Development and Pilot Testing of a Nutrition Education Program for Adult African American Church Members

by

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(ABSTRACT)

A six-week nutrition education program was designed for adult African Americans and pilot-tested in one church in Farmville, Virginia. The content of this program was determined from health topics selected by the participants and based on Healthy People 2000 objectives. The topics selected were the following: 1. Hypertension Prevention and Control 2. Stress Management 3. Heart Healthy Eating and 4. Nutrition and Cancer Prevention. The Food Guide Pyramid also was incorporated into the program.

Effectiveness for improving health knowledge was determined using pre-tests and a post-test, while improvements in short-term behavior pertaining to dietary intake were described by the participants themselves. Anthropometric measurements, three day diet records and a health risk appraisal were obtained from participants. In addition, the program itself and the data collected were evaluated based on several Healthy People 2000 objectives.

Attendance at each session ranged from seven to twelve participants. A paired t-test indicated that no significant improvement took place in health knowledge based on the pre-test and post-test scores. However, comprehension of the Food Guide Pyramid was judged to be very good and behavioral improvement was suggested by the participants with regard to lowering their intake of sodium and fat and increasing their intake of fruit.

Dietary intake from three day food records was analyzed based on the number of servings consumed from each food group in the Food Guide Pyramid This analysis indicated that only one person was meeting the minimum recommendations made by the Food Guide Pyramid. Data from eleven pre-intervention diet records indicated that over half of the group was not meeting 70 percent of the RDA for pantothenic acid, copper, and zinc. However, all eleven diet records indicated that at least 70 percent of the RDA was being met for Vitamin C, iron and magnesium.

Anthropometric measurements indicated that five participants were within their desirable weight range, while five were slightly overweight and five were classified as obese according to their desirable weight ranges. Seven participants had systolic blood pressure values greater than 140 mm Hg, two of whom also had diastolic values greater than 90 mm Hg.

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Table of Contents

List of Tables

List of Appendices

Chapter I.

INTRODUCTION

Background of the Problem

> "There is a serious, deep disparity between the general population and our minority and poor citizens. Each year, while the health status of most of our citizens shows steady improvement, the same improvements are not as evident for our minority and low-income groups. In many cases, there has been an actual decline. Such a disparity is clearly unacceptable".
>
> Louis Sullivan
> Secretary of Health & Human Services
> From the Health Status of Minorities and Low-Income Groups: 3rd ed. 1991.

In September 1990, the Department of Health and Human Services Secretary, Louis Sullivan, released a national prevention initiative entitled "Healthy People 2000: National Health Promotion and Disease Prevention Techniques" (1). The program's three main goals for all Americans in the next 10 years are to:

* increase the span of healthy life.
* decrease health disparity.
* achieve access to preventive services for all Americans.

These three broad goals are all directly related to the following research.

According to statistics published in 1992 by the Joint Center for Political and Economic Studies (2), the average lifespan for African Americans is currently 69 years, six years less than the average lifespan for white Americans. Eighty percent of the excess mortality observed in African- Americans is caused by greater rates of cancer, cardiovascular disease and stroke, chemical deaths (measured as deaths due to cirrhosis), diabetes, unintentional injuries (such as homicide and accidents), and infant mortality (3). Although obesity is present in 27% of all American women ages 20 and older, it occurs in 44% of African American women. Obesity has been linked with both diabetes and cancer, two conditions that occur more frequently among African Americans than whites, and African Americans have the highest overall cancer rate of any population group in America (2).

Many of the health problems confronting African-Americans are directly related to behavior, such as poor nutrition, smoking, substance abuse, and failing to receive preventive care. Much of this behavior is affected by lack of education, along with the lack of health insurance. Insufficient education is frequently associated with not understanding the causes and effects of specific behaviors and their potential to lead to

chronic illnesses (2).

In the past two decades, the number of community-based health intervention programs initiated within African American communities has increased (4,5). One approach has been to conduct the educational interventions within churches, which serve a very important role in the lives of many African Americans and which appear to have great potential for playing a role in community
health (4,5).

Purpose of the Study

The purpose of this pilot study was to design, implement and evaluate a nutrition education program based on participant needs and Healthy People 2000 objectives and to conduct this program in an African American church. Changes in health knowledge, awareness and behaviors related to the causes and prevention of high blood pressure, cancer and stress and any improvement in eating patterns based on the Food Guide Pyramid were measured. Specifically, a nutrition education program was planned and implemented, involving two churches composed mainly of African American members. This program was unique, in that it combined a University (Virginia Polytechnic Institute and State University),

the Public Health Department, the Cooperative Extension Agency, and African American Churches.

Objectives

The objectives of this pilot program were as follows:

1. To design a nutrition education program that met the needs of the participants and incorporated many of the Healthy People 2000 objectives.
2. To determine the major health concerns among the African American church members and the feasibility of designing and implementing a program addressing those concerns.
3. To implement the program on a small scale and determine its effectiveness for improving health knowledge and behaviors based on pre- and post program questionnaires and to determine the short-term effectiveness of the program in changing eating habits (behavior), based on improvement or lack of improvement in following the Food Guide Pyramid, along with any self- described changes in behavior obtained with forms completed by the participants.
4. To determine the health status of the population with the use of height, weight, percent body fat and blood pressure measurements, along with a health risk appraisal.

5. To determine the dietary intake of each participant, based on a three day diet record completed during the first and fifth week of this program.

Chapter II. Review of Literature

Introduction

The Healthy People 2000 Report states that research is needed to determine effective methods for education that will translate dietary recommendations into appropriate food selections and sustained behavioral changes among various subpopulations (1). Furthermore, studies are needed to evaluate the degree to which health promotion programs in churches can evoke lifestyle choices and consequent changes in health status (1). A specific health status objective in the Healthy People 2000 report states that a marked improvement is needed in accessibility of information regarding nutrition and education in the public sector (1).

The Healthy People 2000 report states that African Americans do not receive adequate early, routine, and preventive health care (1). The report also states that the goal of increasing the healthy life for Americans encompasses the critical components of health promotion; namely the prevention of premature death, disability, and disease and the enhancement of quality of life. It is emphasized that the second major goal, reducing the health disparity among Americans, is dependent on significant improvements in the health of those populations who are now experiencing the highest risk of

premature death, disability, and disease. With regard to the third major goal, achieving access to preventive services for all Americans, the authors stress that particular emphasis must be placed on the arena where both private and public health professionals have the most responsibility - specifically in the area of preventive services (1).

Use of the Term "African American"

The National Association for the Advancement of Colored People was contacted to inquire about the most suitable term to use when describing this minority group. Through personal communication, the principal investigator was informed that African American is the acceptable descriptive term. For this reason, only the term African American will be used by the author.

Health Disparity Among African Americans

Age adjusted mortality rates for all causes of death are 52% higher for African Americans than for white Americans. This population suffers from a 10% higher incidence of cancer, and a 12% lower cancer survival rate than that of white Americans, according to a survey entitled Surveillance, Epidemiology, and End Results (SEER) which was conducted from 1973 to 1981 (7). The

rate of cancer occurrence is 25% higher among African American males than white males, while the rate is 4% lower for African American females than for white females (7).

Although more African Americans smoke cigarettes than white Americans, the prevalence of heavy smoking is greater in whites (8). Based on the National Health Interview Surveys from 1980, 35.9% of white males are heavy smokers while 11.9% of African American males reported heavy smoking. Almost 24% of the white females smoked more than 25 cigarettes every day, in comparison to 7.5% of the African American females (9). The health impact resulting from these differences in smoking patterns is unclear; however, almost 90% of all lung cancers are caused by cigarette smoking. and these smoking-related cancers are higher among African Americans (9). For example, the rate for lung cancer in African American men is 100% higher than for their white counterparts (1).

Deaths due to hypertension are more than 5 percent higher in the African American population than in the white population (10). It is estimated that about 5 million African Americans are suffering from uncontrolled hypertension (11). Stroke and chronic renal disease secondary to hypertension are also more prevalent in this

population (12).

Diabetes affects 33 percent more African Americans than whites (8). Based on data collected in 1980 by the National Center for Health Statistics, 3.2% of the estimated 27 million African Americans in the United States (over 800,000 people) have been diagnosed with diabetes. Another 4% (more than 1 million) are believed to have undiagnosed diabetes (8). Age-adjusted mortality rates from diabetes are 132% higher for African Americans than for white Americans (13).

Chemical dependency remains an important health concern for the African American population, particularly alcohol abuse, illicit drug abuse, and cigarette smoking (10). The rate of mortality from cirrhosis among the African American population is almost twice the rate for all minorities. This population seems to be at a disproportionately high risk for health problems problems related to alcohol, such as esophageal cancer (10).

Social Networks, Social Support, and Changes in Behavior

Nestor (14) explained that the relationships among knowledge, beliefs, attitudes, and behavior are very complex and are not just a casual chain of events. The psychological concept of cognitive dissonance states that, if a person has knowledge or beliefs that are not consistent with his or her behavior, the need to resolve

the conflict between attitude and behavior will cause an adjustment in either their beliefs, actions, or both. However, in practice, this is not always the case (14). For example, Nestor pointed out that many of the people, having major problems with weight, drugs, alcohol, etc., are often very well informed about the causes and consequences of their problem. In contrast, for many others, gaining a small amount of knowledge concerning the risks associated with their condition will result in cessation of the negative behaviors.

Nestor discussed a proposal made by Hochbaum and Rosenstach (15) who state that a person taking a health related action must:

* perceive the issue to be important
* believe that he or she is susceptible to the condition
* believe that the problem is serious
* not perceive the magnitude of the threat with so much anxiety that he/she is paralyzed from action
* believe the action to be both effective and possible

The author concluded that the content of a nutrition education program should be analyzed for its relevance and for its ability to address participant concerns and interest (14).

The Cooperative Extension Service of the U.S.

Department of Agriculture has created a model of behavioral change that has a sequence including awareness, interest, evaluation, trial, and adoption (15). Awareness takes place when people learn of the idea or action, but still have little knowledge about it. Individuals then develop interest in the idea and obtain more information about it. Next, they evaluate the rewards within their own situation, then proceed to a trial phase wherein they actually begin to use the idea or practice. Adoption will ultimately take place if the idea or practice is perceived as beneficial and the individual will then continue to use the idea or practice (15).

Kolbe stated that behavior analysis is necessary to determine the effectiveness of nutrition education programs and how to design the programs to make them more effective (16). Brun proposes that changes in behavior are influenced by food familiarity, early experiences with food in childhood, self-image, traumatic experiences associated with food, literacy, and specific personality traits such as rigidity and anxiety (17).

The general thrust of health promotion programs is to place behavior change strategies in the hands of people who can inspire and help one another to adopt healthier life-styles and become more self-reliant (5).

The assumption is that relationships with family, friends, neighbors, co-workers, and people with similar problems can provide the necessary intimacy and warmth of mutual support for evoking the desired change in behavior. The expectation is that, through social networks, people will be able to induce one another to make changes and will give each other support for maintaining these changes. The quality of social support, rather than the quantity, most likely affects the ability to deal with problems (5).

Eng et al. (5) stated that there exists a pre-condition for a sense of collective identity among participants in intervention that necessitates the ability of people to motivate, assist, and encourage one another. The number of church-based health programs has increased in association with the growing perception of the influential and instrumental role played by the church among blacks. However, successful institutionalization of these programs and achievement of long-term behavior change can occur only by integrating the health interventions with the social support patterns of the client community. The kind of information needed to make this assessment can be obtained only from the people themselves and by directly observing the members. Outside health professionals simply are unable to learn

enough about the inside view, to plan a suitable intervention without involving those who are already aware of what it means to be an insider. In addition, native resources cannot be mobilized to implement and support diffusion of new knowledge and changes in behavior without the approval of influential members of social units (5).

The Role of the Church in the African American Community

African Americans strongly depend on their family, companions, and their church for emotional support (18). Having a religious belief, in general, is associated with improved health and life satisfaction. Comstock and Partridge (19) found that persons who attended church frequently had a lower incidence of cardiovascular disease and lower systolic blood pressure.

Hatch et al. (20) stated that the African American church plays many roles born of necessity, and is enduring because of the trust and faith that people place in the entire congregation. Therefore, it seems altogether fitting that the church should lead the way in the attainment of healthier lifestyle patterns and the development of health promotion activities which are helpful and culturally appropriate for the African American community (20). These churches have a major influence in their communities because they not only

serve as a place of worship, but also serve as centers for social and political gatherings, and are sources of education and health care (4, 21). Members of the community normally remain loyal supporters of their churches, with church groups resembling large extended families. The church represents a long-standing, permanent institution in the community which takes into account all of the needs of individuals and their families (5, 22). Persons, who may not accept or who misunderstand information and advice given by health professionals, may trust and accept suggestions made by their peers in the church and community (21).

Levin stated that the church is the most important social institution in the African American community. It has traditionally been the keeper of the defining values and norms (4). Although outside influences upon the religious philosophy of the church may vary, its central role has continued to be essentially the same. The African American church remains the leader in addressing the needs of its members. The African American minister has many roles, including teacher, preacher, funeral director, politician and most recently, agent of health change (4).

Community medicine programs conducted through churches are consistent with the community oriented

service role of the black church (4). Levin also stated that as knowledge of the structure and roles of the church continues to grow, well-informed, action-oriented programs can continue to prosper and meet this service delivery role of the church. Thus, the church can serve as a health provider where the regular health system is inadequate (4).

Eng et al. (5) stated that the church is a powerful force in many communities which can strengthen and promote behavior change in its members and the entire community. Reduction of health risks, mobilization of community resources to sustain change, and community coordination for social action are the types of behavioral outcomes which can be initiated in the church. When designing church based interventions, there should be a fit between the recommended behavior patterns related to health and the naturally occurring patterns of social support within the congregation (5).

Nutrition Education and Adult Learning

Nutrition education has been defined by Johnson and Johnson as: "... the teaching of validated, correct nutrition knowledge in ways that promote the development and maintenance of positive attitudes toward, and actual behavioral habits of, eating nutritious foods (within

budgetary and cultural constraints) that contribute to the maintenance of personal health, well-being and productivity (23)." The ultimate criterion of health eduction has been defined as "the adoption of desirable nutritional practices and their sequelae, better health and reduced disease prevalence (24)."

Knowles has stated that four major assumptions exist when teaching adults (25). The first assumption is that of changes in self-concept that take place as a person matures, from a concept of dependency to one of independence and self direction (25). Once a person has become a self-directed adult, he or she must be treated as such or negative emotions such as resentment or anxiety may result and interfere with the learning process. The second assumption is one of experience, in that the adult has an increased background of experiences that he or she uses as a resource for new learning situations. If this prior experience is ignored, obstacles may be created if the adult feels annoyed, bored or antagonized and this may also hinder the learning process. Knowles favors more participatory methods for learning, such as discussions or projects that utilize the adult's amount of experience, along with practical applications that relate the learning to the person's day-to-day life experiences (25).

A third assumption in adult learning is one of readiness. While children are assumed to be ready to learn because of academic pressures, adults do not experience these pressures. Therefore, the adult's readiness should coincide with the time that the education takes place. Adults are ready to learn when they are faced with a problem that must be solved. The fourth assumption is one of orientation. While learning for a child is oriented toward subjects, learning for an adult is oriented toward problem solving. Knowles stated that this assumption implies that learning should deal with problems or projects that the adult is currently facing. Specifically the author stated that adults learn only what they want to learn (25).

Knowles also described the necessary conditions for learning to occur based on an examination of several educational theories. Suggestions made by the author included that learners feel the need to learn and perceive the goals of the experience as their own personal goals. In addition, the individual should participate directly in the development, implementation, and evaluation of the experience to increase his or her commitment to learning and this process should utilize the adult's life experiences. Final suggestions were that the physical and psychological environment be

comfortable and that the relationship between teacher and adult learner be one of mutual trust, respect and helpfulness (25).

Holli and Calabrese (26) described the necessary psychological and physical environment in more detail. With regard to the psychological environment, the authors stated that openness and encouragement of questions serve to create an informal atmosphere and that toleration of mistakes and respect for individual and cultural differences are necessary. They also stated that collaboration and mutual assistance should take the place of competition and preliminary feelings of anxiety should be diminished so that learning is not inhibited. An instructor who creates this type of informal, supportive and caring environment should receive better results than one who creates a formal and authoritarian situation.

With regard to the physical environment, appropriate temperature, lighting, ventilation and comfortable chairs should be provided to create an environment which promotes learning. Interaction among participants is facilitated by arranging the chairs into a circle or around a table because this allows everyone to have eye contact with one another (26).

Previous Health Interventions Using African American Churches

Wiist and Flack (27) reported on a pilot cholesterol education program carried out in African American churches by trained volunteers who were church members. The purpose of this study was to determine the effect of a dietary education program provided by trained volunteers in an attempt to lower the cholesterol levels of participants.

Screening for coronary heart disease took place at six churches and in one local library located in a large city in the southwestern United States. Members of the project staff met with local ministers to ask for their support and the participation of their church members. Screenings were conducted by nurses, church members, and trained medical and graduate public health students. Six hundred and sixty one African Americans were screened for blood pressure, pulse, height, weight, and serum cholesterol. All participants were given a copy of the screening results and a brief period of counseling by one of the authors (27). The counseling included recommendations to stop smoking, and to decrease intake of foods high in saturated fat by replacing them with foods lower in fat.

One hundred and seventy-four participants from one church with serum cholesterol levels greater than or

equal to 200 mg/dl were then asked to take part in a nutrition education program in order to learn how to decrease their cholesterol levels. Another 174 participants at other screening locations with cholesterol levels greater than or equal to 200 mg/dl had a copy of their screening results sent to their personal doctor. This second group served as a comparison with the nutrition intervention group, because the second group received "Usual Care", while the experimental group received nutrition intervention education.

The nutrition education program was conducted for one hour each week for six weeks in the education center of the church. Groups of ten to fifteen participants came to seven classes dispersed throughout the week. The classes were taught by church volunteers, who had received six hours of training from a registered dietitian experienced in the Lipid Research Clinics method, and counseling for cholesterol reduction (27). The volunteer teachers used a lecture manual, handouts, overhead transparencies, audio-visual equipment, food models, food packages, and snacks during teaching sessions.

The nutrition education program concentrated on an eating pattern with changes in fat intake, with an emphasis on the reduction of saturated fat and

cholesterol sources, and substituting foods that were low in fat and high in mono- and polyunsaturated fats. Classes contained information concerning risk factors for coronary heart disease, along with the fat content of foods, alternative food selections, soluble fiber, salt substitutes, food preparation, shopping, label reading, and dining in restaurants. Also included in the classes were guidelines pertaining to weight loss, exercise, and smoking cessation.

A sixty-four page instruction manual pertaining to all the topics mentioned above also was given to each participant, along with a pocket-sized version of a 3 day diet record system named "Rating Your Diet" (28). Pamphlets or booklets covering topics in reduction of dietary cholesterol were also mailed to participants every two weeks. This education program had been designed by graduate public health education students with the help of the authors and a registered dietitian (27).

The follow-up screening took place six months after the first screening. Although not all attendance records were available, the authors stated that 48% of the education group had attended 3 or more classes, while 64% of this group had come to at least one class. One hundred and thirty of the 174 members of the education

group participated in the follow-up screening, while only 62 of the 174 returned in the nonintervention group. Results from the second screening indicated that the only statistical significance found between the nutrition education group and the usual care group was in their baseline mean systolic blood pressure (137.3 $\pm$ 18 in the education group vs. 129.5 $\pm$ 18 in the usual care group: $p \leq .02$).

Mean cholesterol levels in the education group had decreased 23.4 mg/dl (10%) between the initial and follow-up screening. Twenty-one percent of the education group had unchanged or increased cholesterol levels, while the usual care group had levels which decreased 38.7 mg/dl (16%). Overall, 92% of the usual care group had reduced cholesterol levels, a difference which was statistically significant a $p \leq 0.003$.

In the education group, those who returned for the follow-up were found to have lowered their cholesterol from borderline high category (233.9% mg/dl) to the desirable levels (210.4mg/dl, $p \leq 0.0001$). The same was true for the usual care group (23). Neither the initial cholesterol level reading nor the follow-up levels were statistically different from each other when the two groups were compared.

Wiist and Flack (27) concluded that that coronary

heart disease screening and nutrition education classes are an effective method for lowering cholesterol levels when conducted by trained volunteers from within African American churches. They also noted, however, that the larger reduction in blood cholesterol levels measured in the usual care group suggests that screening by itself can also lead to cholesterol reduction in this population.

Whitehead et al. (29) conducted a study in which they evaluated the effects of two types of community-based intervention programs for controlling hypertension. The research took place in five counties of biracial population in central Mississippi, in which one hypertension health counselor was recruited from within each county. The health counselors underwent three weeks of intensive training, learning about cardiovascular physiology, principles of epidemiology, pharmacology of hypertensives, methods for interviewing, and health education techniques, including nutritional counseling.

The counties in which this study took place contained over 86,000 individuals, who were very impoverished and had almost an even distribution of African Americans and whites. The residents were strongly affected by chronic diseases. The two models tested for hypertension control effectiveness were (1)

using the hypertension health counselors to manage hypertensive people individually, and (2) developing and operating hypertension self-help groups in settings which provide social support, such as in the extended family and church.

Self-help groups contained a volunteer counselor trained and certified to measure blood pressures and recruited by the hypertension health counselor. The volunteer counselors serve as group leaders, blood pressure monitors, and educators of group health.

Results in this paper provided answers to the question of this program's short-term effectiveness (29). After the formation of 32 self-help groups, and individual counseling of 229 clients by the hypertension health counselors, hypertension control had improved. Fifty percent of the clients in this study initially had uncontrolled blood pressure, but after the sixth measurement in the sixth month of this study, a significantly larger number of controlled hypertension cases existed in the self-help groups operated in the extended family situation ($p \leq 0002$), because 92.2% of those subjects now had controlled hypertension. In addition, 71.1% of the subjects in the self-help groups in the church setting now had controlled hypertension, and 75.1% of controlled hypertensives now existed in the

single client intervention setting. No statistically significant difference in the number of patients with controlled hypertension was found between the self-help groups utilizing the churches and the hypertension health counselor working with an individual client (29). The researchers concluded that the two separate models of high blood pressure control, namely self-help groups based in a church or in the extended family, and individual client counseling by a hypertension health counselor, both were preliminarily demonstrated to be effective approaches for the control and management of hypertension (29).

Kong et al. (30) reported on the Churches as Hypertension Control Centers Program (CHCCP) in which volunteers were recruited, trained, and certified as blood pressure measurement specialists. They were responsible for offering education, screening, and monitoring for hypertensive clients. Health education topics included nutrition, weight control, exercise, smoking cessation, and changes in behavioral lifestyle.

The authors concluded that the CHCCP is providing a means for reaching a relatively resistant population. They note that African American males are less likely to allow themselves to benefit from screening, diagnosis, and treatment than African American women. In addition,

African American men, particularly the young, are less likely to attend church regularly, so more effort is necessary to reach them. Kong et al (30) stated that men are less likely to see a physician after being referred to one for hypertension, and that the CHCCP is a way of reaching these African American males, since their relatives and friends can motivate and encourage them to control their hypertension.

Saunders and Kong (21) described continuing church-based hypertension management programs carried out in 10 medium to major size cities in the United States. Volunteers from each church become certified blood pressure specialists and are trained to teach the community about the risk factors associated with hypertension, myths about blood pressure, the ineffectiveness of home remedies, and the importance of control of hypertension. These blood pressure specialists also refer patients to physicians and follow up on their progress.

The authors stated that these church-based hypertension control programs are effective because they can be organized to provide lasting high blood pressure control services and also because volunteers can be effectively trained to offer measurement of blood pressure, instruction, referral, follow-up and monitoring

of clients (21). Saunders and Kong concluded that hypertension control centers which are church-based provide the community with informed, competent volunteer help, and that this program also improves the self-esteem of the blood pressure specialists because they obtain a new status within the community.

Hatch and Lovelace (31) described a program called the Community Health Education and Resource Utilization Program. This is a demonstration project of the Department of Health Education, School of Public Health, University of North Carolina at Chapel Hill. The objective of this continuing program is to increase the number of people in chosen rural communities who are able to increase knowledge and provide appropriate counseling concerning the risks associated with hypertension, pregnancy, diabetes, and other health problems identified by residents of the communities. The African American population is targeted for this program and designers of this project chose to use churches for conducting it because they hypothesized that the church would provide an effective and efficient means for intervention in selected health problems.

Students in health professions first visited with the ministers from eight local churches in one section of Chatham County, North Carolina to discuss the health

education program. The students next presented the program formally to the church congregation during Sunday services, and each church was asked to choose three participants from within their church who received 12 weekly training sessions which focused on what strategies and content the program should contain. Hypertension, diabetes, poor maternal and child health, alcoholism, and child abuse were selected as problem areas in the communities by the community participants (31).

The training sessions also included skills in counseling, referral, use of audio-visual equipment, and methods for involving all church members in the health promotion. The authors stated that the health education program seemed to have received support and confidence from the people in the communities since chosen participant attendance averaged about 80 percent. The health profession students were responsible for selecting community participants, designing the curriculum, coordinating weekly training periods, following up with the participants, and evaluating the program.

Another program based on the model described above by Hatch and Lovelace was begun when the General State Baptist Convention of North Carolina launched a health program, with the goal of reducing the morbidity and mortality rates related to hypertension, diabetes, and

birth and early life survival. The statewide project was designed to train 3.000 church members as health and human services advisors (32).

Hatch et al. (20) conducted a "Fitness Through Churches" project, a demonstration project aimed at changes in lifestyle and involving African American North Carolinians in a risk reduction and education awareness program against cardiovascular disease. The first component of this project was cardiovascular education, specifically information on "heart healthy" nutrition, the benefits of smoking cessation, weight management, and control of blood pressure. The second component of this project was a regular form of aerobic exercise aimed at increasing cardiovascular fitness.

Objectives of this program included training 30 persons from 10 churches to be organizers/aerobic instructors and advisors on "heart healthy" nutrition and the cessation of smoking. A second objective was to help these churches begin health promotion projects, particularly aerobic classes, and a third objective was to develop and test a model of cardiovascular health promotion that will be culturally acceptable and suitable for diffusion to other African American communities in the United States.

Study participants were found with the use of

several strategies, including church recruitment, a workshop for the pastors, a pilot study, and fitness training for the aerobic instructors from qualified persons (20). Each aerobics instructor was seen by a physician prior to participating in aerobics. Four months after completion of the first cycle of this study, the program staff and six instructors gathered for a session of information sharing about the program.

Evidence of program effectiveness thus far included quantitative information from the aerobic instructors themselves concerning health risk factors such as blood pressure, body circumferences, flexibility, and resting heart rate. A two inch improvement in flexibility was revealed, along with a five point reduction in systolic blood pressure in 50% of the instructors and a two point improvement in resting heart rate in about 40%. Ninety percent of the instructors showed a significant improvement in body circumferences, including bust, abdomen, hips and waist (20).

Perry et al. (22) conducted a church-based high blood pressure program in Memphis, Tennessee, aimed at achieving earlier doctor referrals for control of high blood pressure in the community, fewer work days lost, a reduction in morbidity as a results of undetected high blood pressure, and changes in lifestyle behaviors that

are harmful to susceptible hypertensives. A committee made up of groups and individuals with the greatest experience in blood pressure screening in the community recommended that a program be developed in community churches and other organized groups since these locations could furnish long-term blood pressure screening and monitoring.

This program was designed so that each minister/pastor chose the most dedicated adult members to be accountable for working with this program. Training sessions were carried out at the churches when no less than 10 participants agreed to attend. After the completion of training, screening took place every month following a regular workshop service, thus making the services accessible to a large number of people. Completed screening forms, which contained information regarding each participant's age, past history of hypertension, present status of treatment, and current blood pressure reading were collected. Participants with elevated blood pressure were referred to the proper source for treatment and participants were later followed up on to recheck their blood pressure at specified intervals. This program also contained educational components which emphasized the risk factors associated with the development of cardiovascular disease (22).

Following 18 months of focused efforts toward creating church-based blood pressure programs, a need was found to expand the idea to other community locations. Numerous requests for information regarding how to begin this program in other locations in the United States were received. The authors stated that the effects of this program are real and the introduction of programs, such as this, is practical in all communities. They concluded that their efforts and others similar to it, could achieve the goal of reducing the persisting threat of disability and death from high blood pressure that is uncontrolled (22).

Issues in Evaluating the Effectiveness of Programs

According to Farquhar (33), some of the benefits of community-based intervention trials include the fact that they develop techniques that are applicable to the real world in which people live, they enhance intervention power because they increase opportunity for diffusion and social support, they measure the efficacy of programs that are more generalizable than those trials that are clinic-based, and they provide public policy makers with proof of the feasibility and efficacy of programs aimed at public health.

Whitehead et al. noted that separate issues arise when determining the effectiveness of any type of

intervention program. Questions such as the following should be answered when determining the effectiveness of an intervention program: (1) What measurable effect(s) have resulted from the program? (2) Can the successful program continue or be institutionalized by enabled sectors of the community? and (3) How far does the information in the program diffuse past the program participants? (29).

Whitehead et al. discussed how the benefits of community programs include the fact that they are adapted to natural institutions, such as the extended family and the church, and thereby strengthen the informational support provided to its members. The authors feel that it will be much easier to achieve continuity of these programs, because the program does not create an artificial setting (29).

Dietary Habits of African Americans

In the United States, dietary factors are associated with half of the 10 leading causes of death: coronary heart disease, some forms of cancer, stroke, noninsulin-dependent diabetes mellitus, and atherosclerosis (1). A report published in 1988 by the Surgeon General found eating patterns may determine the long-term health prospects more than any other individual choice, in every 2 out of 3 Americans who do not smoke or drink (34).

Kumanyika (35) stated in his report entitled "Diet and Chronic Disease Issues for Minority Populations" that although data on dietary habits of minority groups are scarce, many areas are present where nutrition interventions can decrease the prevalence of chronic disease and risk factor profiles in minority communities. He also stated that there is an evident need for obesity and diabetes interventions in African Americans, to increase fruit, vegetable, and dietary fiber intake, while decreasing cholesterol and cured meat product intake (35).

According to the Nationwide Food Consumption Survey (1-day recall) taken in 1985 (36), African American males aged 19 to 50 years of age met 73% of the 1980 RDA for vitamin B6, 70% for calcium, 80% for magnesium, 87% for vitamin E, 61% for folacin, 88% for zinc, 95% for vitamin A, and 96% for riboflavin.

Low-income African American women were found by this same consumption survey (taken for 4 days) to be consuming 66% of the 1980 RDA for vitamin E, 48% for vitamin B6, 35% for folacin, 48% for calcium, 47% for magnesium, 47% for iron, and 46% for zinc (37). Similar results were found in 1986 by this continuing survey regarding low-income African American women aged 19-50, and for all income African American women in the same age

range (38,39).

Block et al. (40) conducted a study which analyzed nutrient intake patterns in the United States, specifically calories, fat, and cholesterol. The data again came 24 hour dietary recalls collected during the second National Health Examination Survey (NHANESII) from 1976 to 1980. Included were 10,322 white and 1,336 African American adults, representing approximately 132 million people.

The researchers found that for every age group, African Americans consumed fewer kilocalories and grams of fat than whites, except among females between the ages of 19 and 24 years old. However, African Americans did consume more dietary cholesterol than whites in most age-sex categories, probably due to differences in food choices (40).

Similar patterns of oleic and linoleic acid consumption was seen for all races, ages, and sex. The same was true for percent of kilocalories from fat and no difference in race was found when analyzing the polyunsaturated to saturated fat ratio.

Block et al. (40) concluded by discussing the pertinence of their findings. They noted that respondents reporting a low food intake are consuming low amounts of the essential nutrients, and thus African

Americans and the elderly may be particularly at risk.

Mettlin (41) reviewed data collected by the Health and Nutrition Examination Survey (NHANES) taken from 1971 to 1974, which contained food intake frequencies of African American and white males. A total of 20,749 persons were interviewed, of which 79% was white, 20% was African American, and 1% was classified as in other races. The author's purpose was to investigate the possibility that excess cancer rates in minorities may be the result of different dietary practices.

The researcher examined fat consumption and found that African American men of all ages reported less frequent ingestion of fats and oils. In addition, African American men reported eating less cheese than white men of similar ages.

Mettlin also examined fruit and vegetable consumption and found that, among men 18 to 44 years old, 53% of the white males indicated consumption of fruits and vegetables two or more times daily, in comparison to 33% of the African American males. This difference was found in all age groups. Less difference was found in regard to consumption of fruits and vegetables that are good sources of Vitamin A and C.

Mettlin summarized his analysis of the data by stating that the lower fat intake if African American

males did not support the hypothesis that a high-fat diet is responsible for the higher cancer rate occurring in African Americans. He also points out that the less frequent fruit and vegetable consumption of African American males could possibly decrease their resistance to some forms of cancer (41).

Patterson and Block (42) examined the data from NHANESII to analyze the American diet in relation to certain cancer dietary guidelines recommended by the National Academy of Sciences and the American Cancer Society. The researchers found that a higher percentage of African Americans than whites reported consumption of cruciferous vegetables, most commonly cabbage and greens. There were few differences in the consumption of fibrous vegetables by race or age group.

Seventy-two percent of the participants reported they ate no fruit or vegetable rich in vitamin C, and about 80% did not consume a fruit or vegetable rich in vitamin A on their recall day (42). Intake was lowest among young adult white males, while it was higher for African Americans in all age groups.

Whites consumed more high fiber cereals or whole grain breads on the recall day: between 14 and 24% ate at least one serving, while less than 10% of the African American population ate at least one serving of these

high fiber foods. Fish and poultry consumption was higher in African Americans than whites, while the opposite was true in regard to consumption of red meat.

Patterson and Block (42) concluded that the data presented in their paper may be useful to public health and education initiatives designed to improve nutrition and could serve as a reference to measure their success. They stated that their results indicate that there seems to be a widespread need in all mentioned subgroups for public education and alterations in dietary behavior and that knowledge of what people do and do not eat is valuable when deciding what foods to promote during education.

Lanza et al. (43) used 24 hour recall data from NHANESII to estimate dietary fiber intakes in the U.S. population. Recall data from 11,658 adults age 19 or older were used. The dietary fiber tables compiled by Lanza and Butrum (44) were used to determine dietary fiber intake.

The authors found in their results that females had mean values across all ages of 6.6 g fiber per 1000 kcal for white females and 5.6 g fiber per 1000 kcal for African American females. Across all ages, African American males consumed 5.2 g/1000 kcal and white males consumed 5.5 g/1000 kcal. Rural African American males

had decreased absolute and relative fiber intake, in comparison to urban African American males (43). The effect of income on dietary fiber intake was analyzed, and indicated that females have a decreasing dietary fiber intake as income increases, while males show higher absolute and relative fiber intakes with a lower income. Lanza et al. (43) stated that African Americans had lower dietary fiber intakes than whites for all age groups and concluded that U.S. consumption of dietary fiber may be lower than previously estimated.

Newell et al. (45) conducted a study in which nutrient intakes were measured using an interviewer-administered 24 hour dietary recall. The sample consisted of 231 whites, 102 African Americans, and 98 Mexican Americans in four small rural communities in southeast Texas. Three separate phases made up this study, the first one being a 24 hr recall, designed to determine nutrient intake and ethnic-specific foods that might be major nutrient contributors of interest. The recall data obtained was next used to create a food frequency instrument so that the normal intakes of total fat, total vitamin A, and vitamin C could be assessed in phases two and three. These nutrients were focused on because of their suspected role in regard to specific cancers that occur at different rates among ethnic groups

(45).

Calculation of nutrient intakes from the recall data was accomplished by using a computerized nutrient data bank designed by the U.S. Department of Agriculture, along with data for ingredients included in ethnic recipes, and other published sources were used for calculating dietary fiber values.

Some notable characteristics of the sample included the fact that 75% of the respondents were female, and 50% of this sample was between the ages of 31 to 40, or 41 to 50, while 16% were in the 20 to 30 year age group and 34% were between 51 and 60 years of age. Results indicated that African Americans in their sample had the lowest mean caloric intake, and that this difference was statistically significant at p less than 0.05. There was no statistically significant differences in mean protein intakes among the different ethnic groups of sexes, although African Americans did have the highest intakes overall (45). African American males (n=21) had the highest saturated fat intake, and cholesterol intake was greater in African American males and females than their white counterparts. In addition, the highest vitamin A and C intake was seen in African Americans, while the lowest values were seen in whites. Mean calcium and phosphorus intake was greater in whites than in African

Americans and Mexican-Americans. However, none of the differences found were significant for any nutrient in African Americans when compared to white and Mexican-American intake (45).

Health Risk Appraisals

Various health risk appraisals (HRA) were reviewed in order to select the one most suitable for this program. A health risk appraisal, entitled "Healthier People" (3.1) was chosen for this study because the content is brief yet comprehensive in asking questions directly related to one's health risk. In addition, this HRA generates a printout that provides the participant with feedback on their health status. This health risk appraisal was created by the Carter Center at Emory University in Decatur, Georgia.

The "Lifestyle Assessment Questionnaire", (2nd edition, UW-SP Institute for Lifestyle Improvement, Stevens Point, Wisconsin) contains a Wellness Inventory section of 173 questions. It also has a section entitled "Topics for Marital Growth" with 31 questions, a Risk of Death section with 43 questions and an Alert Section with 39 questions. This HRA was not selected because the length of the tool is too great to meet the needs of our program. The fifth edition of this HRA also was not chosen for the same reason.

Chapter III. Methodology

Introduction

The purpose of this pilot study was to design, implement, and evaluate a nutrition education program based on participant needs and Healthy People 2000 objectives and to conduct this program in an African American church. The objectives of this pilot program were as follows:

1. To design a nutrition education program that met the needs of the participants and incorporated many of the Healthy People 2000 objectives.
2. To determine the major health concerns among the African American church members and the feasibility of designing and implementing a program addressing those concerns.
3. To implement the program on a small scale and determine its effectiveness for improving health knowledge and behaviors and to determine the short-term effectiveness of the program in improving eating habits in relation to following the Food Guide Pyramid, along with any self-reported changes in behavior. Any areas of program implementation in need of revision will also be identified.
4. To determine the health status of the population with the use of height, weight, percent body fat and blood

pressure measurements, along with a health risk appraisal.

5. To determine the dietary intake of each participant, based on a three day dietary record completed during the first and fifth week of this program.

Program Design

The initial step in designing this program was to hold preliminary meetings with members of two churches attended by participants who had expressed interest in health and nutrition education. The purpose of these preliminary meetings was to explain the concept of the program and to determine health concerns related to Healthy People 2000 objectives by asking each person to complete an Interest Checklist (Appendix A). Based on the responses received, the four most popular health topics were chosen. The topics were then incorporated into a series of four lessons which were taught over a four week period. Each session was about one and one-half hours in length. Anthropometric and health status data along with dietary intake information were collected during pre and post-sessions, while behavioral change was measured throughout the program. Health knowledge regarding the topics covered also was measured during the sessions with the use of three pretests. A post-test was

administered following the final lesson.

Study Participants

A total of thirty eight people expressed interest in this educational program, including eight males and 30 females. All were African Americans who attended one of two churches in Farmville, Virginia. Fifteen participants (four men and 11 women) attended one or both of the measurement sessions, and the number in attendance at each educational session ranged from seven to twelve. The ages of participants ranged from 39 to 88 years old, with the mean age being 62 $\pm$ 15 years.

Instruments and Assessment Tools

Interest Questionnaires

An Interest Checklist (Appendix A) was administered during two meetings with members at each church. Participants selected and ranked five topics in which they had the most interest and responded to questions pertaining to times and days of the week that would be most convenient for attendance.

Anthropometric Measurements

Weight, height, percent body fat and blood pressure values were obtained during pre-intervention and post-program meetings. Weight and height were measured using a balance scale, while percent body fat was measured

using a Futrex 5000 machine (Futrex Inc. Gaithersburg, MD). Body frame size was estimated using a ratio of height to wrist circumference (46). Blood pressure was measured by a public health nurse using a mercury spygmomonameter. Percent body fat and blood pressure were measured twice and the average was used in analyses. Physical measurement forms (Appendix B) were used to record the anthropometric measurements on participants. Information about the type, frequency, and duration of physical activity was obtained and recorded on these forms also.

Health Risk Appraisal

The Health Risk Appraisal (Carter Center at Emory University, Decatur, Georgia) (Appendix C) was completed during a private interview with each participant during the pre-program meeting. A software program, included with this health risk appraisal, was utilized to analyze the information provided by the participants. A printout of each individual's health status was given to each participant during the second session and was reviewed individually with that person. These printouts also provided the investigators with data regarding the health status of participants.

Pre- and Post-Program Knowledge and Behavior Tests

Knowledge about nutrition and health was measured

using pre-tests and a post-test (Appendix D). Each participant, attending a session, completed a pre-test pertaining to that session and the post-test was completed at the conclusion of the fourth session. Any significant improvements in knowledge and/or behavior were determined using a paired t-test. The post-test also contained six open-ended questions pertaining to each participant's opinion of the program.

Behavioral change measurement began during Session 1 with the use of forms created by the principal investigator. These forms were designed to determine if improvement in behaviors took place during the program with regard to following the Food Guide Pyramid (Appendix E), and to measure other changes in behavior (Appendix F). Each participant was given a packet of handouts containing the defined serving sizes used with the Food Guide Pyramid, along with an example of how to complete the behavioral change form (Appendix G). Oral directions for the completion of these forms also were given.

Three Day Food Records

Dietary intake information for three days was obtained using the forms in Appendices H and I. A 24-hour food recall was collected on each participant and instructions were given on how to record two more days of dietary intake. Measuring cups and average size serving

dishes (e.g. bowls, glasses etc.) were used to help the participants estimate serving sizes. Each person was asked to complete a food record for two week days and one weekend day. Three-day diet records received from each participant were analyzed with the Nutritionist IV computer program (Version 2.0, N-Squared Incorporated, 1993).

Educational Program

Nutrition education lessons were, for the most part, compiled from already existing materials developed by Cooperative Extension Specialists, along with materials from the Texas Agricultural Extension Service, United States Department of Agriculture, United States Department of Health and Human Services, Public Health Service, National Institutes of Health, National High Blood Pressure Education Program, Learning Seed, Inc., Emory University and Grady Memorial Hospital, Massey Cancer Center Outreach Program, National Heart, Lung, and Blood Institute, American Heart Association and American Cancer Society (Resource Packet).

The nutrition education lessons were presented by two faculty members, a masters degree student from the Department of Human Nutrition and Foods, Virginia Tech (principal investigator), and an agent with Virginia Cooperative Extension. Discussions with the participants

and information obtained from the health risk appraisals indicated that the education level of participants ranged from high school to post graduate or professional degree. Reading did not seem to be a barrier with any of the participants, but the selected education materials were written at a reading level of eighth grade or less, to avoid difficulties in reading and/or comprehension. Many of the handouts expressed ideas with both words and pictures, and videos were incorporated into the program to encourage interaction and to decrease the amount of reading required in the lessons.

Program announcements (Appendix J) were sent out two weeks prior to the date the program would begin so that participants could be aware of the topics, location, and scheduled times for the sessions. The program was also advertised on the radio. Sessions were held from 3:30 - 5:00 pm and 7:00 to 8:30 pm on Thursdays at only one church site, as members of the second church expressed willingness to come to the other church for the sessions. The days of the week and time for each session were determined based on preferences indicated by the participants and on the schedules of those who presented the lessons.

Implementation of the Lessons

After the four topics were selected and presenters were identified, the following program schedule was developed. Each topic or activity is followed by the applicable Healthy People 2000 objective (1) and a description of the activities and major points covered in that session.

Pre-Intervention Data Collection

Objective No. 8.11 "Increase to at least 50% the proportion of counties that have established culturally and linguistically appropriate community health promotion programs for racial and ethnic minority populations."

Objective No. 15.13 "Increase to at least 90% the proportion of adults who have had their blood pressure measured within the preceding two years and can state whether their blood pressure was normal or high."

This initial measurement session was held to administer the health risk appraisals and to obtain weight, height, percent body fat and blood pressure measurements. In addition, 24-hour dietary recalls were taken and participants were asked to keep food records for two more days and to return them to the next meeting.

During the pre-program meeting, the participants were informed of the content of the future sessions (Appendix D) and the necessity of completing the instruments for measuring program effectiveness. Identification numbers were provided to participants and signatures were obtained on informed consent forms

(Appendix K).

Session 1 : Food Guide Pyramid And Hypertension Prevention and Control

Objective No. 2.6 "Increase complex carbohydrate and fiber-containing foods in the diets of adults to 5 or more servings for vegetables (including legumes) and fruits, and to six or more daily servings for grain products."

Objective No. 2.9 "Decrease salt and sodium intake so at least 65 percent of home meal preparers prepare foods without adding salt, at least 80 percent of people avoid using salt at the table, and at least 40 percent of adults regularly purchase foods modified or lower in sodium."

Objective No. 15.4 "Increase to at least 50 percent the proportion of people with high blood pressure whose blood pressure is under control."

Objective No. 15.5 "Increase to at least 90 percent the proportion of people with high blood pressure who are taking action to help control their blood pressure."

As participants arrived at this session, they were given individual printouts on their health risk appraisal. The printouts contained statements regarding their current "good health habits" and made recommendations regarding lifestyle changes that would reduce health risk. A discussion of the printouts was held on an individual basis with participants and three day food records were collected at this time.

The lesson on the Food Guide Pyramid began with an explanation of the meaning and usefulness of the Food Guide Pyramid using handouts of the Food Guide Pyramid

published by the USDA (Resource Packet). The Dietary Guidelines for Americans (USDA, DHHS), along with the Pyramid were presented as guides for obtaining a sound diet. The selection of foods that are low in fat was emphasized, along with the use of whole grains and the inclusion of dark green and deep yellow vegetables in the diet. The number of servings recommended for all ages were presented. Questions and interaction among the group members were encouraged.

After covering the Food Guide Pyramid pamphlet, a second handout (Resource Packet) was distributed which gave the serving sizes of the foods in each of the food groups of the Food Guide Pyramid (USDA). This was done to increase the understanding of what the Pyramid recommendations are, to make it possible for the participants to try to follow these recommendations, and to enable the participants to complete the Food Guide Pyramid checklists (Appendix E).

The portion of the lesson regarding the prevention and control of hypertension began by administering the first pre-test (Appendix D) which contained eight questions on information to be covered in the lesson. For this first pre-test, the participants were told to help one another, to promote social support and interaction among the members and to diminish any

nervousness that may have been present. The pre-test was collected after each participant had sufficient time to complete it.

The major points covered in this lesson included the serious complications that result from having uncontrolled high blood pressure and the importance of having blood pressure checked regularly. Explanations of systolic and diastolic blood pressure, characteristics of persons at risk for high blood pressure, and suggestions for taking prescribed medication, controlling weight, reducing salt consumption, moderating alcohol intake, and increasing exercise were included in this lesson. A more detailed description of this lesson is provided in Appendix M.

A videotape created by the Texas Agricultural Extension Service entitled: "Reverend Jones: An educational kit focusing on high blood pressure for Black elderly" (Resource Packet) was also utilized in this lesson. One reason for choosing this particular videotape was to assess whether this program could be continued and offered to other church members by training volunteer members. Minority peer educators were not incorporated into this pilot study because the effectiveness of lessons had to first be determined.

At the end of the session, participants were asked

to complete two self-assessment forms to return at the next session. Four identical forms entitled "Daily Servings Based on the Food Guide Pyramid" were given to each participant. They were designed to measure improvement or lack of improvement in following the Food Guide Pyramid (Appendix E) for three week days and one weekend day as chosen by the participants. In addition, one form entitled "Goals for Change" (Appendix F) was given to participants and they were asked to describe any goals they would like to set for themselves after attending the lesson and to also describe their progress during the next week in achieving those goals. These forms were designed to measure behavioral changes in diet and/or lifestyle resulting from the program. An example form of self-described changes in diet or lifestyle also was provided (Appendix G) and discussed.

Session 2 - Stress Management

Objective No. 6.9 "Decrease to no more than 5 percent the proportion of people aged 18 and older who report experiencing significant levels of stress who do not take steps to reduce or control their stress."

During the second session, a lesson entitled "Stress Health, and Coping" (47) was taught. An overview of this lesson and related overheads are included in the Resource Packet. In this session, the causes, outcomes,

prevention and techniques for coping with stress were discussed.

No pretest was given before the stress management lesson because of time constraints. The major points covered in this lesson included definitions of stress, symptoms of stress and severe depression, the production and effects of cortisol and aldosterone resulting from stress, the diseases and conditions that stress may play a role in causing, and guidelines for managing and avoiding stress. A more detailed description of this lesson is included in Appendix M. Following this session, participants again were given four "Daily Servings Based on the Food Guide Pyramid" forms and one "Goals for Change" form to return at the next session.

Session 3 - Heart Healthy Eating

Objective No. 2.5 "Reduce dietary fat intake to an average of 30 percent of calories or less and average saturated fat intake to less than 10 percent of calories among people aged 2 and older."

This lesson began with the presenter giving each participant an index card with the amount of fat, kilocalories and dietary fiber estimated to be in their particular diet, based on their three-day food records and the Nutritionist IV analysis. The percent of kilocalories coming from protein, fat, and carbohydrate also was included on this index card. The majority of

this information was given to participants so they could determine if they were meeting their recommended intake of fat and to determine whether or not 30% or less of their kilocalories were coming from fat.

Next, the Food Guide Pyramid was reviewed, with an emphasis on what food choices are low in fat. The serving size sheets used in the first lesson (Resource Packet) also were reviewed in this lesson because these sheets contain the approximate amount of fat (in grams) found in many foods. Label reading also was discussed at this time.

The pre-test used in this lesson (Appendix D) was first completed individually and then verbally as a group to evoke interaction among the participants and the presenter of the lesson, and to enhance learning. The pretest was completed as a group because it contained questions that were more difficult than the questions in the other pretests. The questions on this pretest were obtained from questions in the booklets accompanying the two videos used in this lesson. The first video shown was entitled "Fast Food: Can your balanced diet survive fast food?" (Learning Seed, 1991) while the second video was entitled "Food and Fat" (Learning Seed, 1993).

The major points in this lesson included the sources of fat in the diet, calculation of the number of grams of

fat needed each day by participants, the concept of "fat budgeting," and suggestions for lowering fat intake. The participants were not given the Food Guide Pyramid checklist sheets after this lesson in order to give them a rest from filling out these forms because it was evident at this point that they were having a difficult time completing them every week.

Session 4 - Nutrition and Cancer Prevention

Objectives No. 2.5 and 2.6 (described previously)

Objective No. 16.1 "Reverse the rise in cancer deaths to achieve a rate of no more than 130 per 100,000 people."

At the beginning of this session, the final pretest (Appendix D) was completed individually by participants. Participants were also provided with a pocket folder, imprinted with the Virginia Tech name and logo, to express appreciation for their participation and to provide a place for storing educational handouts.

The major points covered in the lesson (48) included a definition of cancer, the forms of cancer associated with diet, and the recommended dietary practices and guidelines that may reduce cancer risk. Eighteen overhead transparencies were used to illustrate the major points. Principles from the Heart Healthy Eating lesson were reinforced, as a low-fat diet was promoted to reduce cancer risk just as it reduces cardiovascular risk of cancer. An overview of this lesson and the pages used as

overheads are included in the Resource Packet while a more detailed description of this lesson is included in Appendix M.

The post-test (Appendix D) which each participant completed individually was given at the end of this lesson. This test contained 11 questions from the three nutrition pre-tests given previously and six questions concerning each participants opinion of the program. Four more forms entitled "Daily Servings Based on the Food Guide Pyramid" and one form entitled "Goals for Change" also were given to each participant, along with the sheets for recording the second three-day food record.

Post-Program Data Collection

Weight and percent body fat were again measured at the last meeting. The three day food records were collected, along with the Food Guide Pyramid checklists and the behavioral change forms. Any participants who had not attended the previous session were asked only to answer the questions on the post-test which pertained to program feedback.

Data Collection and Analysis

Data from pre and post- measurement meetings and

descriptions of the lessons were obtained to evaluate the feasibility and effectiveness of the program itself. The data obtained from completed Interest Questionnaires were used to assess the health concerns of the participants before the program was planned.

The health risk appraisal and anthropometric measures were used to assess the health status of the participants. These data are related to certain Healthy People 2000 objectives as are the self-described types of physical activity and their duration.

Data from the pre- and post knowledge tests were analyzed using a paired t-test to determine if any significant improvement resulted in health knowledge as a result of the educational program. The pre- and post three day food records were used to compare the mean number of servings consumed during the first week with the mean number of servings consumed during the final week. Data regarding the number of servings consumed by the group based on the Food Guide Pyramid also was compared. The self-described behavioral change forms were used to collect data on other changes in behavior as a result of the program.

The three day food records were compared with the self-administered Food Guide Pyramid Checklists to determine how well each participant described their

adherence to the Pyramid.

Food records and 24-hour recalls were analyzed on the Nutritionist IV dietary analysis program for percent calories from carbohydrate, fat, and protein and for grams of dietary fiber. In addition, the percentage of kilocalories from saturated fat was compared with Healthy People 2000 Objective No. 2.5.

Food intake records also were analyzed for Vitamin A, pyridoxine, Vitamin B12, folic acid, pantothenic acid, Vitamin C, Vitamin E, calcium, iron, copper, magnesium and zinc content. The mean intakes of each vitamin or mineral are reported, along with the number of participants consuming less than 70% of the RDA or Estimated Safe and Adequate Daily Dietary Intake (ESADDI) for each of these nutrients was reported. These vitamins and minerals were chosen because of their relationship to the content of the nutrition lessons and/or because intakes have been reported to be low in African Americans.

Responses to the open-ended questions completed by participants on the post-test were summarized and suggestions are presented for improving the program. An evaluation of the tools used to measure knowledge and behavior also was conducted.

Chapter IV. Results and Discussion

Description of Participants and Their Health Status

A total of fifteen people (four men and eleven women) attended one or both of the measurement meetings. Attendance at the educational lessons ranged from seven to twelve participants. The mean age was 62 (± 15 years), and ranged from 39 to 88 years. The mean age for the men was 61 (± 11 years), while the mean age of the females was 62 (± 16 years). With regard to the amount of education reported by participants who completed the health risk appraisal, four had post-graduate or professional degrees, four had completed some college, three were high school graduates, and one had completed some high school. Six participants were currently employed, while six were retired.

Table 1 contains the mean anthropometric measurements of the entire group, specifically the mean age, weight, body mass index, percent body fat, and blood pressure measurements of the participants. The anthropometric measurements of each member in this group are located in Appendix N. These results are discussed in the following pages and are followed by a description of the physical activity reported by participants.

Table 1. Mean Anthropometric Measurements ± Standard Deviation

					Blood Pressure (mm Hg)	
Sex	Age	Weight(lbs)	BMI	%BF	Systolic	Diastolic
M*	61±11	206±45	31±5	29±4	141±10	86±3
F^	62±16	186±34	31±5	39±4	142±23	81±6

* n = 4
^ n = 11

Code: BMI = Body Mass Index
%BF = Percent Body Fat

Weight The mean weight for the four male participants in this program was 206 (± 45 pounds), with a range of 166 to 259 pounds. The mean weight for the eleven females in this study was 186 (± 34 pounds) with a range of 129 to 262 pounds. When body weight was analyzed using the weight ranges recommended by the Dietary Guidelines (derived from data from the National Research Council, 1989), two male and three female participants were found to be within the recommended weight ranges for their age. Four female participants were overweight, or 10 percent above desirable body weights (46). One male participant was 21 percent above his desirable weight range, while another male participant was obese, or 25 percent or more above his desirable weight level. Four females were obese or 20 percent or more above their recommended weight levels (46) at 20, 26, 38 and 47 percent above their desirable weight ranges.

Data collected in 1985 by the National Center for Health Statistics indicate that 27 percent of African American males between the ages of 30 and 44 years are 20 percent or more above their desirable body weight, 36 percent between the ages of 45 and 64 years are 20 percent or more above their desirable body weight, and 31 percent of African American males 65 years and older are

20 percent above this level (49). This data also indicated that 36 percent of African American females between the ages of 30 and 44 years are 20 percent or more above their desirable weight, 56 percent of females between the ages of 45 and 64 are 20 percent or more above their ideal body weight, and 44 percent of African American females 65 years of age and older are above this level. When this information is compared to the findings described above, the two participants between the ages of 30 and 44 were 32 and 34 percent above their desirable body weights, while three out of the five participants between the ages of 45 and 54 years of age were 20 percent or more above their ideal body weight. Of the eight participants over the age of 65, only one was 20 percent or more above the desirable body weight.

Previous research has attempted to determine the reasons for the high prevalence of obesity in African Americans. A low socioeconomic status, level of education, and family income have all been associated with obesity (50).

Wing et al. (51) compared the behaviors related to obesity in 490 white and 48 African American premenopausal women and found that there was a greater weight gain in African American women after the age of 20 even though there was no difference between the two

groups in caloric intake, smoking or the amount of alcohol consumed. The only marked differences found were in physical activity (51). Review of current research suggests that there is much more to learn about the high prevalence of obesity in African Americans.

Body Mass Index Body mass index (BMI) was calculated by dividing weight (in kilograms) over height squared (in meters) (46). The criteria for acceptable BMIs for persons between the ages of 35 and 44 is 21 to 26, while the criteria for persons between the ages of 45 and 64 years is 22 to 27, and this criteria is 24 to 29 for persons over 65 (46). The mean BMIs for the two participants between the ages of 35 and 44 were 32 and 40, while four of the five participants between the ages of 45 and 64 had BMIs greater than 27, ranging from 30 to 37. Four participants out of the eight who were over the age of 65 had BMIs over 29, ranging from 30 to 36. To summarize the preceding statements, ten participants had BMIs which were indicative of obesity and five participants had BMIs which were indicative of ideal body weight.

This analysis compared well with the preceding analysis of weights which incorporated the weight ranges recommended by the Dietary Guidelines for Americans. The

same five participants were indicated to be within their ideal body weight range and the same five participants were indicated to be obese. One major discrepancy found when comparing BMIs and recommended body weight ranges was that the participants classified in the weight analysis as overweight were classified as obese based on their body mass indexes. The mean body mass index for the males was 31 ($\pm$ 5), ranging from twenty-seven to thirty-seven, while the mean body mass index for the females was 31 ($\pm$ 5), with a range of 24 to 40.

One very important note to make concerning this analysis of body mass index is that research has determined that African Americans have more skeletal muscle and bone mineral mass compared to white Americans (52). Ortiz et al. (53) found after comparing 28 matched pairs of white and African American females that the African Americans had significantly greater appendicular muscle ($p \leq .001$), bone mineral ($p \leq .001$), and total body potassium ($p = .05$) than their white counterparts. The authors concluded that these differences in body composition may result in errors in fat estimates if ethnicity is not accounted for in models of body composition. Trotter et al. (54-56) compared the bone density of white and African American skeletons and found that the African American males had a bone mass which was

7 percent greater than white males, while the African American females had a bone mass which was 13 percent greater than the white females.

Percent Body Fat The results pertaining to percent body fat were analyzed relative to the criteria that men over 25 percent body fat and women over 30 percent body are classified as obese (57). Two males were above 25 percent body fat (at 35%), at 29 and 35 percent. Mean percent body fat for the males was 29% (± 4 percent). All eleven women had body fat readings above 30 percent, with a range of 30.7 to 45 percent. Mean percent body fat for the females was 39% (± 4 percent).

To summarize these findings, 13 of the 15 participants measured would be classified as obese, according to the data obtained pertaining to percent body fat. These results are in obvious disagreement with many of the actual weights and BMIs recorded. Error in the measurement of percent body fat may have resulted from the Futrex 5000 machine itself or from the methods employed by the principal investigator when measuring percent body fat. However, all of the recommended procedures were utilized when using the Futrex 5000 machine.

Weight Loss Of nine participants who attended at

least 5 of the 6 meetings, five participants (one male and four females) lost weight with the weight losses ranging from one-half to 7 pounds, while two others maintained their weight. Two participants gained approximately two pounds.

Body Frame Body frame was determined using height and wrist measurements (46). This analysis indicated that 10 participants had a large frame, while four participants had a medium frame. All of the necessary data was not available for the remaining participant.

Blood Pressure Mean systolic blood pressure in the four male participants was 141 (± 10 mm Hg), with a mean diastolic blood pressure of 86 (± 3 mm Hg) mercury. The mean systolic blood pressure of the eleven females was 142 (± 23 mm Hg), with a mean diastolic blood pressure of 81 (± 6 mm Hg).

Eight participants had blood pressures lower than 140/90 mm Hg. The remaining seven (47 percent) had systolic values greater than 140 mm Hg, three of whom had systolic values greater than 160 mm Hg and two of whom had diastolic values greater than 90 mm Hg. Data pertaining to the prevalence of hypertension in African Americans is approximately 35 per 100 African American

males and 30 per 100 African American females (58).

Based on the health risk appraisal completed by twelve of the participants, each of the seven individuals with high blood pressure was currently taking medication for this condition. This finding meets the Healthy People 2000 objective No. 15.5, which states: "Increase to at least 90 percent the proportion of people with high blood pressure who are taking action to help control their blood pressure."

Physical Activity The Healthy People 2000 objective relating to the data obtained on physical activity is as follows: (1.3) "Increase to at least 30% the proportion of people aged six and older who engage regularly, preferably daily, in light to moderate physical activity for at least 30 minutes per day." The data pertaining to physical activity indicated that eight of the fifteen participants exercised at least three times a week for 20 or more minutes. Of these eight, half exercised at least three times each week for at least 30 minutes (or 27% of the group). Four group members reported no exercise during this first week of measurement and the remaining three participants exercised less than or equal to one time each week. The most common type of physical activity was walking or riding a stationary bicycle.

At the conclusion of this program, one of the participants who had engaged in no weekly physical activity reported that he was now walking three times each week for 60 minutes at a time. Another participant had increased her walking time from 20 minutes to 60 minutes, six days each week and a third reported increased his exercise from once a month to walking once a week for 15 minutes. Thus, six individuals were walking at least three times per week for at least thirty minutes. Therefore, 40 percent (or six participants) were meeting Healthy People 2000 objective number 1.3. The two remaining participants who had initially reported exercising at least three times a week for 20 or more minutes reported that they had not decreased below this activity level.

Determination of Major Health Concerns

Thirty-eight individuals completed the Interest Checklists. As stated previously, the most popular topics chosen were Heart Healthy Eating, High Blood Pressure Prevention and Control, Cancer Prevention, and Stress Management. These topics were followed in popularity by Weight Control and Exercise, Understanding and Following a Diabetic Diet, Food Safety, Smoking Cessation, Selecting Healthy Foods and Saving Money at

the Grocery Store. A few topics, written in blank spaces provided on the checklist, were Obtaining Affordable Health Care, Understanding and Avoiding Infectious Diseases (including HIV), Finding a Good Doctor, and Prevention of Teenage Pregnancy.

The health concerns expressed by participants correspond with the published information pertaining to the major diseases affecting the lifespan of African Americans. A greater incidence of hypertension (10,11,12), cancer (7), diabetes (13), obesity, cardiovascular disease and stroke (2) have been reported among the African American population than in white Americans. Dietary factors play a major role in the prevention and treatment of these conditions and diseases (1). The health concerns expressed by the group are similar to those described in a large number of nutritional interventions that have been conducted in African American churches. As described in Chapter 2, previous interventions conducted within churches have focused on blood cholesterol level reduction, hypertension, pregnancy, diabetes, physical fitness, smoking cessation, and nutrition education (20,22,27,29,30,31,32).

The four topics written in by participants as health concerns- Obtaining Affordable Health Care, Understanding

and Avoiding Infectious Diseases (including HIV), Finding a Good Doctor, and Prevention of Teenage Pregnancy- are in agreement with other published reports and Healthy People 2000 objectives. On the average, African Americans have fewer physician contacts than white Americans and this appears to be associated with the lower ability to pay for the medical services (59). There is a positive relationship between income and use of private physicians that is partly explained by the greater likelihood that higher income groups have health insurance coverage (60). Responses collected on the health risk appraisal used in this study indicated that seven participants were currently working for or were retired from the government, while three reported working in the financial and service industry. The final participant indicated working in the area of agriculture and forestry. This information suggested that income may not have been a barrier to medical care and insurance coverage for this particular group.

African Americans also are at a higher risk of contracting the AIDS virus, based on data which reports that although African Americans make up 12 percent of the U.S. population, 27 percent of the cumulative reported cases of AIDS have been in this population (61). Healthy People 2000 Objective No. 18.1b states: "Confine annual

incidence of diagnosed AIDS cases among blacks to no more than 37,000 cases. The baseline information indicated that there were an estimated 14,000-15,000 cases of AIDS diagnosed in 1989 (1).

With regard to the health concern of teenage pregnancy, the National Center for Health Statistics reported that African American teenagers, between 15 and 19 years of age, were 140 percent more likely to have a child than their white counterparts (62). Healthy People 2000 objective No. 5.1a states the following: "Reduce pregnancies among black adolescent girls aged 15 to 19 to no more than 120 per 1000 black adolescents". The baseline information used for this objective was 186 per 1000 non-white adolescents in 1985 (1).

Health Status Derived from Health Risk Appraisal

Twelve participants completed the health risk appraisal. In this group, two persons reported having **diabetes mellitus**, while seven people reported that they were taking medication for **high blood pressure.** One of these individuals had both diabetes and high blood pressure.

Other information related to health risk include the fact that none of the eleven respondents smoked **cigarettes or cigars or used other tobacco products.**

However, there were five former smokers (three males and two females) who reported quitting 5, 6, 15, 22, and 25 years ago. Data collected in 1985 by the National Center for Health Statistics indicated that 46 percent of African American males between the ages of 45 and 64 currently smoke cigarettes, while 33 percent of the females in this age range are smokers (63). These data indicated that 18 percent of the African American males 65 years and older smoke cigarettes, while 25 percent of the African American females in this age range smoke. Therefore, the data pertaining to smoking habits for this particular group were much more favorable than the data collected by the National Center for Health Statistics.

With regard to the **amount of miles traveled in 12 months**, ten individuals expected to travel less than 10,000 miles, while the remaining two participants expected to travel 25 and 50 thousand miles. Eight participants reported wearing their **seatbelts** 100% of the time, with two participants reporting 95%, one person reporting 90%, and the remaining person reported seatbelt use 10% of the time. With regard to the questions about **alcohol intake**, only three individuals reported alcohol consumption; one reported one mixed drink a week, while another reported one wine cooler per week and the final alcohol drinker reported six glasses of wine each

week.

The following data also were collected from the Health Risk Appraisal and are related to Healthy People 2000 objective No. 16.11e which states: "Increase to at least 80 percent the proportion of black women aged 40 and older who have ever received a clinical breast examination and a mammogram, and to at least 60 percent those aged 50 and older who have received them within the preceding one to two years." The baseline data for this objective were from 1987 and indicated that 28 percent of black women had "ever" had a clinical breast examination and mammogram and 19 percent of black women aged 50 and older had these procedures in the last two years (1).

Of the eight females who completed the health risk appraisal, four reported having a **mammogram** in less than one year, two reported a mammogram within one year, one reported having a mammogram within two years, and another reported having a mammogram within three or more years. Six women reported having their **breasts examined by a physician** in less than one year, while the final two had not had their breasts examined by a physician in two years. When age is taken into account with these data, it was found that all seven of the women over the age of 50 met the first portion of objective No. 16.11, and six met the second portion of this objective because one

person had not had a mammogram within three years or more. In addition, seven of the women **self-examined their breasts**, while one other person reported that she checked her breasts rarely or never.

Of the four males who completed this health risk appraisal, three men (ages: 53, 51, and 71) reported having a **rectal or prostate** exam within the past year while the fourth male (age 71) had not had one for three or more years. Data collected by the Department of Health and Human Services for 1987 indicated that 15 percent of African American males between the ages of 50 and 59 had a rectal exam in less than one year. Eighteen percent 70 years and older had a rectal exam in less than one year and 7.6 percent in this age range reported having a rectal exam more than three years ago (63).

Three respondents **rated their overall health** as excellent, seven rated it as good, and two rated their overall health as fair. In 1986, the National Center for Health Statistics found that 17 percent of the African American population surveyed assessed their own health as fair or poor (64) which is in agreement with the finding that 17 percent of the study population assessed their own health under the same category. In 1987, the National Center for Health Statistics conducted another survey and found that for African American males, 42

percent ranked their health as excellent, 28 percent ranked their health as very good, 21 percent ranked their health as good, and 9 percent ranked their health as fair or poor (65). Of the four male participants who completed the health risk appraisal, one ranked his health as excellent, two ranked their health as good, and one ranked his health as fair.

The same 1987 survey indicated that 36 percent of African American females ranked their own health as excellent, 28 percent ranked their health as very good, 25 percent ranked their health as good, and 11 percent ranked their own health as fair or poor (65). Of the eight females who completed the health risk appraisal, two ranked their health as excellent, five ranked their health as good, and one ranked her health as fair.

The responses to the two questions concerning the **daily intake of foods high in fiber and cholesterol** indicated that two respondents reported that they do <u>not</u> eat some food every day which is high in fiber, such as whole grain bread, cereal, fresh fruits, and vegetables. In addition, three of the twelve participants indicated that they eat foods every day which are high in cholesterol or fat, such as fatty meat, cheese, fried foods, and eggs.

The high level of education among the group could

very well explain the high number of participants who reported regular preventive examinations and beneficial lifestyle habits. For example, a study designed to determine the awareness of a relationship between diet and cancer for different races and levels of education found that awareness increased for African Americans at each of the higher levels of education (63). Research has shown also that higher education is associated with greater usage of a Pap test and breast examination (53).

The fact that the mean age of the participants was 62 (± 15 years) may have also played a role in the high number of preventive examinations and beneficial lifestyle habits found from responses to the health risk appraisal. Schoenborn found that persons in older age groups were more likely to have a larger number of good health habits than younger persons (66).

Evaluation of Program and Relation to Healthy People 2000 Objectives

Pre-Intervention and Post-Intervention Data Collection Sessions The participants seemed to react very positively to these two sessions, in which only measurements were taken and no lesson was given. They enjoyed getting their weight, percent body fat and blood

pressure values measured, and there were no difficulties in obtaining the health risk appraisal information. The visual aids used to assist in collecting the 24-hour recall (measuring cups, bowls, etc.) were beneficial for the participants to estimate serving sizes. Taking a 24-hour recall in this manner served as a beneficial model for participants in how to record a three-day record.

The first meeting was important for establishing rapport with participants and for obtaining more ideas about their health concerns and needs. The process of obtaining the measurement information, particularly for the health risk appraisal and three-day food record, seemed to encourage the participants to speak more freely.

Session 1: Food Guide Pyramid and Hypertension Prevention and Control

Food Guide Pyramid Lesson

The Healthy People 2000 objective related to this lesson is: (2.6) "Increase complex carbohydrate and fiber-containing foods in the diets of adults to 5 or more daily servings for vegetables (including legumes) and fruits, and to 6 or more daily servings for grain products". This lesson was designed to promote behaviors

in the objective by encouraging adherence to the Food Guide Pyramid as a method for obtaining the recommended intakes of carbohydrate, protein, fat, vitamins and minerals.

Eleven preliminary food records were collected at the first measurement meeting while four were collected at the final measurement meeting. These three day diet records were analyzed to determine the number of participants who met Healthy People 2000 Objective No. 2.6 for consuming 5 or more daily servings of vegetables, fruits, and legumes and 6 or more daily servings of grain products. The baseline data provided by Healthy People 2000 for this objective was from 1985 and indicated that 2.5 servings of fruits and vegetables and 3 servings of grain products were consumed daily by women between the ages of 19 and 50 (1). The mean number of servings from both food groups based on the preliminary and final food records is included in Table 2.

The eleven preliminary diet records indicated that seven of the participants were consuming five or more servings from the fruit, vegetable, and legume groups. The mean derived from the diet records for the entire group was 4.95 ($\pm$ 1.5 servings).

Only one participant also met the second portion of this objective for consuming six or more daily servings

Table 2. Mean Number of Servings Consumed Relative to Healthy People 2000 Obj. No. 2.6

	Fruit, Vegetable, Legume Group	Grain Group
Initial*	4.5 ± 1.5	3.45 ± 1.5
Final^	7.0 ± .8	4.0 ± 1

* 11 diet records
^ 4 diet records

of grain products. The derived mean from the eleven diet records was 3.45 (± 1.5 servings). Therefore, only one person met Objective No. 2.6, based on the preliminary diet record information.

The second set of diet records indicated that one person had increased her average daily fruit, vegetable and legume intake from a mean of 4 servings each day to a mean of eight servings per day. The mean number of servings of fruit, vegetables and legumes was 7 (± .8), based on the four diet records. The average number of servings consumed from the bread group remained the same or increased slightly for each person with the mean number of servings being 4 (± 1 servings).

The questions from the five participants attending the afternoon lesson and the seven participants attending the evening lesson included why the Food Guide Pyramid actually is a **pyramid**, where some foods not pictured belong in the Pyramid, and why there are no recommended number of servings and serving sizes for fats and oils. It was helpful to use the Food Guide Pyramid poster while participants referred to their own copy of the Pyramid in the pamphlet. Since because the Food Guide Pyramid lesson also covered everything in the pamphlet, the participants were able to get the information in written words, pictures, and verbally from the presenter.

High Blood Pressure Prevention and Control Lesson

The Healthy People 2000 objective related to this lesson states: (2.9) "Reduce salt and sodium intake so that at least 65% of home meal preparers prepare food without adding salt, at least 80% of people avoid using salt at the table, and at least 40% of adults regularly purchase foods modified or lower in sodium." The hypertension lesson was designed to promote this objective through encouraging the use of salt alternatives when cooking at home and the cessation of adding salt to foods at the table. The consumption of foods that contain relatively little or no salt was also encouraged.

One question, included in both the pre-test and post-test (Appendix D), pertained to the number of times each week that a participant added salt to food while at the table. Of the ten pre-tests completed at this meeting, nine participants indicated that they add salt 0 to 5 times each week, while one responded that she added salt at the table 10 or more times each week. This person, at a later session, wrote on her behavioral change form that she had not added any salt from the salt shaker since she attended the hypertension lesson. Two more persons responded that they added salt from the salt shaker 0 to 5 times each week. Therefore, the Healthy

People 2000 objective, pertaining to at least 80% of people avoiding the use of salt at the table, was met for the eleven respondents who answered this question.

Four participants reported on the Behavioral Change forms that they were able to meet their goal of reducing salt intake by either not adding any salt when cooking or by using salt alternatives. One participant reported that she was able to reduce her salt intake by eating meals that were lower in salt.

The videotape used during this lesson ("Reverend Jones") was received very well by the participants. They were still talking about it at the final measurement meeting. In my opinion, the fact that this video contains only African American actors and actresses increased its popularity with the participants. In addition, this video is not only educational, but also entertaining. The pauses between each of the six parts of this video provided time for the presenter to answer questions and cover the high blood pressure fact sheet (Resource Packet).

The seven handouts distributed following the video were useful in prompting more questions from the group pertaining to the sodium content of specific foods and alternative methods for cooking foods without adding salt. Several participants were surprised that many

processed foods they frequently use are very high in sodium.

Session 2: Stress Management

The Healthy People 2000 objective related to this lesson is: (6.9) "Decrease to no more than 5% the proportion of people aged 18 and older who report experiencing significant levels of stress who did not take steps to reduce or control their stress." The lesson was designed to provide participants with information about the causes, effects, and successful management of stress.

This stress lesson generated the most discussion of all lessons among the seven participants present at the afternoon meeting and four present at the evening meeting. The preliminary discussion pertaining to the definition of stress, good and bad types of stress, and the effects of stress, was effective for participants to discover the types of stress in their lives. The major stessors identified were work responsibilities, children, parents, and the fear of not being in control of ones own life. A discussion of when "concern" becomes "worry" (and stress) also resulted from this interaction.

One particular stress management technique discussed was that participants should ask themselves (when under

stress) the following question: "What is the worst thing that can happen to me in this situation?" This technique was suggested, to enable the participants to realize that they could manage if that worst occurrence did actually take place. Throughout this lesson, several participants asked questions about the specific stressful events experienced in their own lives and how to best deal with them.

The stress management lesson seemed to be very effective based on the discussion it generated and because it made participants more aware of the many physical outcomes of stress. The overheads were useful to the presenter in leading the lesson and the handouts distributed at the end of the lesson were well received.

Session 3: Heart Healthy Eating

The Healthy People 2000 objective related to this lesson is: (2.5) "Reduce dietary fat intake to an average of 30% of calories or less and average saturated fat intake to less than 10% of calories among people aged two and over". This lesson was designed to promote these behaviors because it addressed the sources of fat and saturated fat in the diet and each participant was assisted in calculating the grams of fat they could consume and keep their fat level at no more than 30

percent of kilocalories.

The baseline data for Objective No. 2.5 was 36 percent of kilocalories coming from total fat and 13 percent of kilocalories coming from saturated fat in data collected from 1976 to 1980 for persons aged 20 to seventy-four (1). Additional data were provided from 1985 for females between the ages of 19 and 50, with 36 percent of kilocalories coming from fat and 13 percent of kilocalories coming from saturated fat. The mean intakes of the participants regarding the percent of kilocalories coming from fat, along with the percent of kilocalories coming from saturated fat is provided in Table 3. These results were obtained using the Nutritionist IV computer program.

Based on the eleven preliminary food records received, seven participants were meeting Healthy People 2000 Objective No. 2.5. Percent fat intakes in these individuals ranged from 14 to 30 percent. The remaining four individuals all had fat percentages less than 40 percent of kilocalories ranging from 31% to 39 percent. The mean fat intake in the entire group was 28 ($\pm$ 7 percent).

The mean intake of saturated fat for the entire group was 10 ($\pm$ 3 percent). Participants meeting this objective had intakes ranging from 4 to 9 percent. The

Table 3. Mean Intakes of Fat and Saturated Fat (± SD)

	Mean % Fat	Mean % Saturated Fat
Initial*	28 ± 7	10 ± 3
Final^	27 ± 7	7 ± 4

* 11 diet records
^ 4 diet records

group was 10 (± 3 percent). Participants meeting this four individuals consuming more than 10 percent saturated fat were consuming 15.4%, 14.4%, 13.5% and 11% of kilocalories from saturated fat.

The four diet records collected at the end of this program indicated that one person had lowered total fat intake to less than 30 percent of kilocalories. However, two participants had increased their fat intake, from 14 to 31 percent and from 19 to 34 percent of total kilocalories. The mean percentage of kilocalories from fat based on these four diet records was 27 (± 7 percent).

Analysis of the mean intakes of saturated fat indicated that three participants had lowered their saturated fat intake even further, while one person had an increased saturated fat intake, from 8.3 percent to 10.3 percent. The mean percentage of kilocalories coming from saturated fat was 7 (± 4 percent). Therefore, the number of persons meeting Healthy People 2000 objective No. 2.5 based on preliminary and final diet records was six (or 55 percent of the group).

Questions asked by the six in attendance at the afternoon meeting and the three present at the evening meeting included "What is a gram?", "How many eggs can be eaten in one week?", and "Should the eggs currently

advertized as being low in cholesterol (Eggland's Best) be purchased?". The two videotapes incorporated into this lesson were helpful in providing information pertaining to where fat and saturated fat are found in the diet. One important note about the first film shown ("Fast Food: Can Your Balanced Diet Survive Fast Food?" Resource Packet) is that only groups who often eat fast food (or have friends or family eating it) would be interested in this video.

Session 4: Nutrition and Cancer Prevention Lesson

The Healthy People 2000 objective related to this lesson is the following: (16.1) "Reverse the rise in cancer deaths to achieve a rate of no more than 130 per 100,000 people." This lesson was designed to provide the participants with information about the dietary changes which may reduce their risk of cancer.

Questions asked by the two present at the afternoon meeting and five present at the evening meeting included how to cook beans without using fat, whether pesticides used on fruit should be a concern, and what is fiber. The participants were very interested in this lesson, especially in regard to how increasing their intake of fiber and vitamins A, C, and E may reduce the risk of cancer.

Evaluating the Effectiveness of Program for Improving Health Knowledge and Behaviors

Improvement in Health Knowledge Based on Pretests and Post-test A paired t-test was used to determine if a significant improvement in health knowledge occurred as a result of this program, based on the pretest and post-test scores. No significant differences ($t = 1.11$) were found between the two scores obtained from seven participants who were present at three or more of the sessions.

Knowledge of the Food Guide Pyramid The final three day food records were used to determine the number of servings consumed in each food group based on the Food Guide Pyramid and these data were compared with each participant's Food Guide Pyramid checklists for that same week in order to determine how well participants described their own adherence to the Pyramid. Very few errors were found when these two forms were compared. Only one outstanding error was found because one participant had counted each vegetable he ate as a vegetable serving, regardless of the serving size of the vegetable. However, he made this mistake only in this particular food group. Therefore, the overall

understanding of the Pyramid among the group was judged to be very good.

Self Described Changes in Health Behaviors

"Number of Servings Based on the Food Guide Pyramid Forms" The information obtained about the mean number of servings consumed over three days on three-day diet records during the initial and final week of this program is included in Table 4. Food intakes of participants were compared with the Food Guide Pyramid. The eleven pre-intervention food records indicated that only one person was meeting the Food Guide Pyramid's recommendations for consuming six to eleven servings each day from the Bread/Cereal/Rice/Pasta Group, three to five servings from the Vegetable Group, two to four servings from the Fruit Group, two to three servings from the Milk/Yogurt/Cheese Group, and two to three servings from the Meat/Poultry/Fish/Dry Beans/Eggs/Nuts Group.

Only one person reported consuming six servings from the Bread/Cereal/Rice/Pasta Group on the three day diet recalls with a mean of 6.3 servings. The mean number of servings reported by the eleven participants was 4 ($\pm$ 2 servings) from the bread group.

Five persons were meeting the Food Guide Pyramid's recommendation for consuming three to five servings per

Table 4. Mean Number Servings Consumed Based on the Food Guide Pyramid (± SD)

Initial Week*

Bread	Vegetable	Fruit	Milk	Meat
4 ± 2	3 ± 1	2 ± 1	1 ± 1	2 ± 1

Final Week^

Bread	Vegetable	Fruit	Milk	Meat
5 ± 1	4 ± 1	5 ± 1	1 ± 1	3 ± 1

* Based on 11 diet records
^ Based on 4 diet records

day from the vegetable group. The mean number consumed was 3 (± 1 servings). Three persons were consuming the recommended two to four daily servings from the fruit group and the mean intake was 2 (± 1 servings). Only two participants were consuming the recommended two to four servings from the Milk Group and the mean for the eleven participants was 1 (± 1 serving). Nine participants were meeting the recommendation for consuming two to four servings from the Meat Group with the mean number being 2 (± 1 servings).

The four diet records collected at the end of the program indicated that only one person continued to meet the recommendations of the the Food Guide Pyramid. However, some improvement had occurred in participants with regard to increasing fruit intake. All four individuals had increased the mean number of fruit servings by an average of 2.3 servings. The mean number of servings from the Fruit Group was 5 (± 1 servings). Participants reported very little change in their intakes of vegetables, grains, and meats, beans, eggs and nuts. Mean intake of vegetables was 4 (± 1 servings), while mean intake of grains was 5 (± 1 servings) and mean intake of meats, beans, eggs and nuts was 3 (± 1 servings). The number of servings from the milk, yogurt, and cheese group remained low with a mean of 1 (± 1

servings).

"Goals for Change" Forms Six behavioral change forms (Appendix F) were collected following the Food Guide Pyramid, Hypertension Prevention and Control session. The written statements received were the following:

No. 1: " I would like to reduce the amount of frankfurters eaten and to eat more fresh and dried fruit".

This participant reported that he was able to achieve these goals during the week and thought he could maintain the improvements.

No. 2: " I would like to use less salt and fat when preparing my food...and to eat more fresh fruit, whole wheat breads, green vegetables, foods high in fiber and less sweets."

This individual reported using herb seasonings and lemon juice "instead of seasonings containing salt and fat" and found the food to be "quite tasty." This person also wrote that she would continue to use less fat and salt and to bake, broil and steam foods instead of frying them.

No. 3: " I have changed the way I season my food, take the skin off my chicken, and am eating more fruit."

She reported that she had "not used raw salt since I was here last" and she was going to "try hard" to continue with this change.

No. 4: " I will try to eat more vegetables and fruit, try to eat less bread, cut down on foods that have a lot of sodium."
This participant said that she was successful in "trying not to eat a meals that have a lot of salt" and that this behavior would continue.

No. 5: " I will use less salt when I am cooking."

This individual reported that she "did not add salt to anything she cooked at the table" and could maintain this change in behavior.

No. 6: " I would like to reduce my fat and salt intake."

This person reported that she did not add salt to anything she cooked and ate very lean ground beef or baked chicken without the skin for at least two days. She also reported that she thought she could continue these changes "somewhat".

Four completed behavioral change forms were collected following the Stress Management Session and the written responses were as follows:

No. 1: " I would like to eat more fruit."

This respondent reported " I have added an apple to my fruit group" and that he could continue this change.

No. 4: " I want to try to eat foods that are in the Food Guide Pyramid and eat more fresh fruit and vegetables".

This participant's wrote that she could continue with these changes and that she would continue to improve her diet.

No. 5: " Eat less foods that contain fats, oils, and sugars."

This person stated that she did not add any sugar to her ready-to-eat cereal, which was Raisin Bran and that she thought she could continue with her dietary changes.

No. 7: "Eat more foods from the recommended groups."

This participant reported that she was not able to make this change, but that she would "continue to try".

Three completed behavioral change forms were collected following the Heart Healthy Eating session and the responses were the following:

No. 1: " I am eating two slices of whole oat bread, using skim milk, and have added grapes to my fruit selection."

This person stated that he could continue these dietary changes.

No. 3: This individual wrote that her snacks now consisted of a variety of fruits such as oranges, apples, bananas, grapes and peanuts. She also stated that she had improved her water drinking habits, because she had improved from less than one glass of water each day to eight glasses (eight ounce) of water each day. She stated that she would try to continue with these changes.

No. 5: "Drink more water, eat more fruits and vegetables, and eat less fatty foods."

This participant reported that she had "stopped using plain salt for seasoning" and that this dietary change would continue.

These behavioral change responses indicate that some dietary improvements were made as a result of the program. It is evident that the participants increased their knowledge pertaining to consumption of more servings in specific food groups included in the Food Guide Pyramid. In addition, behavioral change was reported which pertained to decreasing salt and fat intake. Other participants stated verbally that this program also served well as a reinforcement to improve

eating habits.

Evaluation of Pre-Test and Post-Test Questions, Food Guide Pyramid Checklist Forms, and Behavioral Change Forms

Pre-test and Post-test Questions In my opinion, the lack of significance found in pre-test and post-test scores may have been resulted from the small number of pre-tests and post-tests collected and from poor design of questions in the tests themselves. One major difficulty encountered resulted from the fact that a baseline knowledge test was not given to the participants to use as a reference when creating pretest questions. In addition, there was no pilot-testing of the pre- and post-test and no efforts were made to test them for reliability or clarity of wording.

Participants seemed to have little difficulty with the questions that had an answer of true or false. They likewise had little trouble with questions that required the selection on one answer from four choices, unless the correct answer was "all of the above" because it seemed that in this case, several participants selected the first correct choice without reading all of the possible answers. In my opinion, questions with a correct answer

of "all of the above" should have been avoided for this reason.

Another problem encountered was that some participants did not answer all of the questions on either the pre-tests or post-test even though in many cases, it seemed that they did know the correct answer. A suggestion for improvement here would be to make sure that every question had been answered before collecting the pre-tests and post-test.

Food Guide Pyramid Checklist Forms As stated previously, a comparison of the final three-day food records and self-described Food Guide Pyramid Forms indicated that the participants understood both the Pyramid itself and the forms completed to determine how well they did following the Pyramid. However, over the course of this program, smaller numbers of Food Guide Pyramid forms were collected each week. This may have been due to the small decrease in the number of persons in attendance and/or because the forms took too much time to complete during the week. Through personal communication with four of the participants, it was discovered that they were reluctant to continue filling them out because the forms were time-consuming.

Suggestions for improvements in this program with

regard to the number of forms administered would include asking the respondents to complete the forms for only one week following the Food Guide Pyramid session and for a second week following the final lesson (cancer and nutrition). This may decrease the reluctance of the participants, since this would limit the number of times to two they have to complete the form. Motivational rewards could also be promised to participants who complete these forms in order to increase the number that are returned.

Another suggestion would be to provide a sample diet record during the Food Guide Pyramid lesson and complete a Food Guide Pyramid Checklist form with the group based on the diet record. This may improve the motivation to return these forms by increasing the confidence of participants that they are filling them out correctly.

Behavioral Change Measurement Forms The responses collected on the behavioral change forms indicate that participants understood these forms well. The verbal instructions, combined with the example form, were very helpful to participants in completing these forms.

Program Feedback From Participants

Nine participants completed the open-ended questions included on the post-test. In response to the first

open-ended question on the post-test: "What did you think about this program?", all eight of the participants reported that they had greatly enjoyed the program and that it was very informative. The second question on the post-test was the following: "Do you feel you learned something from coming to these meetings? If so, what?". The responses to this question also were very positive as all of the seven participants who answered this question responded that they had learned something. The specific topics about which participants wrote they had learned the most were: choosing balanced meals, learning about the adequacy of their eating habits, what type foods make up a healthy diet, the fat content in foods, controlling how much is eaten and how to prepare food. Other topics mentioned were the following: how to prevent stress, the necessary components of proper nutrition, weight control, exercise and how to avoid adding salt to food.

The third question designed to obtain feedback on the post-test was the following: "Are there any changes that you think would make this program better? If so, what are they?". Three participants stated that more publicity would improve attendance at the program so that it could reach more people. Two participants responded that the program would be improved by reducing the number of days (or lessons), while a third person stated that

she wished the program would be presented more often.

The fourth question was as follows: "What were your reasons for coming to the sessions?". Three respondents stated they came to learn about improving their eating habits, while five stated they came to learn how to improve or maintain their health so they could take care of their bodies. The last response to this question was simply "to learn more".

The fifth question of the post-test was the following: "What do you think it would take to get more people to come to these meetings?". Six persons responded that more publicity, whether it be simply from telling others about the program or publicity on the radio, newspaper, etc. would get more people to come. The final response to this question was that more people would come if the lesson times were shorter.

The sixth and final question pertaining to program feedback was: "Do you think this program could be continued by training volunteers in your church to give these lessons? Why?" Eight respondents stated "yes, this is possible". The one reservation was that the volunteer would have to have some kind of medical experience, but four of the participants who responded "yes" said they thought a trained volunteer would increase the number of people in attendance, because "people may respond to

local or people they know". Two people responded "yes" because they said more people needed to know about the program. The final respondent was "not sure" whether this program could be continued with trained volunteers from within the church.

Nutritional Analysis of Food Records

Mean Intakes of Carbohydrate, Protein, and Fat

The mean composition of the initial and final diet records pertaining to the percent carbohydrate, protein, and fat are included in Table 5. The preliminary diet records indicated that mean carbohydrate intake was 55 (± 7 percent), while mean protein intake was 16 (± 5 percent) and mean fat intake was 28 (± 7 percent). The four diet records collected at the end of this study indicated that mean carbohydrate intake was 57 (± 7 percent), while the mean protein intake was 16 (± 3 percent) and mean fat intake was 27 (±7 percent). Two participants had increased their mean carbohydrate intake, from 45 to 65 percent and from 54 to 61 percent, while the other two participants had decreased their mean carbohydrate intake, from 65 to 53 percent and from 66 to 49 percent.

Two persons had decreased their mean intake of protein slightly (from 20 to 26 and from 15 to 13

Table 5. Mean Intakes of Carbohydrate, Protein and Fat (± SD)

	Percent Carbohydrate	Percent Protein	Percent Fat
Initial*	55 ± 7	16 ± 3	28 ± 7
Final^	57 ± 7	16 ± 2	27 ± 7

* 11 diet records
^ 4 diet records

percent), while one person's percent protein remained the same (at 17 percent) and the final individual had increased mean protein intake slightly, from 15 to 17 percent. With regard to the percentages of kilocalories coming from fat, two participants had increased their mean fat percentages (from 14 to 31 and from 19 to 34 percent), while the remaining two persons had lowered their fat intake (from 39 to 18 and from 30 to 26 percent).

The mean intake of kilocalories based on the eleven preliminary food records was 1603 $\pm$ 590 kilocalories. This intake met 82 $\pm$ 33 percent of the RDA.

Mean Intakes of Selected Vitamins and Minerals

The mean dietary intakes of selected vitamins and minerals are presented in Tables 6 and 7, respectively. The number of participants meeting less than 70 percent of the RDA or Estimated Safe and Adequate Daily Dietary Intakes (ESADDI) for these selected vitamins and minerals is included in Table 8 and 9, respectively. This data is based on the Nutritionist IV dietary analysis program.

Selected Vitamins The data from the eleven preliminary diet recalls indicated that the number of participants consuming less than 70 percent of the RDA for **Vitamin A** was four, (range 24 to 62 percent of the RDA). The mean intake of Vitamin A for the entire group

Table 6. Mean Intakes of Selected Vitamins Based on Initial Diet Records

Vitamin (unit)	Intake ± SD	% RDA ± SD
Vitamin A (RE)	901 ± 593	112 ± 75
Pyridoxine (mg)	2.4 ± 2.3	146 ± 149
Vitamin B12 (ug)	3.8 ± 1.7	186 ± 85
Folic acid (ug)	226 ± 112	123 ± 68
Pantothenic acid (mg)	134 ± 95	62 ± 28*
Vitamin C (mg)	134 ± 95	222 ± 159
Vitamin E (mg)	9.9 ± 4.4	118 ± 57

*ESADDI

Table 7. Mean Intakes of Selected Minerals Based on Initial Diet Records

Mineral (mg)	Intake ± SD	% RDA ± SD
Calcium	680 ± 353	97 ± 48
Iron	15 ± 5	140 ± 52
Copper	2.0 ± 2.4	87 ± 106*
Magnesium	257 ± 64	90 ± 23
Zinc	8.6 ± 2.8	72 ± 25

* ESADDI

Table 8. Number Participants Consuming Less Than 70% of the RDA for Selected Vitamins*

Vitamin	No. Participants
Vitamin A	Three
Pyridoxine	Two
Vitamin B12	One
Folic acid	One
Pantothenic acid^	Eight
Vitamin C	Zero
Vitamin E	Three

* Based on 11 diet records
^ ESADDI

Table 9. Number Participants Consuming Less Than 70% of the RDA for Selected Minerals*

Mineral	No. Participants
Calcium	Three
Iron	Zero
Copper^	Seven
Magnesium	Zero
Zinc	Seven

* Based on 11 diet records
^ ESADDI

was 901 ± 593 Retinol Equivalents (or 112 ± 75 percent of the RDA). Two participants did not meet 70 percent of the RDA for **pyridoxine**, with intakes of 60 and 69% of the RDA. One participant was consuming less than 70 percent of the RDA for **Vitamin B12** with a mean intake of 49 percent of the RDA. The mean intake of Vitamin B12 was 2.4 ± 2.3 mg (or 146 +/- 149 percent of the RDA).

The mean intake of **folic acid** was 226 ± 95 mg (or 123 +/- 68 percent of the RDA) and one person was consuming only 65 percent of the RDA for this vitamin. Eight persons were consuming less than 70 percent of the ESADDI for **pantothenic acid** (range 23 to 65 percent of the RDA). The mean intake of pantothenic acid for the entire group was 134 ± 95 mg (or 62 ± 28 percent of the ESADDI). All eleven participants who completed the first three-day food records met greater than 70 percent of the RDA for **Vitamin C** with the mean intake of Vitamin C being 134 ± 95 mg (or 222 ± 159 percent of the RDA. Three persons were consuming less than 70 percent of the RDA for **Vitamin E** with mean intake ranging from 38 to 52 percent of the RDA. The mean intake for the entire group was 10 ± 4.4 milligrams.

Selected Minerals The mean dietary intakes of selected minerals based on the 11 initial diet records are included in Table 7. The mean intake of **calcium** for

the entire group was 680 ± 353 milligrams (or 97 ± 48 percent of the RDA). Three persons were consuming less than 70 percent of the RDA ranging from 47 to 61 percent. The mean intake of **iron** was 15 ± 5 mg (or 140 ± 52 percent of the RDA). All participants were consuming more than 70 percent of this mineral. Seven persons were consuming less than 70 percent of the ESADDI for **copper**, with mean intakes ranging from 33 to 60 percent. The mean intake of copper for the entire group was 2.0 ± 2.4 milligrams (or 87 ± 106 percent of the ESADDI). All eleven participants were consuming more than 70 percent of the RDA for **magnesium** and the mean intake of this mineral was 257 ± 64 milligrams (or 87 ± 106 percent of the RDA). Seven participants were consuming less than 70 percent of the RDA for **zinc**, with intakes ranging from 44 to 62 percent. The mean intake for the entire group was 8.6 ± 2.8 milligrams (or 72 ± 25 percent of the RDA).

Changes in Dietary Intake Based on Final Diet Records

Analysis of the four diet records collected at the end of this program indicated that some improvement had occurred in vitamin and mineral intakes. For example, one participant had increased his intake of Vitamin A from 24 to 306 percent of the RDA. However, his intake of Vitamin B12 had decreased for this individual to below

70 percent of the RDA (from 193 to 46 percent).

Another person had increased her mean intake of pantothenic acid and zinc to greater than 70 percent of the RDA, from 65 to 130 and from 62 to 140 percent, respectively. A third person had decreased her mean intake of copper and zinc to less than 70 percent of the RDA from 77 to 60 an from 119 to 53 percent of the RDA. The final person had increased her intake of pantothenic acid to greater than 70 percent of the RDA, from 60 to 72 percent.

Dietary Fiber The mean intake of dietary fiber for the eleven preliminary diet records was 19 $\pm$ 9 grams. Analysis of the four diet records collected at the end of this program indicated that three participants had increased their intake of dietary fiber, from 19 to 38 grams, from 18 to 25 grams, and from 24 to 26 grams. The final diet record indicated that one person had lowered their mean intake of dietary fiber from 21 to 17 grams.

Foods Frequently Reported on Diet Records Table 10 contains a list of the foods most frequently found in the diet records. Very little current information is available concerning foods commonly eaten by African Americans, so this table is included in an attempt to

provide some information about specific foods reported by the participants.

Table 10. Foods Commonly Listed on Diet Records

Grains: Bread (whole wheat, partial wheat or white)
Cream of Wheat
Corn Flakes Cereal
Waffles or Pancakes

Vegetables: Green Beans, Turnip Greens, Potatoes

Fruits: apples, applesauce, orange juice, bananas

Dairy: milk (2%, 1% & Skim)

Meats: chicken (stewed or baked)
turkey
sausage

Suggestions for Improvement of the Program

Suggestions for improvement of this program that have not been previously mentioned are the following:

* Provide paper, pencils, and a folder at first meeting so that participants have something in which to keep lesson materials.
* Incorporate cooking demonstrations into the program using recipes that are economical, easy to prepare and follow the content of the nutrition lessons. This should be feasible, since most churches contain kitchens.
* Begin the stress management lesson with approximately 30 minutes of relaxation training to provide participants with exposure to this method of relaxation.
* Give a pre-test for the stress management lesson so that the effectiveness of this lesson can be measured.
* Provide small rewards to participants at each meeting, such as cups, t-shirts, etc.
* Measure cholesterol levels at the first measurement meeting and discuss results with participants. Stress dietary factors which may lower cholesterol into the lessons, if cholesterol levels are found to be high.

Chapter V. Conclusions

This nutrition education program resulted in no significant improvement in health knowledge, based on a comparison of the pre-test and post-test scores. However, comprehension of the Food Guide Pyramid was indicated to be very good when actual three day food records were compared with the participants' completed Food Guide Pyramid Checklists for the same three days. In addition, improvement in behaviors associated with dietary intake was described by participants, which pertained to decreasing their intakes of sodium and fat and increasing the number of daily servings from the fruit group.

The data concerning dietary intake of the participants based on the Food Guide Pyramid indicated that the mean number of servings consumed from the Bread Group was 4 (± 2 servings), while the mean number of servings consumed from the Vegetable Group was 3 (± 1 servings) and the mean number of servings consumed from the Fruit Group was 2 (± 1 servings). In addition, the mean number of servings reported from the Meat Group was 2 (± 1 servings) and the mean number of servings consumed from the Dairy Group was 1 (± 1 servings).

Analysis of eleven diet records with the computer program Nutritionist IV indicated that the mean intakes

of carbohydrate was 55 (± 7 percent), while mean protein intake was 16 (± 5 percent) and mean fat intake was 28 (± 7 percent). The data regarding selected vitamins and minerals indicated that over half of the group was not meeting 70 percent of the RDA for pantothenic acid, copper, and zinc. However, these diet records indicated that all participants were meeting at least 70 percent of the RDA for vitamin C, iron, and magnesium. The data regarding dietary fiber indicated that mean intake was 19 ± 9 grams.

Of the fifteen participants present at one or both of the measurement meetings, five were within their desirable weight range, while five participants were slightly overweight and the remaining five participants were obese. Seven participants had systolic blood pressure values greater than 140 mm Hg. Two of these same participants had diastolic values greater than 90 mm Hg. Six participants reported exercising at least three times each week for thirty minutes.

Feedback from participants about the content of this program indicated that the program was successful in providing the desired health information. Participants felt that the program should be offered again and that more people would attend if the lessons were taught by persons in their own community.

Chapter VI. Summary

A six-week nutrition education program was designed for African Americans and pilot-tested in one church in Farmville, Virginia. The content of this program was determined during preliminary meetings, when persons attending one of two churches in the area selected the health topics in which they had the greatest interest. Based on these preliminary meetings and Healthy People 2000 objectives, the following health topics were covered in the program: 1. Hypertension Prevention and Control 2. Stress Management 3. Heart Healthy Eating and 4. Nutrition and Cancer Prevention. Each topic was covered during one day each week in a one and one-half hour session.

The program began with a "Pre-Program Data Collection" meeting, at which time weight, height, percent body fat, and blood pressure was measured. In addition, a health risk appraisal was completed with each participant and instructions for providing a three-day food record were also given at this meeting. A second measurement meeting took place at the conclusion of this program, at which time post-program anthropometric measurements and three day food records were collected. Fifteen participants attended one or both of the measurement meetings and eleven diet records were

collected.

Pre-test and post-test scores indicated that the program did not result in a significant improvement in health knowledge. However, comprehension of the Food Guide Pyramid was indicated to be very good and the descriptions collected from participants regarding their attempts to improve their dietary habits indicated that they had learned the importance of and techniques for lowering sodium and fat intake, along with the importance of increasing their intake of fruits and vegetables.

Antropometric data indicated that five participants were within their desirable weight range, while five were slightly overweight and five were classified as obese according to the desirable weight ranges. Seven participants had systolic blood pressure values above 140 mm Hg, two of whom had diastolic values over 90 mm Hg.

Dietary intake was analyzed based on the number of servings consumed from each food group in the Food Guide Pyramid, along with the mean intakes of selected vitamins and minerals, the composition of the diet, and the grams of dietary fiber consumed. This analysis indicated that only one person was meeting the dietary recommendations made by the Food Guide Pyramid. Based on the eleven diet records collected the mean number of servings consumed from the grains group was 4 ($\pm$ 2 servings), while the

mean intake from the vegetable group was 3 (± 1 servings) and the mean number of servings consumed from the fruit group was 2 (± 1 servings). The mean intake of servings from the meat group was 2 (± 1 servings), while the mean intake from the dairy group was 1 (± 1 servings).

The dietary analysis also indicated that the mean intake of carbohydrate was 55 (± 7 percent), while the mean intake of protein was 16 (± 5 percent) and mean fat intake was 28 (± 7 percent). Data regarding intakes of selected vitamins and minerals indicated that over half of the group was <u>not</u> meeting 70 percent of the RDA for pantothenic acid, copper, and zinc. However, all eleven diet records indicated that participants were meeting at least 70 percent of the RDA for Vitamin C, iron and magnesium.

Program feedback from the participants was obtained from open-ended questions included on the post-test. These responses indicated that the participants had greatly enjoyed the program and had learned the desired information. Participants felt that the program should be continued and that more persons would attend if the lessons were taught by someone in their own community.

Chapter VII. Recommendations for Future Research

* Pilot-test this program by training minority leaders to conduct the lessons and determine its effectiveness.
* Create more nutrition education programs which are designed for African Americans and which address their major health concerns.
* Conduct research which identifies the dietary intake patterns of African Americans, specifically the common foods eaten and the nutritional adequacy of the diet.
* Conduct research to determine whether the current criteria for determining obesity from weight and body mass index are suitable for African Americans.

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Appendix A
INTEREST QUESTIONNAIRE
Minority Health/Nutrition Education Project

A series of health/nutrition workshops will be held this spring in this location for you and other interested adults. We want to cover topics of interest to you and hold the workshops at a time when most people can come. Please provide the information below.

LOCATION OF TODAY'S MEETING _____

PARTICIPANT'S NAME _____ DAY-TIME PHONE _____
ADDRESS: _____

1. Below are some topics that are being considered for the workshops. Please place a number of 1 - 5 beside the **five** most important topics to you. Use the following scale:

5 = Extremely Important **2 = Fairly Important**
4 = Very Important **1 = Somewhat Important**
3 = Important

Please limit your selection to only five topics.

RANK	TOPIC
_____	Choosing healthy foods
_____	Heart healthy eating (Reducing fat and cholesterol intake)
_____	Weight Control
_____	Food Safety At Home and at Church Events
_____	Stopping smoking
_____	Exercise for health
_____	Cancer prevention
_____	Stress management
_____	High blood pressure prevention and control
_____	Choosing healthy foods at the grocery store
_____	Understanding Diabetes and choosing/preparing foods to follow Your Diabetic Diet.
_____	Saving money at the grocery store
_____	Obtaining Affordable Health Care
_____	Understanding & Avoiding Infectious Diseases: Colds, Flu, AIDS, etc.

Please turn form over and continue on the back.

Page 2 of Interest Questionnaire

Other Topics Of Interest to you:

_____ _____

_____ _____

2. What TIME of day or night would you be able and willing to come to workshops? Please check the one time that is best for you

____ Morning: 10:00 a.m. to 12:00 noon

____ Afternoon: 1:00 - 3:00 p.m.

____ Afternoon: 3:00 - 5:00 p.m.

____ Night: 7:00 - 9:00 p.m.

3. On what DAY OF THE WEEK do you prefer that workshops be held? **(Please check the best days for you to attend).**

____ Monday

____ Tuesday

____ Wednesday

____ Thursday

____ Friday

4. We also need your input to determine how many different workshop sessions to offer. Please indicated the number of sessions you are willing to attend by **CIRCLING** only one of the following numbers.

4 5 6 7 8 9 10 11 12

Comments:

_____

_____

Thanks for your help!

You will be notified when a date and time is established for the series.

Appendix B

PHYSICAL MEASUREMENTS FORMS
MINORITY HEALTH/NUTRITION PROJECT

Date of Collection _____ Participant ID: _____

Date of Birth _____ Race:

_____

Age (today) _____

Current Weight _____ Lbs

Height _____ Inches

Wrist Measurement _____ Inches

Body Frame (check):Small _____
Medium _____
Large _____

Physical Activity: Any done? Yes____ No ____

What is the Physical Activity _____

How Often _____ Days per week

How Long per day _____ Minutes

Percent Body Fat: 1st _____ 2nd _____ Average _____

Blood Pressure 1st ____/____ 2nd ____/____ Average: ____/____

Appendix C

THE
CARTER CENTER
OF EMORY UNIVERSITY

Healthier People
Health Risk Appraisal

No. _____

Detach this coupon and put it in a safe place.
You will need it to claim your appraisal results.

Healthier People
Health Risk Appraisal
The Carter Center of Emory University

No. _____

Health Risk Appraisal is an educational tool. It shows you choices you can make to keep good health and avoid the most common causes of death for a person your age and sex. This Health Risk Appraisal is not a substitute for a check-up or physical exam that you get from a doctor or nurse. It only gives you some ideas for lowering your risk of getting sick or injured in the future. It is NOT designed for people who already have HEART DISEASE, CANCER, KIDNEY DISEASE, OR OTHER SERIOUS CONDITIONS. If you have any of these problems and you want a Health Risk Appraisal anyway, ask your doctor or nurse to read the report with you.
DIRECTIONS: To keep your answers confidential DO NOT write your name or any identification on this form. Please keep the coupon with your participant number on it. You will need it to claim your computer report. To get the most accurate results answer as many questions as you can and as best you can. If you do not know the answer leave it blank. Questions with a ★ (star symbol) are important to your health, but are not used by the computer to calculate your risks. However, your answers may be helpful in planning your health and fitness program.

Please put your answers in the empty boxes. (Examples: [x] or [125])

1. SEX		1 ☐ Male 2 ☐ Female
2. AGE		[ ] Years
3. HEIGHT	(Without shoes) (No fractions)	[ ] Feet [ ] Inches
4. WEIGHT	(Without shoes) (No fractions)	[ ] Pounds
5. Body frame size		1 ☐ Small 2 ☐ Medium 3 ☐ Large
6. Have you ever been told that you have diabetes (or sugar diabetes)?		1 ☐ Yes 2 ☐ No
7. Are you now taking medicine for high blood pressure?		1 ☐ Yes 2 ☐ No
8. What is your blood pressure now?		[ ] / [ ] Systolic (High number) / Diastolic (Low number)
9. If you *do not* know the numbers, check the box that describes your blood pressure.		1 ☐ High 2 ☐ Normal or Low 3 ☐ Don't Know
10. What is your TOTAL cholesterol level (based on a blood test)?		[ ] mg/dl
11. What is your HDL cholesterol (based on a blood test)?		[ ] mg/dl
12. How many cigars do you usually smoke per day?		[ ] cigars per day
13. How many pipes of tobacco do you usually smoke per day?		[ ] pipes per day
14. How many times per day do you usually use smokeless tobacco? (Chewing tobacco, snuff, pouches, etc.)		[ ] times per day

Appendix C

Health Risk Appraisal is an educational tool. It shows you choices you can make to keep good health and avoid the most common causes of death for a person your age and sex. This Health Risk Appraisal is not a substitute for a check-up or physical exam that you get from a doctor or nurse. It only gives you some ideas for lowering your risk of getting sick or injured in the future. It is NOT designed for people who already have HEART DISEASE, CANCER, KIDNEY DISEASE, OR OTHER SERIOUS CONDITIONS. If you have any of these problems and you want a Health Risk Appraisal anyway, ask your doctor or nurse to read the report with you.

Your report may be picked up at _____ on _____.

15. CIGARETTE SMOKING
How would you describe your cigarette smoking habits?

1 ☐ Never smoked ☛ Go to 18
2 ☐ Used to smoke ☛ Go to 17
3 ☐ Still smoke ☛ Go to 16

16. STILL SMOKE
How many cigarettes a day do you smoke? ☛ GO TO QUESTION 18

☐☐ cigarettes per day ☛ Go to 18

17. USED TO SMOKE
a. How many years has it been since you smoked cigarettes fairly regularly? ☐☐ years
b. What was the average number of cigarettes per day that you smoked in the 2 years before you quit? ☐☐ cigarettes per day

18. In the next 12 months how many thousands of miles will you probably travel by each of the following? (NOTE: U.S. average = 10,000 miles)
a. Car, truck, or van: ☐☐,000 miles
b. Motorcycle: ☐☐,000 miles

19. On a typical day how do you USUALLY travel? (Check one only)

1 ☐ Walk
2 ☐ Bicycle
3 ☐ Motorcycle
4 ☐ Sub-compact or compact car
5 ☐ Mid-size or full-size car
6 ☐ Truck or van
7 ☐ Bus, subway, or train
8 ☐ Mostly stay home

20. What percent of the time do you usually buckle your safety belt when driving or riding? ☐☐ %

21. On the average, how close to the speed limit do you usually drive?

1 ☐ Within 5 mph of limit
2 ☐ 6-10 mph over limit
3 ☐ 11-15 mph over limit
4 ☐ More than 15 mph over limit

22. How many times in the last month did you drive or ride when the driver had perhaps too much alcohol to drink? ☐☐ times last month

23. How many drinks of alcoholic beverages do you have in a typical week? (Write the number of each type of drink)

☐☐ Bottles or cans of beer
☐☐ Glasses of wine
☐☐ Wine coolers
☐☐ Mixed drinks or shots of liquor

☛ (MEN GO TO QUESTION 33)

WOMEN

24. At what age did you have your first menstrual period? ☐☐ years old

25. How old were you when your first child was born? ☐☐ years old (If no children write 0)

26. How long has it been since your last breast x-ray (mammogram)?	1 ☐ Less than 1 year ago 2 ☐ 1 year ago 3 ☐ 2 years ago 4 ☐ 3 or more years ago 5 ☐ Never
27. How many women in your natural family (mother and sisters only) have had breast cancer?	☐☐ women
28. Have you had a hysterectomy operation?	1 ☐ Yes 2 ☐ No 3 ☐ Not sure
29. How long has it been since you had a pap smear test?	1 ☐ Less than 1 year ago 2 ☐ 1 year ago 3 ☐ 2 years ago 4 ☐ 3 or more years ago 5 ☐ Never
★ 30. How often do you examine your breasts for lumps?	1 ☐ Monthly 2 ☐ Once every few months 3 ☐ Rarely or never
★ 31. About how long has it been since you had your breasts examined by a physician or nurse?	1 ☐ Less than 1 year ago 2 ☐ 1 year ago 3 ☐ 2 years ago 4 ☐ 3 or more years ago 5 ☐ Never
★ 32. About how long has it been since you had a rectal exam? ☛ *(WOMEN GO TO QUESTION 34)*	1 ☐ Less than 1 year ago 2 ☐ 1 year ago 3 ☐ 2 years ago 4 ☐ 3 or more years ago 5 ☐ Never
MEN ★ 33. About how long has it been since you had a rectal exam or prostate exam?	1 ☐ Less than 1 year ago 2 ☐ 1 year ago 3 ☐ 2 years ago 4 ☐ 3 or more years ago 5 ☐ Never
★ 34. How many times in the last year did you witness or become involved in a violent fight or attack where there was a good chance of a serious injury to someone?	1 ☐ 4 or more times 2 ☐ 2 or 3 times 3 ☐ 1 time or never 4 ☐ Not sure
★ 35. Considering your age, how would you describe your overall physical health?	1 ☐ Excellent 2 ☐ Good 3 ☐ Fair 4 ☐ Poor
★ 36. In an average week, how many times do you engage in physical activity (exercise or work which lasts at least 20 minutes without stopping and which is hard enough to make you breathe heavier and your heart beat faster)?	1 ☐ Less than 1 time per week 2 ☐ 1 or 2 times per week 3 ☐ At least 3 times per week
★ 37. If you ride a motorcycle or all-terrain vehicle (ATV) what percent of the time do you wear a helmet?	1 ☐ 75% to 100% 2 ☐ 25% to 74% 3 ☐ Less than 25% 4 ☐ Does not apply to me

★ 38. Do you eat some food every day that is high in fiber, such as whole grain bread, cereal, fresh fruits or vegetables?	1 ❑ Yes 2 ❑ No
★ 39. Do you eat foods every day that are high in cholesterol or fat, such as fatty meat, cheese, fried foods, or eggs?	1 ❑ Yes 2 ❑ No
★ 40. In general, how satisfied are you with your life?	1 ❑ Mostly satisfied 2 ❑ Partly satisfied 3 ❑ Not satisfied
★ 41. Have you suffered a personal loss or misfortune in the past year that had a serious impact on your life? (For example, a job loss, disability, separation, jail term, or the death of someone close to you.)	1 ❑ Yes, 1 serious loss or misfortune 2 ❑ Yes, 2 or more 3 ❑ No
★ 42a. Race	1 ❑ Aleutian, Alaska native, Eskimo or American Indian 2 ❑ Asian 3 ❑ Black 4 ❑ Pacific Islander 5 ❑ White 6 ❑ Other 7 ❑ Don't know
★ 42b. Are you of Hispanic origin such as Mexican-American, Puerto Rican, or Cuban?	1 ❑ Yes 2 ❑ No
★ 43. What is the highest grade you completed in school?	1 ❑ Grade school or less 2 ❑ Some high school 3 ❑ High school graduate 4 ❑ Some college 5 ❑ College graduate 6 ❑ Post graduate or professional degree
★ 44. What is your job or occupation? (Check only one)	1 ❑ Health professional 2 ❑ Manager, educator, professional 3 ❑ Technical, sales or administrative support 4 ❑ Operator, fabricator, laborer 5 ❑ Student 6 ❑ Retired 7 ❑ Homemaker 8 ❑ Service 9 ❑ Skilled crafts 10 ❑ Unemployed 11 ❑ Other
★ 45. In what industry do you work (or did you last work)? (Check only one)	1 ❑ Electric, gas, sanitation 2 ❑ Transportation, communication 3 ❑ Agriculture, forestry, fishing 4 ❑ Wholesale or retail trade 5 ❑ Financial and service industries 6 ❑ Mining 7 ❑ Government 8 ❑ Manufacturing 9 ❑ Construction 10 ❑ Other

V.3.0

Appendix D

Pre-test and Post-test Measurement Forms

High Blood Pressure Pretest

ID No. _____

Please circle one answer below for each of the eight questions

1. High blood pressure increases a person's risk for stroke.

   True or False

2. Losing weight may lower blood presssure in some people.

   True or False

3. A normal blood pressure reading for most people is:

   1. 140 over 100

   2. 120 over 80

   3. 100 over 60

4. African-Americans and Hispanics have a lower risk for high blood pressure.

   True or False

5. Blood pressure may be affected temporarily by mood.

   True or False

6. How often do you add salt to the foods you eat from the saltshaker?

   1. 0 -5 times/week

   2. 5-9 times/week

   3. 10 or more times/week

7. Cheese and processed luncheon meats are high in sodium.

   True or False

8. Herbs and spices can be used in place of salt when preparing foods.

   True or False

Questions About Heart Healthy Eating

ID No._____

Please answer the questions below.

1. Fat is not a poison. We need fat. But for what? Give one example of the value of fat.

2. How many grams of fat a day can you eat and stay within the recommended guidelines?

3. The government's Dietary Guidelines recommends about two servings a day of meat, poultry, or fish. What do they suggest as an appropriate serving size?

4. About what percent of calories should come from fat?

5. Many fast food restaurants once used lard or beef tallow for french fries. Today, most use 100% vegetable oil. They did this in order to reduce the fat content of the fries.

   True or False?

6. In general, if you order a chicken sandwich instead of a hamburger you will:

   (A). Reduce fat and calories
   (B). Increase fat and calories
   (C). Reduce fat and calories only if the chicken is breaded
   (D). Reduce fat and calories only if the chicken is broiled and lightly sauced.

7. Two pieces of crisply fried chicken can have as much fat as:

   (A). One half of a hamburger
   (B). A half stick of butter
   (C). 3 tablespoons of butter
   (D). 2 pieces of baked or broiled chicken

8. Which of these has the most fat and calories?

   (A). A fish fry meal from Long John Silver's
   (B). 3 crispy chicken wings
   (C). Hardee's Fisherman's fillet sandwich
   (D). a McDonald's Big Mac and shake

Questions About Cancer Prevention

ID No._____

Please circle one of the answers to the questions below.

1. Some of the most important dietary factors associated with cancer are:

   1. Eating small amounts of dietary fiber
   2. Drinking too much alcohol
   3. Nitrites and cancer causing substances
   4. All of these are associated with cancer

2. People who are 40% above their recommended body weight are less likely to get cancer. **True or False**

3. Nitrites and nitrates are chemicals that are found in:

   1. Canned fruits and vegetables
   2. Dairy products and eggs
   3. Ham, sausage, hotdogs, and luncheon meats

4. It is recommended that we eat _____ grams of fiber each day.

   1. 10-15 grams
   2. 20-35 grams
   3. 60-70 grams
   4. 40-50 grams

5. Which group of foods below are good sources of fiber?

   1. milk, cheese, and ice cream
   2. dried beans, vegetables, and pasta
   3. beef, pork, and poultry

6. Which foods below are good sources of beta-carotene?

   1. Dark green leafy vegetables
   2. Deep yellow vegetables
   3. Deep yellow fruits
   4. All of these are good sources of beta-carotene

7. Citrus fruits like oranges, grapefruits, and lemons are good sources of which vitamin?

   1. Vitamin C
   2. Vitamin A
   3. Vitamin E

8. The diet guidelines for preventing cancer will also reduce the chances of getting sugar diabetes, heart disease, and stroke. **True or False**

Questions About the Topics Discussed

ID No. _____

Please circle one answer below for each of the questions.

1. Blood pressure can be affected temporarily by mood.
   True or False

2. A normal blood pressure reading for most people is:

   1. 140 over 100
   2. 120 over 80
   3. 100 over 60

3. How often do you add salt to the foods you eat from the saltshaker?

   1. 0 - 5 times/week
   2. 6 - 9 times/week
   3. 10 or more times/week

4. Losing weight may lower blood pressure in some people.
   True or False

5. About what percent of calories should come from fat?

6. The government's Dietary Guidelines recommends about two servings a day of meat, poultry, or fish. What do they suggest as an appropriate serving size?

7. How many grams of fat a day can you eat and stay within the recommended guidelines?

8. Two pieces of crisply fried chicken can have as much fat as:

   1. One half of a hamburger
   2. A half stick of butter
   3. 3 tablespoons of butter
   4. 2 pieces of baked or broiled chicken

9. It is recommended that we eat _____ grams of fiber each day.

   1. 10 - 15 grams
   2. 20 - 35 grams
   3. 60 - 70 grams
   4. 40 - 50 grams

Appendix D

10. Which groups of foods below are good sources of fiber?

    1. milk, cheese, and ice cream
    2. dried beans, vegetables, and pasta
    3. beef, pork, and poultry

11. Which foods below are good sources of beta-carotene?

    1. Dark green leafy vegetables
    2. Deep yellow vegetables
    3. Deep yellow fruits
    4. All of these

Answers to the questions below will also help us know whether or not this program was helpful and how we can improve it in the future.

What did you think about this program?

Do you feel you learned something from coming to these meetings? If so, what?

Are there any changes that you think would make this program better? If so, what are they?

What were your reasons for coming to the sessions?

What do you think it would take to get more people to come to the meetings?

Do you think this program could be continued by training volunteers in your church to give the lessons? Why?

Appendix E

Daily Servings Based on the Food Guide Pyramid

Date:_____
ID Number:_____

Please circle below the number of servings that you had each day from the Food Guide Pyramid.

Food Group:	Number of Servings												
1. Bread Group	0	1	2	3	4	5	6	7	8	9	10	11	12
2. Vegetable Group	0	1	2	3	4	5	6	7	8	9	10	11	12
3. Fruit Group	0	1	2	3	4	5	6	7	8	9	10	11	12
4. Milk Group	0	1	2	3	4	5	6	7	8	9	10	11	12
5. Meat Group	0	1	2	3	4	5	6	7	8	9	10	11	12

Please return these forms to our next meeting on _____ 1993. Thank you again very much for your participation.

Appendix F
Goals for Change

ID No._____

Are there any changes in the foods you eat or in your lifestyle in general that you would like to make after hearing about today's topic? If so, what are they?

_____

_____

_____

_____

Please describe below if you made any of these changes during the next week and return them to our next meeting. Any change is worth mentioning, no matter what it is!

_____

_____

_____

_____

Do you think you will be able to continue this change in your diet or lifestyle?

_____

Appendix G

EXAMPLE
Goals for Change

ID No. 100

Are there any changes in the foods you eat or in your lifestyle in general that you would like to make after hearing about today's topic? If so, what are they?

I would like to lower the amount of salt I eat on my foods.

Please describe below if you made any of these changes during the next week and return them to our next meeting. Any change is worth mentioning, no matter what it is!

I was able to salt my food less because I only used the salt shaker twice during the week and I normally add salt to every meal I have for lunch and dinner.

Do you think you will be able to continue this change in your diet or lifestyle?

yes. I will continue to salt my food less.

Appendix H

DIRECTIONS FOR 3-DAY FOOD RECORD

1. Please keep a record for 3 days of everything you eat and drink from the time you get up until you go to bed. Use 2 WEEK days and 1 WEEKEND day. Record each day on a separate sheet.

2. Try to keep your eating pattern as usual as possible until you complete this 3-day record.

3. Record the amount you eat in household measurements, such as 1/4 c., 1/3 c., 1/2 c., 7/8 c., 1 tsp., 1 Tbsp., 2 oz., 3 oz., etc. Meats may be recorded in ounces using a normal 3 ounce hamburger pattie as a guide; or just record the size of the piece of meat (1 slice: 2" x 3" x 1/4"). Record whole foods as follows: 1 med. apple, 1 lg. banana, 1 lg. potato, 1 (12 oz.) Diet Coke, 1 chicken leg, etc.

4. The best way to measure a plate of food is to prepare your plate first with the amounts you would normally eat; then measure each food separately with a measuring cup. For cake or cornbread, etc. give the size of slice (2" x 3" x 1/2"). For pie, record as 1/6 of 9" pie, etc.

5. Be sure to list all beverages, such as coffee, soft drinks, mixed drinks, etc. in ounces. A regular size coffee cup is usually 6 ounces; whereas, a mug may be 8 ounces. In the case of a mixed alcoholic drink, record the amount of liquor in ounces or jiggers, as well as the total size of the drink.

6. Be sure to describe all foods by listing all main ingredients and any added sugar, salt, mayonnaise, cream, margarine, butter, mustard, ketchup, etc. Please indicate whether coffee, tea, and soft drinks are regular or decaffeinated and if drinks are "diet" or regular.

7. In case of mixed dishes: soup, sandwich, casserole, or salad, list all ingredients on the back of the form, OR, better yet, clip the recipe to the records when you turn them in. If you turn in a recipe for a mixed dish, please put your name on it and we'll return it to you later with a computer printout of its nutrient content. List the number of servings it makes. List the number of servings you ate on the food record.

8. Please complete the 3-day record this week (including 1 weekend day) and bring back to our next class on March 18th or mail to the address below. Put your ID number on each page of the food record.

IT IS ESSENTIAL THAT YOU RETURN A COMPLETE 3-DAY RECORD BY March 25th.

Mailing Address:

Dr. Mary Ann Novascone
Virginia Tech
Human Nutrition & Foods
338 Wallace Hall
Blacksburg, VA 24061-0430

Appendix I

FORM FOR FOOD RECALL OR FOOD RECORD

NAME OR I.D. NUMBER: _____ DATE: _____
DAY OF WEEK OF RECALL: _____

TIME*	FOOD ITEMS	TYPE AND PREPARATION**	AMOUNT	WHERE EATEN***

Time of Day/Meal:
1 = Morning Meal/Breakfast
2 = A.M. Snack
3 = Midday Meal/Lunch
4 = Afternoon snack
5 = Night Meal/Supper/Dinner
6 = Evening Snack

Type and Preparation:
Fried, Baked, Broiled
Toasted
Whole Wheat
Fresh, Frozen, Canned,
Creamed

Where Eaten:
Home
Restaurant
Carried Lunch
Cafeteria at Work
School
Child Care Center, Etc.

Was intake unusual in any way? Yes ____ No ____
If yes, why (in what way)? _____

Appendix J

You Are Invited

To participate in a series of
workshops on various topics related to ...

Good Nutrition and Heart Healthy Eating
Controlling and Preventing High Blood Pressure
Cancer Prevention
Stress Control

WHERE?

First Baptist Church of Farmville
Fellowship Hall

WHEN?

Dates: Every Thursday for 6 Weeks
- Beginning March 11th
- Ending April 15th

Time: You have a choice of one of these times

3:30 to 5:00 P.M.
OR
7:00 to 9:00 P.M

- Workshops will be taught by Virginia Tech Faculty and Students, Extension Agents, Health Department Staff, and a Medical Doctor.

- You will receive practical information, such as nutritious recipes, food buying tips, how to follow a special diet, and stress reduction ideas.

Bring a friend or adult family member with you!

For more information, contact Dr. Ruby H. Cox at Virginia Tech (703-231-7156).

HEALTH AND NUTRITION SERIES Appendix K

First Baptist Church of Farmville
Fellowship Hall

Dates: Every Thursday for 6 Weeks
- Beginning March 11, 1993
- Ending April 15, 1993

Time: You have a choice of one of these times
3:30 to 5:00 P.M.
OR
7:00 to 9:00 P.M

Workshops will be taught by Virginia Tech Faculty (Dr. Mary Ann Novascone and Dr. Ruby Cox), a Masters Student (Jennifer Witt), Extension Agents (Edith Austin and Patsy Pelland) and others. **There is no fee for the series.**

SCHEDULE OF SESSIONS

Session 1: March 11	Measuring Blood Pressure, Weight, and other Aspects of Health Status *Description of Study and Enrollment
Session 2: March 18	Good Nutrition and High Blood Pressure (Preventing/Controlling High Blood Pressure with a Healthy Diet)
Session 3: March 25	Stress Control
Session 4: April 1	Heart Healthy Eating
Session 5: April 8	Nutrition and Cancer Prevention
Session 6: April 15	Re-measurement of Blood Pressure, Weight, Health Status

***As a part of this series, a research study on "African-American Health Issues" is being conducted by Jennifer Witt, Masters Student at Virginia Tech. We would appreciate your agreement to take part in the study as you participate in the series. However, you do not have to participate in the study to attend the series.**

For cancellations and emergencies, contact Dr. Ruby H. Cox at Virginia Tech (703-231-7156).

Appendix L

Procedures

You are invited to participate in this nutrition education program. The program will be offered on six Thursday afternoons (3:30-5:00 pm) and Thursday evenings (7:00-8:30 pm) in March and April at the First Baptist Church in Farmville, VA. During the first and last sessions, you will be asked to complete a health risk appraisal form and a dietary recall form. The following body measurements will be taken: height, weight, percent body fat, and blood pressure. During each session, you will be asked to answer some questions about the material presented.

Benefits

Your participation in this project poses virtually no risk to you. Very likely, you will learn how to evaluate your dietary habits and how to make changes in your eating patterns which may reduce your risk for chronic disease.

Confidentiality

Any information about you gathered during this project will be kept strictly confidential. The information you provide will have your name removed during any analysis of the results.

Approval

This research has been approved by the Institutional Review Board for projects involving human subjects at Virginia Polytechnic Institute and State University.

My signature below indicates my willingness to participate in this study.

_____

Signature

Subject's Permission (*Provide tear off for human subject to keep*)

I have read and understand the informed consent and conditions of this project. I have had all my questions answered. I hereby acknowledge the above and give my voluntary consent for participation in this project.

If I participate, I may withdraw at any time without penalty. I agree to abide by the rules of this project.

Should I have any questions about this research or its conduct, I will contact:

Jennifer Witt, Graduate Student	(703) 231-4898 or 231-7708
Investigator	
Dr. Mary Ann Novasconc	(703) 231-5778
Faculty Advisor	
Dr. Janet Johnson	(703) 231-6077
Chair, IRB Research Division	

Appendix M

Lesson Descriptions

Session 1: Food Guide Pyramid and Hypertension Prevention and Control

The description of the Food Guide Pyramid lesson is included in Chapter 3. The Hypertension lesson began by distributing a "Fact Sheet" about high blood pressure (Resource Packet), which was obtained from reproducible materials from the National High Blood Pressure Education Program. This fact sheet was used because it gives an explanation of the seriousness of hypertension and the importance of having blood pressure checked regularly by a health professional. Explanations of systolic and diastolic blood pressure, characteristics of persons at risk for high blood pressure, and suggestions for taking prescribed medication, controlling weight, reducing salt consumption, moderating alcohol intake, and increasing exercise are also included in this fact sheet.

The handout mentioned above was covered in conjunction with a videotape included in an educational kit created by the Texas Agricultural Extension Service entitled: "Reverend Jones: An educational kit focusing on high blood pressure for Black elderly (Resource Packet)." The videotape included with this kit ("Reverend Jones") is 38 minutes long and contains six parts. The tape is

actually a dramatization of the discovery that "Reverend Jones" has very high blood pressure and the effect this has on the Reverend himself and his congregation in learning more about high blood pressure, the necessary dietary changes, and the importance of regular exercise. While showing this video, the tape was stopped after each of the six parts so that questions could be answered, key points could be discussed, and the fact sheet could be incorporated to reinforce the key points in the video. Following the video, the participants were asked to express their opinion of the film.

A packet of seven handouts were next given to each participant (Resource Packet), concerning techniques for food selection and preparation to reduce salt intake. These handouts were authored by Linda LaPlante, Susan Zumpf, and Barbara Greene, and made available by Emory University and Grady Memorial Hospital. The materials were discussed in an interactive manner by encouraging questions from participants about any types of foods not specifically pictured on the handouts.

Session 2: Stress Management

The meeting began by intiating a discussion of what stress is, whether there are good and bad types of stress and the effects stress may have on mental and physical health. Following this opening discussion, stress was defined as the body's "physical, hormonal, and emotional response to demands made on it for adjustment." It was also stated that "the strength of the stress response in our body is directly affected by our perceived ability to meet the demand placed on us." Stressors were defined and some examples were given and generated among group members. The presenter next discussed the symptoms of stress and symptoms of severe depression were also covered.

The physical changes that take place in the body as a response to stress, specifically the production and effects of cortisol and aldosterone were covered. The outcomes of the hypothalmus on catecholamine production and for the stimulation of the gastrointestinal tract was illustrated and the specific effects of catecholamines were discussed. Health problems caused by chronically tensed muscles and the diseases and conditions that stress may play a role in causing were also described in this lesson.

The following eight "guidelines" for avoiding and managing stress were discussed:

1. Eat a variety of foods
2. Get enough sleep
3. Exercise regularly
4. Take "time out for Me"
5. Concentrate on the positives-
   Spend less time on the negatives
6. Seek out upbeat people
7. Focus energy on improving aspect of work setting under your control. Otherwise, let go
8. Separate your work from your home

Following a discussion of these guidelines, a handout (Resource Packet) containing seventy-five suggestions for the successful management of stress was given to each participant. This handout had been created by Dorothy Martin, a Human Development and Family Relations Specialist with the Cooperative Extension Service. In addition, a stress management worksheet (Resource Packet) from Extension containing blank spaces for each participant to fill in the people, places, and things that relax or stress them.

A third handout from the Cooperative Extension Service was also distributed, entitled "Rate Your Stress Level", and contained the "Social Readjustment Rating Scale, created by Thomas J. Holmes, M.D. This scale lists fourty-three stressors which are each assigned a specific number of points, so that each participant could rate their own individual stress level into either of three categories: Mild, Moderate of Major life crisis.

This handout was created by Leo Yates, an Extension Family Life Specialist and it also contained information about stress prevention, warning signals, symptoms, and coping methods for dealing with stress.

The fourth and final handout (Resource Packet) was entitled " How to tell if you have a stress-prone personality" and contained twenty questions for each participant to respond to with "always", "frequently", "sometimes" or "never". This handout was created by Rosalind Forbes, with Forbes Associates.

Session 3: Heart Healthy Eating

The first video (Resource Packet) shown during this lesson is entitled "Fast Food: Can your balanced diet survive fast food?" (Learning Seed, 1991). The purpose of showing this 25 minute video was to provide the participants with information pertaining to the amount of fat and kilocalories in many of the foods available at fast food chains. This video also presented several suggestions for selecting low-fat items at these restaurants. The percent of kilocalories in the diet coming from fat was discussed relative to the amount of fat needed daily by the body.

Each participant was assisted in calculating the amount of fat they needed each day based on their target calorie intakes. This calculation was used to compare with the grams of fat on the index cards derived from their actual three-day diet record. It was also used to discuss the possibility of dieting or maintaining weight without having to count calories, since counting grams of fat can be much easier. The serving size sheets were used to discuss ways to budget fat intake.

The second film shown during this lesson was entitled "Food and Fat" (Resource Packet), which was also produced by Learning Seed (1993). The presenters in this

video compare the actual amount of fat that the average American consumes with the amount of fat needed in the body. Many suggestions are made for lowering the amount of fat in the diet through a discussion of meat, poultry, dairy products, fish, seafood, cholesterol, and "lite" food products.

This lesson on Heart Healthy Eating concluded with a discussion on the prudence of lowering fat intake gradually in order to be successful in making these dietary changes and the answering of questions.

Session 4: Nutrition and Cancer Prevention

The lesson used for this session was written by Susan Robinson; Massey Cancer Center Outreach Program and prepared and distributed by the Virginia Cooperative Extension Service, Virginia Polytechnic Institute and State University, Medical College of Virginia, Virginia Commonwealth University, Virginia EFNEP Program, and Massey Cancer Center in Richmond, Virginia. This session began by initiating a discussion on what cancer really is and cancer was described as uncontrolled cell growth. This discussion led into an explanation of the dietary habits that can decrease the risk of getting cancer. The specific cancers associated with the foods we eat were identified: colon and rectum, breast, prostate, stomach, bladder, and cancer of the uterus were briefly discussed. Some of the risk factors which predispose one to getting cancer were also covered.

The presenter next explained that the dietary guidelines recommended for the prevention of cancer by the National Cancer Institute and the American Cancer Society will likewise reduce the chances of getting other diseases such as diabetes, heart disease, and stroke. These guidelines were then covered thoroughly and included the following:

1. Avoid being overweight.
2. Eat less fat.

3. Eat more high fiber foods.
4. Eat fewer salt-cured, smoked, processed, pickled, and charbroiled foods.
5. Limit your intake of alcoholic beverages.
6. Eat five servings of a variety of fruits and vegetables.

A handout (Resource Packet) containing data from the National Resource Council (1989) was given containing the suggested range of weights for adults based on height, so that each participants could find their ideal weight range and determine if their weight may be increasing their risk of getting cancer. The presenter also incorporated the Food Guide Pyramid into this lesson, using the laminated poster and reinforcing the fact that the Pyramid promotes the same type of diet that meets the dietary recommendations made for the prevention of cancer.

Two more handouts were given to each participant following this discussion, along with a recipe booklet (Resource Packet). The handouts contained the dietary recommendations discussed for the reduction of cancer risk and suggestions for how to follow these recommendations.

Appendix N. Raw Anthropometric Data

No.	Age	Sex	% Body Fat	BMI	Blood Presure(mm Hg) Systolic	Diastolic
1.	53	M	29	33	125	82
2.	71	M	24	27	148	90
3.	66	F	37	25	115	70
4.	71	M	29	27	144	60
5.	51	M	35	37	145	85
6.	79	F	41	40	160	88
7.	88	F	36	24	188	80
8.	46	F	33	26	126	80
9.	72	F	41	31	139	76
10.	69	F	37	32	172	90
11.	51	F	36	30	125	80
12.	40	F	41	40	130	82
13.	39	F	42	32	120	80
14.	63	F	42	34	153	88
15.	73	F	45	36	132	76
Mean+/-SD:						
	62+/-15		37+/-6	31+/-5	141+/-20	82+/-6

VITA

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