|---|---|
| Site | Dietitian | Extension Home Economist | Physician or Nurse | Total |
| Rural | 13% | 37% | 50% | 100% |
| Urban | 32% | 23% | 45% | 100% |

[1]Total of 104 responses

[2]No significant difference between rural and urban sites (probability $<$ .05)

TABLE 14. SENIORS ACCESS THROUGH CONGREGATE MEAL PROGRAMS TO MEDICAL AND NUTRITIONAL PROFESSIONALS[1]

| Profession | Number of Sites |
|---|---|
| Dietitian | 34 |
| Nurse | 49 |
| Physician | 12 |
| Extension Home Economist | 40 |

[1]Total of 135 responses (represents multiple responses)

TABLE 15. PERCEIVED DIETARY CHANGE OF PARTICIPANT AS A RESULT OF NUTRITION EDUCATION AT CONGREGATE MEAL SITES[1,2]

| | Percent of Total Responses | | |
|---|---|---|---|
| Site | Improvement | No Improvement or Poorer Dietary Habits | Total |
| Rural | 76% | 24% | 100% |
| Urban | 78% | 22% | 100% |

[1]Total of 110 responses

[2]No significant difference between rural and urban sites (probability $<$ .05)

TABLE 16. PERCEIVED DIETARY CHANGE OF PARTICIPANT AS A RESULT OF NUTRITION EDUCATION AT CONGREGATE MEAL SITES[1]

| Change | Number of Responses |
|---|---|
| Improvement | 83 |
| Poorer dietary habits | 1 |
| No change | 26 |

[1]Total of 110 responses

In the type of media used most often in the nutrition education program, there was no significant difference between the rural and the urban sites (Table 17). There were 231 responses to this question indicating that a variety of media was used in nutrition education programs at congregate meal sites (Table 18). Handouts were utilized most often by 90 sites. Pictures and posters were used by 63 sites, slides observed by 40 sites, and movies or video tapes were viewed by 25 sites. Less utilized were overhead transparencies, audio tapes, and television.

The final part of the questionnaire was open-ended questions about how site employees decide what to teach for nutrition education. A wide variety of answers of 17 categories were received. The most frequent reply (46%) was that the decision was based upon senior participants needs or requests. Other responses included: (a) Office on Aging, 12%, (b) hospital dietitian, 10%, (c) current dietary issues in the popular press, 9%, (d) extension office, 8%, (e) person presenting, 8% (f) the supervisor decides, 4%. Interesting answers were the following quotes from three respondents: "Anything we can get, or anyone with expertise;" "Things they can understand;" and "Using what is available."

TABLE 17. MEDIA USED IN NUTRITION EDUCATION PROGRAMS AT CONGREGATE MEAL SITES[1,2]

| Site | Percent of Total Responses | | |
|---|---|---|---|
| | Handouts | Audio or Video | Total |
| Rural | 57% | 43% | 100% |
| Urban | 59% | 41% | 100% |

[1]Total of 116 responses

[2]No significant difference between rural and urban sites (probability $<$ .05)

TABLE 18. MEDIA USED IN NUTRITION EDUCATION PROGRAMS AT CONGREGATE MEAL SITES[1]

| Media | Number of Responses |
|---|---|
| Handouts | 90 |
| Pictures and Posters | 63 |
| Slides | 40 |
| Overhead Transparencies | 2 |
| Movie or Video Tapes | 25 |
| Audio Tapes | 5 |
| Television | 4 |
| Other | 2 |

[1]Total of 231 responses (represents multiple responses)

The second open-ended question concerning the most recent topic of nutrition education received approximately twenty-five different replies. The most frequent answer was the topic of low salt diets (30%). A low fat diet or topic dealing with controlling cholesterol in the diet was the next most popular topic (8%). A quote reflecting a questionable source was, "Different food values for different parts of the body."

Where the site personnel received their nutrition education was the final question answered. There were seventeen categories ranging from university trained or college courses, to "by mail," and Prevention. Only three respondents answered "by mail" and only one listed Prevention as a source of nutrition education. The most frequent answer was Virginia Office on Aging workshops and literature (30%). Other frequently used sources were college courses (17%), Extension Service (17%), and current literature (11%).

# CONCLUSION

Of all nutrition education characteristics tested at the congregate meal sites, there was no significant difference between urban and rural sites. Nutrition education is presented in 78 percent of Virginia congregate meal sites at least once a month. The instruction of nutrition education is provided by an on site person, medical personnel, or home economic trained personnel. There was a tendency to use on site persons in the rural areas. No one group among medical personnel, site people, and home economists dominated in providing nutrition education for the meal sites. The attendance of seniors at the nutrition education program was equal in 80 percent of the sites to the attendance of other educational programs offered by the sites. Eighty-eight percent used educational materials, which the site employee classified as professional sources as opposed to popular sources which were used by 12 percent. A majority of the professional publications were developed by Extension Service. Instructional techniques that were instructor oriented were used by 44 percent and group participation oriented techniques were utilized by 56 percent of the sites. Additional research might answer the question of what format produces the desired change in dietary intake of the elderly at congregate meal sites. Handouts were given in 58 percent of the congregate meal sites and other types of video or

audio media were used as educational tools in the nutrition education in 42 percent of the congregate meal sites. The use of handouts instead of audio visual aids may reflect the lack of audio visual materials, lack of audio visual equipment or the effectiveness of handouts. The participant had limited accessibility to physicians, but more to dietitians, home economists, and nurses. Further research might study the question if more accessibility of physicians to the congregate meal site would make a difference in nutritional intake.

A most important result was that 77 percent of the site employees reported an improvement in the dietary habits of the seniors as a result of the nutrition education program. Another statewide study should be conducted among the senior population attending congregate meal sites to determine if their assessment is similar to that of the site employee. Additional research to identify the type of dietary changes that have taken place as a result of the nutrition education would be useful.

There is need for valid educational materials which present nutrition education for older citizens in an entertaining manner and in small segments. Materials developed in each of the states need to be made available to the congregate meal sites throughout the United States, through a national clearing house, to reduce duplication of

effort and expense. Nutrition educators need to be made aware of the special techniques which are successful in educating this population. These techniques include using bright primary colors for charts or pictures, avoid pastels; avoid noise distractions while the educational lesson is being presented because hearing others talk or music can be extremely distracting to anyone with a hearing aid; talk slowly and clearly. Use appropriate visual aids when instructing seniors verbally because the elderly benefit from receiving the information by more than one sensory path. And give brief, interesting large-print handouts to reinforce the message once the senior has returned home.

The study determined that there was no difference in the quantity of nutrition education programs between rural and urban congregate meal programs. It was encouraging that nutrition education was being offered to the seniors, professional sources of educational information were being utilized, and professional nutritional and medical personnel were available. This study was a measurement of the quantity of nutrition education and the measurement of the tools used to present the nutrition education. The next step is to measure the quality of the nutrition education that the seniors receive.

Despite an increase in the number of elderly people, the estimated spending for the congregate meal program for 1988

and 1989 is lower than the 1987 level and nutrition services have been overlooked in many of the new health and social service options and health care policies currently being planned (32, 51). The recommendations in this report are not new, but at this time the progress toward fulfilling them is extremely slow. Additional effort needs to be made to insure the nation does not continue to give nutrition for seniors low priority.

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APPENDIX A

QUESTIONNAIRE

Circle the answer which most closely applies to your Senior Nutrition Center. Please return by May 8, 1987.

1. If your Congregate Meal Site does provide nutrition education, it is presented
   A. TWICE A MONTH
   B. MONTHLY
   C. EVERY OTHER MONTH
   D. OCCASIONALLY, NO SET TIME

2. Who usually provides the nutrition education?
   A. A SENIOR PARTICIPANT AT THE SITE
   B. SITE SUPERVISOR OR OTHER SITE EMPLOYEE
   C. PUBLIC HEALTH NUTRITIONIST
   D. HOSPITAL DIETITIAN
   E. EXTENSION AGENT OR HOME ECONOMICS TEACHER
   F. MEDICAL CARE PERSONNEL, (A PHYSICIAN OR NURSE)
   G. OTHER _____ (Specify)_____

3. What percentage of the participants at the meal usually attend the nutrition education program?
   A. LESS THAN 25%
   B. FROM 25% TO 49%
   C. 75% OR LESS
   D. GREATER THAN 75%

4. How is attendance in the nutrition education program compared to other education programs offered by your site?
   A. THE SAME AS OTHER PROGRAMS
   B. BETTER THAN OTHER PROGRAMS
   C. LESS ATTENDED THAN OTHER PROGRAMS

5. What is the usual source of education materials for the nutrition education program at your site?
   A. EXTENSION OFFICE PUBLICATION
   B. PROFESSIONAL MAGAZINES & BOOKS (EXAMPLE: ADA JOURNAL AND JAMA)
   C. NEWSPAPERS & POPULAR MAGAZINES (MCCALL'S, WOMAN'S DAY, ETC.)
   D. FOOD INDUSTRY OR EQUIPMENT INDUSTRY SOURCE

6. What type of nutrition program is used most often? Circle one.
   A. LECTURE
   B. DEMONSTRATION
   C. RECIPE & "TASTE PARTY" ON SPECIFIC NUTRITIONAL NEED
   D. GROUP PARTICIPATION & DISCUSSION

7. Do the Senior participants with special dietary requirements, for example a low salt diet, have access to one of the following through your program?
   A. TO A REGISTERED DIETITIAN
   B. TO A NURSE
   C. TO A PHYSICIAN
   D. TO AN EXTENSION HOME ECONOMIST

8. Do you perceive any dietary change as a result of the nutrition education offered at your site?
   A. YES, AN IMPROVEMENT
   B. YES, POORER DIETARY HABITS
   C. NO, THERE IS NO CHANGE

9. What type of media is used most often in the nutrition education program?
   A. HANDOUTS
   B. PICTURES & POSTERS
   C. SLIDES
   D. OVERHEAD TRANSPARENCIES
   E. MOVIES OR VIDEOTAPES
   F. AUDIO TAPES
   G. TELEVISION
   H. OTHER (Specify)

10. Is your Congregate Meal Site located in
   A. A RURAL AREA
   B. AN URBAN AREA

11. How do you decide what to teach for nutrition education?

12. Your most recent nutrition education program dealt with what?

13. Where do the site personnel that present the nutrition program receive that education?

# VITA

Betty Brown Poland is a native of Northern Virginia where she resides with her husband and two daughters. In 1983 she received a B.I.S. degree in Human Foods and Nutrition and a Certificate in Gerontology from George Mason University. Her work experience in the field of gerontology has included an internship at the Loudoun County Area Agency on Aging where one of the duties was to provide the monthly nutrition education for their three congregate meal sites. And she presented a workshop on gerontological nutrition at Catholic University's Summer Institute on Aging. In the field of foods and nutrition, she has been employed as school cafeteria manager in elementary and intermediate schools in two counties, has worked as Public Health Nutritionist, and is currently employed by Fairfax County in the Child Care Food Program.