Dietary Risk, Readiness to Change, and Factors Related to Dietary Choices in African-American Women

A dissertation submitted in partial satisfaction of the requirements for the degree Doctor of Philosophy in Nursing by Ellen Beth Daroszewski

1996
The dissertation of Ellen Beth Daroszewski is approved.

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1996
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<tr>
<td></td>
<td>Milwaukee Area Technical College</td>
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<td>1983 - 1992</td>
<td>Staff Nurse</td>
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<td></td>
<td>Santa Monica Hospital Medical Center</td>
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<tr>
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<td>University of California Los Angeles</td>
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<td>Carson, California</td>
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<td>Carson, California</td>
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<tr>
<td>1990 - 1991</td>
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</tr>
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<td>Temple Hospital</td>
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1992 - 1993 Nursing Faculty
Mount Saint Mary's College
Los Angeles, California

1994 - 1996 Nursing Educator
Granada Hills Community Hospital
Granada Hills, California

1994 - 1995 Nursing Faculty
California State University Northridge
Northridge, California

1995 - 1996 Nursing Faculty
University of Southern California
Los Angeles, California

PUBLICATIONS AND PRESENTATIONS


Daroszewski, E. B. (1990, October). Ethnicity and self-esteem in ADN students. Poster presented at Sharing Expertise in Nursing Research, 1st Annual Conference California State University Dominguez Hills, Division of Nursing, Carson, California.


ABSTRACT OF THE DISSERTATION

Dietary Risk, Readiness to Change, and Factors Related to Dietary Choices in African-American Women

by

Ellen Beth Daroszewski

Doctor of Philosophy in Nursing

University of California, Los Angeles, 1996

Professor Jacqueline H. Flakerud, Chair

Cardiovascular disease is the number one killer of American women with African-American women disproportionately represented in the number of women who die of heart disease every year. High dietary fat consumption is a major risk factor for the development of cardiovascular disease. This study investigated the dietary risk for the development of cardiovascular disease, readiness to change, and intervention strategies to decrease dietary cardiovascular risk in African-American women. One hundred women from the greater Los Angeles area participated in a community dietary survey and 11 women participated in two focus groups. Sixty five percent of the women in the survey self-reported to be consistently avoiding high fat food with another 25% planning to avoid high fat food within one to six months. Although 90% of the sample was currently avoiding or planning to avoid high fat foods, 77% were consuming diets
with over 30% of calories from fat. Other potential dietary risk factors for cardiovascular
disease identified included low fiber, zinc, vitamin B₆, magnesium, copper, and vitamin
E intakes, and high sodium intakes. Ethnocultural association was the only
sociodemographic variable found to be consistently related to dietary fat intake. Focus
group interviews supported food as important for health in African American culture,
individualized interventions as having the best change to succeed, and nurses as
important change agents within the African-American community.
CHAPTER 1
PURPOSE AND SIGNIFICANCE

Introduction

California's combined minority populations will comprise the majority of the state's population by the year 2000. Currently there are major disparities in morbidity and mortality among minority groups (Ward, Collins & Walmsey, 1993). In June of 1991, using Healthy People 2000: National Health Promotion and Disease Prevention Objectives (United States Department of Health and Human Services, 1991) as a source document, the Health Promotion Section of the California Department of Health Services held a multiethnic health conference to analyze the health needs of the state's minority populations (Ward, Collins & Walmsey, 1993).

At the conference, regional task forces representing specific minority groups prioritized their needs. The African-American task force unanimously concurred that the state of health of California's African-American communities is currently at its worst ever. Four focal points were identified by the African-American task force as goals for health promotion efforts: (a) violence, (b) exercise, (c) nutrition and (d) tobacco. Regionally for Los Angeles, task force representatives combined exercise with nutrition, and added as their fourth topic: community based preventive education. The careful examination of the identified
focal points, and the development of health promotion interventions for California's African-American communities is much needed.

Community based health promotional programs have demonstrated a positive impact on the prevention of cardiovascular disease. In a review and evaluation of five major community based cardiovascular disease prevention programs (North Karelia, Finland; Minnesota; Pawtucket, Rhode Island; and three communities and five cities near Stanford), Shea and Basch (1990) report that these large, longitudinal studies strongly support the effect of community intervention on the levels and prevalence of the major risk factors for cardiovascular disease. Evidence of the positive effects of intervention is especially strong for the risk factors of cigarette smoking, diet, serum lipids and blood pressure.

Shea and Basch (1990) contend, based on the National Heart, Lung, and Blood Institute's (NHLBI) biomedical research spectrum, that the future of community health promotion and primary preventive research must examine diffusion systems for health information. Diffusion systems are defined as "sets of social relationships that facilitate the changes that cause innovations to be adopted, implemented, and maintained. Formal diffusion systems include groups and organizations such as schools and health care facilities that provide education, health care, or other services" (Shea & Basch, 1990, p. 284). Health-related change and the social relationships that facilitate change need to be
identified and described in African-American communities so health promotional efforts can be designed to systematically use the available diffusion systems.

Identified as the three most important future issues for the diffusion of cardiovascular health promotional research are: (a) the inclusion of highly urbanized, low income, minority populations, (b) the adaptation of existing materials to local needs, and (c) the evaluation of change resulting from intervention (Shea & Basch, 1990). This study contributes to the health promotion goals of the California Department of Health Services African-American task force by examining the diet of African-American women, especially with respect to dietary fat consumption, and the variables associated with dietary change. This study serves as an examination of current dietary practices and the social variables associated with change.

Aims

The study had two general aims: (1) to describe the average daily diet of mid-life African-American women especially focusing on fat consumption, and (2) to examine the relationship between dietary fat consumption and readiness to avoid high fat foods, ethnocultural association and selected sociodemographic variables. In addition focus group information was solicited for the purpose of examining the cultural significance of food for health, prevention beliefs, motivation to change, costs and barriers to change, and the utilization of nurses as potential change agents.
Healthy, mid-life African-American women comprised the sample for this study for several reasons. African-American women are much more likely than women of other ethnic groups to suffer morbidity and premature mortality from cardiovascular disease, with high fat diets as a major risk factor for the same (Polednak, 1989). In 1992 in Los Angeles county African-American women between the ages of 25 and 64 had three times the mortality from heart disease than white or Hispanic women (Los Angeles Department of Health Services, 1994)(see Table 1). Primary prevention of cardiovascular disease includes the prevention of the onset of atherosclerosis and its symptoms (Pearson, Jenkins & Thomas, 1991). To produce the greatest effect on reduction of cardiovascular morbidity and mortality primary prevention programs need to focus on persons in the age range of 20 to 50 (Kumanyika et al., 1989).

Women in general are more interested in health issues, more likely to engage in health promotion behavior, more likely to influence family members about health, and more likely to use diet as a form of health promotion than men (Becker & Green, 1975; Hibbard & Pope, 1987; Woods, 1987). Women have also traditionally held the responsibility for family nutrition (Schafer & Schafer, 1989). African-American women have demonstrated more concern than African-American men about health, serving more often as family health teachers, caretakers and cooks (Hautman & Bomar, 1992). African-American women, being the traditional food preparers in the African-American community, serve
Table 1
1992 Death Rates per 100,000 Women Between the Ages of 25-64 in Los Angeles County

<table>
<thead>
<tr>
<th>Disease</th>
<th>African-American</th>
<th>White</th>
<th>Hispanic</th>
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</thead>
<tbody>
<tr>
<td>Heart Disease</td>
<td>730.4</td>
<td>242.8</td>
<td>217.1</td>
</tr>
<tr>
<td>Breast Cancer</td>
<td>198.0</td>
<td>154.0</td>
<td>105.7</td>
</tr>
<tr>
<td>Lung Cancer</td>
<td>194.2</td>
<td>171.1</td>
<td>43.1</td>
</tr>
<tr>
<td>Stroke</td>
<td>150.0</td>
<td>47.5</td>
<td>74.1</td>
</tr>
<tr>
<td>Diabetes</td>
<td>93.6</td>
<td>27.4</td>
<td>42.8</td>
</tr>
</tbody>
</table>

*aLos Angeles County Department of Health Services (1994).*
also to disseminate cultural behaviors related to dietary practices (Staples, 1991, pp. 28-36). To target African-American women for promotion of healthier diets is the best and most appropriate place to initiate cultural dietary change.

Dietary change, such as a reduction in dietary fat consumption, occurs as progression and regression through a sequence of change Stages (Rossi, Greene, Reed, Prochaska, Velicer & Rossi, 1993). The initiation of change toward a low fat diet must begin early and premenopausally in the lives of women to allow the maximum time necessary for progression through the Stages of change. Attention to personal health increases in mid-life as a response to physical body change and, in some individuals, to the illness of parents, which serves as a reminder of the transient nature of health (Neugarten, 1968).

Kris-Etherton and Krummel (1993) believe that early preventive behaviors, initiated in mid-life, are critical to improve quality of life in the later years for women. Intervention strategies must take into consideration variables that influence the adoption of healthy behaviors. The social roles that women assume may affect personal health promoting behaviors such as nutrition care (Devine & Olson, 1992). In a descriptive study of African-American women at risk for cardiovascular disease, role models, religious affiliation, feelings of susceptibility, commitment to change, barriers to change and perceived loss of control have been found to affect personal health promotion behavior (Keller & Coe, 1991).
This study assessed diet, dietary change and the sociodemographic variables that may affect dietary change as an initial step for the future development of primary preventive interventions for the prevention of cardiovascular disease in healthy mid-life African-American women. The focus of this study is on the most prevailing health threat for women in the group that displays the highest incidence. Dietary change introduced during an age period when women are healthy but have concerns about their future health, with consideration of the variables identified to influence health promoting behavior, allows the changes adequate time to occur and may produce the greatest long term effects. If diet is used as the mainstay of therapy, the prevention of high blood cholesterol levels and subsequent prevention of cardiovascular disease is personally and socially beneficial. On a personal level diet contributes to health and well-being. On a social level low fat diets could substantially reduce this country's annual cost of coronary heart disease medical treatment and lost wages which currently ranges between $50 to $100 billion dollars (NHLBI, 1993).

Although the primary emphasis of this study is on diet-related behavior change, the importance of culture as an influence on individual decision making cannot be overemphasized. Culture has an essential and inseparable influence on every individual, extending to decisions made about health. The dimensions of change, such as dietary change, must be investigated from an emic
perspective within the community understudy. In this study the influence of
culture on diet was measured and analyzed as a potential mediating variable
through the strength of African-American ethnocultural association. Just as
cultural beliefs are a powerful influence on dietary practices, so is readiness to
change. Readiness to change has an important influence on the abilities of
individuals to alter any habit or practice. An individual's or a community's
readiness to change must be assessed prior to development of interventions to
promote change.

Any intervention targeting a specific ethnic community of color must be
culturally competent if it is to have any chance of success. Glanz and Rudd
(1990) analyzed 38 print educational materials from the government, health
agencies, professional associations, universities and industry sources promoting
serum cholesterol reduction through a decrease in dietary fat consumption. From
an assessment of the readability and content of these materials Glanz and Rudd
(1990) concluded that the majority were developed for "well-educated, middle-
aged, non-minority populations who are highly motivated to translate abstract
concepts into food choices" (p. 114). An important consideration in any dietary
cholesterol or fat consumption reduction counseling is the design of materials
which can be both understood and used for day-to-day food choices by the
target group (Glanz, 1988).
Lefebvre, Linnan, Sundaram and Ronan (1990) maintain that the utilization of brief initial health promotion counseling emphasizing participant understanding and retention is effective. Almost half of all instructions provided during health screenings are forgotten within five minutes (Green, 1979) necessitating the reinforcement of counseling and verbal instructions with print instructions, tips or fact sheets (Lefebvre et al., 1990). Such print reinforcement provides participants with support for the information presented to be utilized for follow-up or as a guide for the recommended health promotion behavior.

Lefebvre and associates (1990) recommend that initial health counseling be focused on the beginning of change necessary to reduce or control risk factors, facilitating the active involvement of the participant in the change. In community health programs Lefebvre, Harden, Rakowski, Lasater and Carleton (1987) found that most participants preferred working on changing personal health behaviors independently. Before a dietary intervention can be designed and implemented in a target group, the dietary practices of that group, and the readiness to accept dietary change must be examined.

Dietary Health Promotional Needs of African-Americans

A diet with a maximum of 30% of calories from fat is recommended for all Americans by the American Heart Association (1990), the National Academy of Sciences (1982), the National Cancer Institute (1987) and American Cancer Society (1991). Dietary fat consumption of over 30% of total calories has been
associated with a variety of pathophysiological processes. Currently African-Americans are estimated to consume 35-38% of their total calories as fat, with 11-13% consumed as saturated fat, and with a higher than average dietary cholesterol intake (Block, Rosenberger & Patterson, 1988).

Cardiovascular disease is the number one cause of morbidity and mortality in African-Americans, with dietary fat consumption a critical antecedent of coronary and systemic atherosclerosis (Magnus, 1991). Women account for 52% of all cardiovascular disease deaths and a disproportionate number of those women are African-American (National Center for Health Statistics, 1993). High levels of dietary fat consumption have also been associated with cancer. Greenwald and Sodnik (1986) found a dietary link in 35% of all cancer mortality, with amount of dietary fat intake demonstrating the strongest association with cancer death (Cohen, 1987; Greenwald, 1989). Breast cancer, the second leading cause of cancer death in women, may have direct causal link to dietary fat consumption (Greenwald, 1989). Doll and Peto (1981) estimated the incidence of cancer might be reduced from 10% to 70% by dietary intervention alone.

Primary prevention of both cardiovascular disease and cancer for African-Americans must include dietary modification of fat intake (Magnus, 1991; Willett, Stampfer, Colditz, Rosner & Speizer, 1990). Primary prevention of cardiovascular disease focuses on the prevention of atherosclerosis through the
management of modifiable risk factors (Pearson, Jenkins & Thomas, 1991). The four main risk factors for atherosclerosis in African-Americans are hypertension, diabetes, obesity and hypercholesterolemia. Each of these can be dramatically influenced by reductions in dietary fat consumption (Pearson, Jenkins & Thomas, 1991).

Kris-Etherton and Krummel (1993) contend that the dietary changes necessary to achieve a goal of 30% of calories from fat are relatively simple and do not require the elimination of specific foods or food groups, or the use of special foods or products. Strategies such as the avoidance of, or substitution for, high fat foods are a simple way to reduce dietary fat consumption to no more than 30% of total calories. Although the need for a reduction in dietary fat consumption in African-Americans has been documented and general strategies promoting this reduction are clear; the process of dietary change, motivation to change dietary patterns, and the variables that affect such dietary change in African-Americans are not well understood.

Dietary change is a long and arduous task for any individual or group, especially when it may involve an alteration of cultural patterns. Many efforts to promote healthier dietary patterns through education have produced minimal or no behavioral change. Ekerling and Kohrs (1984) report that adherence to dietary regimens after intensive educational efforts is often less than 50%. Haralson, Sargent and Schluchter (1990) in a study of food shopping behaviors
reported no association between knowledge of dietary cardiovascular risk and purchasing foods high in saturated fat for African-American women. Haralson and colleagues (1990) found that for African-American women as knowledge of the detrimental effects of eating high saturated fat foods increased the amount of foods high in saturated fat purchased also increased!

Pearson, Jenkins and Thomas (1991) describe soul food as hypertensinogenic and atherogenic (p. 272), with any attempt to change the "deep-rooted, culturally influenced, unhealthy dietary patterns of African-Americans" (p. 287) as a Herculean task, but a task that must be undertaken. The development of relevant nursing interventions must ultimately include an evaluation of the processes through which health behaviors are both initiated and sustained over time (Fleury, 1992).

Nursing's Role in Primary Prevention

This study proposes that nursing is in a unique position to affect health promotion and primary prevention of cardiovascular disease in African-Americans. Davis and associates (1992) assert that nurses are central to the development and utilization of culturally competent and responsible health care. Wadden and Brownell (1984) contend that nurses play an integral part in effecting health promotion in any population. Much of nursing practice involves teaching, counseling and role modeling. Dietary counseling already has been developed and classified as a standard nursing intervention (McCloskey &
Bulechek, 1992). In contrast, physicians receive little training in nutrition or behavior change counseling (Nestle, 1988; Young, 1988; Committee on Nutrition in Medical Education, 1985), with several studies demonstrating less than adequate nutritional knowledge among practicing physicians (Rosen, Logsdon & Demak, 1984; Zevallos, Ellison & Goldberg, 1988). Fleury (1992) purports that it is essential that nurses develop the knowledge and intervention strategies necessary to assist individuals and their families to initiate and sustain behaviors congruent with cardiovascular risk reduction efforts.

Wadden and Brownell (1984) maintain that community efforts toward dietary modifications should include individual and family interventions; worksite, supermarket and restaurant programs; and public health campaigns. One nurse utilizing a counseling or educational intervention might have a potentially long term influence on individual and family health decisions through a ripple or spread effect. Nurses practicing within African-American communities are involved already in daily client and family counseling and education focused on health maintenance and promotion. To promote dietary change via counseling and education utilizing a specific intervention would supplement activities already being implemented within nursing practice. The provision of such activities is often not systematized or labeled as primary or secondary prevention even though the outcome or goals are the same. Although nurses
routinely deliver primary preventive interventions to their clients, nursing is not recognized as having a major role in primary preventive efforts.

Nurses are the ideal practitioners to implement health promotion and are an underutilized resource in primary prevention health campaigns. Nurses are present in every community, including rural and inner city areas. Nursing practice integrates complex biologic, psychosocial and spiritual dimensions of the client and family in a comprehensive approach to intervention.

Advancement of Nursing Science

Fleury (1992) asserts that theoretical guidelines for a majority of nursing research related to health behavior change have been deductively derived from traditional cognitive theory within psychology using the Health Belief Model, Health Promotional Model, Theory of Reasoned Action and Self-Efficacy Theory. Although these empirical approaches have achieved some success in predicting and explaining cardiovascular health behavior, they may not be the most effective in examining themes of interest to nursing (Fleury, 1992).

This study will advance nursing science by examining the applicability of Cultural Ecology theory, Protection-Motivation theory and the Transtheoretical Stage of Change Model to nursing. Theory generation and development was examined by evaluating the integration of these theories with one another. The generation or testing of theory is an acceptable goal of research (Fawcett & Downs, 1992).
This study also provides a methodological approach in which to analyze diet, culture, cultural influences on diet, and the description of preventive health care change within a culture. The nursing process of assessment, diagnosis, planning and evaluation were used for the study framework further representing a nursing based methodological approach. This same approach can be used as a blueprint for future research to examine other primary preventive issues with other ethnic populations.

Advancement of Nursing Practice

Nurses interact everyday with clients and their families as those individuals interface with the health care system. Hospitalization is often perceived by all as a stressful event. Families seek out nurses for information, support, comfort and assurance (Leske, 1986; Molter 1979). Often interactions with families are short and informal, with interventions delivered during those interactions not recognized as important and not documented. These interactions may actually represent critical times during which nurses can greatly impact the perceptions and health behaviors of the entire family. To make interventions meaningful and applicable nurses must have at their disposal descriptions of the dimensions of a population. This study has provided as assessment of African-American diet and the variables which impact dietary choices. This information can be useful by the practicing nurse working with African-American clients and their families.
Interactions between RNs and clients and/or their families during a client hospitalization may represent a specific window of opportunity for counseling and education. Interventions delivered utilizing the stress associated with the hospitalization may be able to increase adherence and compliance. The awareness of the significance of this time period for increasing the efficacy of interventions has important implications for nursing practice. Recognition and systematic study of in hospital nurse-family intervention is needed to support the importance and role of these interactions for nursing practice.

The period of time when clients are hospitalized may represent an ideal opportunity for implementation of preventive intervention, especially for family members. If the client's admitting diagnosis at time of hospitalization has an unmodifiable genetic component, such as with cardiovascular disease, family members may have an increased risk of similar morbidity. Nurses may be the only professionals with an opportunity to counsel and educate otherwise healthy family members about their risk and about preventive measures to decrease risk. Because these family members are healthy they may be unaware of their own predisposition for the same pathophysiology and unlikely to seek out information on their own. Nursing practice may therefore represent the only opportunity for health care professionals to counsel high risk individuals on primary prevention. The implications for nursing practice are far reaching. Nursing practice needs to
be recognized and included in systematic delivery of community preventive intervention.

**Advancement of Knowledge of Culture**

African-Americans comprise 30 million persons in the United States, accounting for the largest minority group and making up 12.1% of the population (NHLBI, 1992a). Approximately 36% of total deaths in African-Americans are due to cardiovascular and cerebrovascular causes, (NHLBI, 1992a). Although this large faction of Americans suffers significant morbidity and mortality from heart and blood vessel disease few studies have addressed the interplay of African-American cultural beliefs and practices on health promotion. Not very much is known about how African-Americans are best approached or how and whether preventive programs affect change in this group.

This study adds to the knowledge of African-American diet including dietary practices, beliefs about food, how food choices differ based on level of ethnocultural association, and how food and diet relate to health and illness.
CHAPTER 2

PHILOSOPHICAL AND THEORETICAL FRAMEWORK

Introduction

The theoretical framework for this study integrates Cultural Ecology Theory (Goldschmidt, 1971), Protection Motivation Theory (Rogers, 1984), and the Transtheoretical Stage of Change Model (Prochaska, DiClemente & Norcross, 1992). Before attempts can be made to facilitate healthier dietary practices within a group, an understanding of the dietary practices and belief system related to food within that group must be sought. The theoretical framework of this study supports the role of registered nurses (RNs) to initiate change in patients and their families utilizing simple resources within a timeframe realistic for clinical practice. Theoretically, the initiation of change occurs due to pressures from the environment and/or when new information is presented and internalized, which indisputably necessitates the change. A major preventable illness in a close family member, such as a parent or sibling, may create enough situational anxiety and feelings of personal vulnerability to initiate an examination of personal health practices. If, in this same window of time along with these environmental pressures, new information is presented in a cultural context to further encourage change, change may be initiated. Before interventions can be tailored to facilitate change, specific information about the target group must be ascertained (see Figure 1).
Cardiovascular Disease Risk

Culture

Beliefs — Dietary Practices
(increased fat intake)

Dietary Practices
(decreased fat intake)

Social/Situational
Variables

Traumatic
Event
(major CV
incident
in a close
family
member)

Nursing
Intervention
(culturally
competent
and
responsible)

Assessment
Planning
Intervention
Evaluation

Sociodemographic Questionnaire
Stage of Change Model for Dietary Fat Consumption
Pros and Cons of Decisional Balance Inventory
African-American Ethnocultural Association Scale
24 Hour Dietary Recalls

Focus Groups

Figure 1. Diagrammatic representation of study constructs and study measures.
Change is defined in this study as a linear sequence of steps individuals progress through in an effort to alter behavior. Direct sequential progression is rare, however, with most individuals cycling through progression and regression several times before maintenance of the desired behavior is achieved and change terminated.

A poststructural philosophical orientation will serve to guide the examination of knowledge within the theoretical framework of this study. A poststructural perspective defines truth and the interpretation of experience within the understanding and context of the individual. Change will therefore be conceptualized as an individualized process.

Because of the recognition of culture as an inseparable and essential part of each individual, an understanding of culture is also essential to this study. The utilization of Los Angeles as a setting to collect data means that each subject has had multicultural experiences as part of their environment. Personal decisions, including health-related decisions, and change within any social group has many sources of influence and the number of sources of influence increases when the environment is multicultural. Within a multicultural society such as Los Angeles there may be many truths and many realities.

Philosophical Framework

Until recently the logical positivist or empiricist concept of science was viewed as the only possible explanation of reality (Doering, 1992). The scientific
method sought to find the one and only truth through structured measurements and reductionistic reasoning. The empiricist approach focused on demonstrating that events were universal rather than particularistic or context specific. Empiricism was unable to recognize some of the embeddedness of its own assumptions, with a political agenda attempting to legitimize itself as universal (Nicholson, 1990). Objectivity and reason in empiricist science have reflected the values of masculinity and have discouraged any other attempt to legitimize other ways of knowing, other truths.

Poststructuralism evolved with a wariness toward logical positivism and any generalizations or structure hypothesized to transcend culture and region (Nicholson, 1990). Poststructuralism views structure itself as a necessary but limiting boundary of knowledge (Druzec, 1989). Poststructuralist philosophy asserts that there is no single correct approach to knowledge development, no single truth (Doering, 1992). A poststructuralist perspective recognizes multiple, pregnant and contradictory aspects of both our individual and collective identities (Nicholson, 1990). Poststructuralist philosophy casts radical doubt over logical positivist beliefs such as: (a) The existence of a stable, coherent self, (b) science and reason as objective, reliable and universal foundations for knowledge, (c) knowledge acquired from the correct use of reason is truth, (d) reason is transcendent and universal, (e) claims of a connection between reason, autonomy and freedom, (f) truth can serve power without distortion, (g)
knowledge can be both neutral and socially beneficial, (h) science is the exemplar of the correct use of reason and a paradigm for all knowledge, and (i) language is a medium through which representation occurs (Flax, 1990).

From a poststructural perspective, knowledge must be developed in an historical, social and political context through an understanding of an individual's sense of self and understanding of the world (Doering, 1992). Knowledge should also be viewed as fallible and changeable (Doering, 1992), with the theories that guide knowledge pragmatic (practical) but also fallibilistic (capable of making a mistake) (Fraser & Nicholson, 1990).

Using a poststructural orientation, questions about the world need to be tailored to the issues at hand using plural and complex constructions of reality, including gender, social identity, class, race, ethnicity, age and sexual orientation (Fraser & Nicholson, 1990). Social identities within a poststructural orientation are especially complex and heterogeneous (Lyotard, 1984). From a poststructural perspective, knowledge development should not look to prescriptive philosophies of science, instead problems should be identified with practitioners, like nurses, assuming responsibility for answering their own questions and legitimizing their own practice (Lyotard, 1984).

Nursing practice includes the education of clients and their families toward a goal of better health. Nursing care extends far beyond physician care into the houses, clinics and public gathering places of a community, as well as
the corridors, waiting rooms and outer lobbies of health care institutions. Nurses as a stable, reliable and respected part of the health care in every community are one of the multiple influences individuals experience when they make decisions about their health. Recognition and full utilization of nurses as practitioners of preventive health care is long overdue.

As a philosophical foundation for this study poststructuralism supports the investigation by nurses of community and culturally specific health practices, such as dietary practices. The devastating effects of cardiovascular disease in African-Americans occur throughout this country, but here in Los Angeles the meaning of heart disease and value of interventions designed to prevent it may differ from other settings. Study results must be evaluated not only by their statistical significance but also in relation to the impact, positive or negative, that they may have made in the lives of those who volunteered their time and effort.

Using a poststructuralist orientation to provide a philosophical framework for this study requires data collection with an appreciation of the uniqueness with which each individual participates in his or her world including participation in decisions that affect their health. In terms of design, a poststructural orientation supports the necessity of an evaluation of the community of concern to ascertain specific information to be then utilized in future intervention development. Community assessment and future intervention development must include feedback from members of the community. In terms of analysis, qualitative as
well as quantitative data was collected and examined during this study. Comments from both subjects and data collectors will be encouraged, recorded and evaluated as important throughout the process of this study.

Culture and Change

Although the focus of this study is on health-related dietary change in African-American women, the importance of culture in the mediation of any individual health promotional decision cannot be over emphasized. Change to a healthier diet for African-American women must be examined within the context of African-American culture. African-Americans are at higher risk for cardiovascular disease partially because of certain cultural dietary practices including the high consumption of fat-containing foods such as red meats, usually pork, organ meats, eggs and fried foods (Block, Rosenberger & Patterson, 1988; Kumanyika & Adams-Campbell, 1991). Attempts to influence food choices are also attempts to change cultural patterns and the meaning of food.

Culture includes the institutions of social relationships, and the beliefs, values and shared practices of a group, including dietary practices (Goldschmidt, 1971). Culture is transmitted through family patterns from infancy on, usually without an awareness or comparison of differences or similarities to other cultural groups (Flaskerud, 1993). As individuals interact with diverse influences in their world, transmitted cultural practices and beliefs are modified.
by environmental and social contacts outside the family (Flaskerud, 1993). Individuals from a single cultural group thus may vary in their level of identification with and utilization of patterns learned from their family.

A general theory of cultural ecology or cultural adaptation examines the relationship between the environment and a culture's technology, institutions, ideology and behavior. According to Cultural Ecology Theory, cultural practices and beliefs are influenced by the environment (Goldschmidt, 1971). As the environment of a group changes so does its culture (i.e.: its technology, institutions, ideology and behaviors). Change occurs at different rates for the various aspects of the culture (Flaskerud & Van Servellen, 1985). Change occurs quickest with a group's technology, which includes the tools, methods and economy necessary to exploit the environment (Flaskerud & Van Servellen, 1985). Technological change must occur quickly for group survival in the context of an ever changing environment.

Social structures arise in response to technology and serve to support technology (Flaskerud & Van Servellen, 1985). Social structures include family systems, systems of governance, and monetary or exchange systems. Social structural change follows technological change but occurs more slowly.

The ideology of a culture arises from and supports the culture's social structures and technology (Flaskerud & Van Servellen, 1985). Ideology identifies and categorizes cultural practices and beliefs, placing values on specific
behaviors as good or bad, beneficial or detrimental. The ideology of a culture is most resistant to change and changes the slowest. Cultural beliefs may last much longer than their original reason for incorporation into the belief system (Flaskerud & Van Servellen, 1985).

An individual's food choices are influenced by both the ideology and social structures of his or her cultural group. At the most basic level food choices are also influenced by the environment in terms of what is available to eat. Food choices are not only driven by taste perception and biological hunger, but also by culturally acquired beliefs about what is good to eat, or good for you, and what is bad to eat, or bad for you (Flaskerud, 1993). Values and meanings ascribed to various foods arise out of cultural ideology. Cultural beliefs about food include the utilization of specific foods for health-related reasons. The use of foods to treat disease, promote health or restore balance to the body are associated with all major American cultural groups (Flaskerud, 1993). Dietary practices are also part of the social structure of a culture (Flaskerud, 1993). Eating has a social context and dietary patterns are established within the structure of social and family groups.

Traditional African-American Health Beliefs

Traditional African-American health beliefs have origins in Africa and ante-bellum plantation life (Congress & Lyons, 1992). Traditional African-American health beliefs classify illness into three categories, natural, occult and
spiritual. These categories are often merged, with the sick individual seeking a variety of treatments including herbal remedies, rootwork and prayer (Grossman, 1979). Some African-Americans equate good health with luck or success and illness with bad luck, chance, fate, poverty, domestic turmoil or unemployment (Giger, Davidhizar & Turner, 1992). In a study of the traditional health beliefs and practices of low income African-American women in Los Angeles county Flaskerud and Rush (1989) identified two categories for sources of illness and remedies, natural and supernatural. Natural causes of illness included cold, impurities, diet, weakness, lack of moderation and stress, while supernatural causes included God, witchcraft and evil. Remedies were comprised of antidotes, food, medicines, prayer and healing. Although traditional health beliefs and practices exist in African-American culture, Congress and Lyons (1992) contend that second and third generation African-Americans raised in urban areas since the 1960s may be less influenced by these traditions.

In traditional African-American culture one specific health belief equates health with the state of one's blood, with blood affected by specific dietary practices (Jerome, 1980). Blood is described culturally as good or bad, thick or thin, high or low, sweet or bitter (Flaskerud, 1993). Balance in the blood between these dichotomous classifications is considered essential for health with the focus on maintaining balance by countering imbalances. Thickening thin or "low" blood can protect against infections and the effects of cold weather, and is
accomplished by consumption of rich "blood building" foods such as organ meat, pork, beets, molasses and red wine (Jerome, 1980). Thinning thick or "high" blood treats headaches and blood congestion, and is accomplished by consumption of foods such as greens, vinegar, lemon, garlic and onions (Flaskerud, 1993).

Dietary interventions to maintain health through balance in the blood are a part of African-American ideology. Since ideology is the most difficult aspect of culture to change interventions framed or grounded within this already existing belief system may have a greater likelihood of success. For this study two focus groups provided information about the significance of food for health in the African-American community, and the issues surrounding dietary change.

Data collection for this study will take place in the diverse and multicultural environment of Los Angeles. In this environment individual food choices may have many influences besides African-American culture, including the influences of other cultures, the availability of convenient and ubiquitous fast food enterprises, the mass media, and the educational and health care systems, among others. In order to investigate the role of culture in dietary change, this study will measure dietary change in relation to level of African-American ethnocultural association.

Ethnicity refers to the association with an ethnic group that may share customs, language, or social views. The term "ethnic group" is often used
instead of "race" to denote biological distinctiveness (Polednak, 1989). Ethnic group has also been used to refer to races or large groups of people who share common traits and customs. Features characterizing an ethnic group may include common geographical origin, language, religious faith, cultural ties, shared traditions, values, symbols, literature, music, food preferences, and political interests (Polednak, 1989). Ethnicity and culture are interrelated. For this study of African-American women, both ethnicity and culture serve as important influences on the decisions about dietary practices.

Ethnocultural association is defined as the degree to which an individual identifies with, prefers and participates in the practices of a specific group, which may be, but need not be, that person's culture of origin or ancestry. Levels of African-American ethnocultural association will be measured by preference for and degree of social contact with African-Americans, patronization of African-American businesses, participation in African-American music, dance, holidays and social gatherings, preference and consumption of foods that are part of African-American traditions, and beliefs related to health. This study examined the relationship between the level of ethnocultural association in African-American women, readiness for dietary health promotional change, and actual diet with respect to dietary fat consumption.

Greater cultural change takes place through individual acts of disaffection with the established wisdom, and individual acceptance of new forms of thought.
and action (Goldschmidt, 1971). Cultural Ecology Theory recognizes behavior as a product of not only the external environment but also conditions of the social system. As an environment changes with pressures or new knowledge, as institutions change, and as evidence for the need for personal change mounts, individual behavior, values and attitudes are forced to change to remain appropriate within the changed world (Goldschmidt, 1971).

The necessity for change in African-American dietary practices has never been more apparent. Greater cultural change begins with individual acceptance of new thoughts and actions. The initiation of change toward healthier dietary habits must take place where an individual is most likely to recognize the need for change, most likely to accept the assistance necessary to make the change, and most likely to carry the change back into their everyday lives. Before attempts can be made to facilitate healthier dietary practices within an ethnic or cultural group an understanding of the ideology related to dietary practices within that group must be sought.

Protection Motivation Theory

Rogers' (1983) Protection Motivation Theory provides a framework for understanding the potency of fear appeal and the mechanism with which fear can motivate behavioral change. Behavioral change in this context is described as an adaptive or maladaptive response to the fear appeal. An adaptive
response would have beneficial or adaptive consequences for the individual, while a maladaptive response would have detrimental consequences.

Fear has been conceptualized as an emotional state which occurs to protect the individual from danger, and as a drive which provides the motivation necessary to seek out and learn new responses (Rogers, 1983). There are three crucial parts to a fear appeal, a value component and two levels of expectancy. Specifically these three parts are: (a) The perceived severity of the noxious stimulus (the value component), (b) the likelihood that the event will occur if no intervention is initiated (primary expectancy), and (c) the perceived effectiveness of the intervention that will prevent the noxious event (secondary expectancy). Protection Motivation Theory, as other expectancy-value theories, asserts that the tendency to change or to initiate a particular intervention as a consequence of a fear appeal is a function of the value of preventing the noxious event and the expectancy related to the effectiveness of the intervention (Rogers, 1983).

Protection motivation, as a response, arises from the cognitive appraisal of a fear experience as noxious and likely to occur, along with a belief that an adaptive response can effectively prevent the threat (Rogers, 1983). Protection motivation operates through various cognitive mediating processes. Each of the three fear appeal parts serves to initiate a corresponding cognitive mediating process. The cognitive mediating processes appraise the available situational information about (a) noxiousness, (b) probability of occurrence, and (c) efficacy.
Efficacy is assessed by examining the event dimensions of (a) severity, (b) expectancy of exposure, and (c) belief in the adaptive response. The tendency to adapt is a function of the amount of protection motivation aroused. Protection motivation serves to initiate, sustain and direct adaptive behaviors.

In Protection Motivation Theory (Rogers, 1983), the emphasis on protection motivation rather than situational fear is designed to emphasize cognitive processes rather than the fear-induced sympathetic neuroendocrine response. An emotional state of fear can provide the crucial motivation necessary to initiate attitude and/or behavioral change indirectly through a cognitive appraisal of fear situation. In Protection Motivation Theory, arousal through fear has no direct link to protection motivation or adaptation without the cognitive mediating processes. Thus, an understanding of an individual's ideology or belief systems is essential to the application of Protection Motivation Theory to change initiation.

A major assumption of Protection Motivation Theory (Rogers, 1983) is that the motivation to change behavior is a positive linear function of the following four beliefs: (a) The threat is severe, (b) one is personally vulnerable to the threat, (c) one has the ability to adapt, and (d) adaptation will be effective in averting the threat. Protection motivation is best measured by behavioral intention and/or behavioral change after the threat has occurred. Behavioral intention or change may be diminished if the "costs" of adapting are too high.
Costs include: (a) Inconvenience, (b) expense, (c) unpleasantness, (d) difficulty, (e) complexity, (f) side effects, (g) disruption of daily life, and (h) overcoming habit strength (Rogers, 1983).

Job (1988) has criticized the use of fear in health promotion campaigns as ineffective in achieving the desired behavioral change when used as a potential punishment. The use of fear is most effective if the desired behavior is reinforced by a reduction in the fear. Five requirements to be met for the effective use of fear in changing behavior include: (a) The fear onset should occur before the desired behavior is offered, (b) the event upon which the fear is based should appear likely, (c) the desired behavior should be offered as part of the health promotion campaign, (d) the amount of fear elicited should not be much greater than the amount the desired behavior offered can reduce, and (e) fear offset should occur as a reinforcer of the desired behavior (Job, 1988).

According to Protection Motivation Theory, a noxious event and perception of personal vulnerability will stimulate cognitive mediating processes which may open a window of opportunity for nurses to effect preventive behavioral change. If in this window period subjects are presented with appropriate adaptive choices by the nursing staff, and the costs of these adaptive choices are minimized, through protection motivation these family members will initiate change to the beneficial and adaptive preventive behavior presented. Thus, an assessment of an individual's ideology or belief systems is
essential to the development and presentation of intervention with the goal of change initiation.

The Transtheoretical Model of Change

The Transtheoretical Stage of Change Model attempts to validate the structure and process of change that occurs as individuals with or without professional intervention intentionally modify various behaviors, especially addictive ones (Prochaska, DiClemente & Norcross, 1992). Past lack of therapeutic success in an effort to change behavior has been blamed on inadequate client motivation, resistance to therapy, client defensiveness, the inability of the client to relate, or inadequate therapist techniques, theory or skills (Prochaska, DiClemente & Norcross, 1992). What actually may have been missing in the evaluation of lack of therapeutic success was a more accurate conceptualization of the exact underlying structure of change. From research on smokers who attempted to quit smoking Prochaska and DiClemente (1992) identified a series of Stages of change in the process of smoking cessation. These change Stages were then investigated over a wide range of behaviors including reduction in dietary fat consumption.

The change Stages are conceptualized as both stable and dynamic in nature representing a construct somewhere between traits, which are very stable and not open to change, and states, which are readily changed but lack stability (Prochaska, 1992a). The construct of Stages represents the temporal dimension
in which change occurs, different than constructs such as self-efficacy, locus of control, barriers, facilitators, reinforcers, punishers, cues, consequences, cognitions and norms, which lack directionality and an inherent temporal dimension (Prochaska, 1992a). Stages seem most appropriate to understanding chronic health risk behaviors such as smoking, overnutrition, sedentary life styles and consumption of high fat diets (Prochaska, 1992a).

The Transtheoretical Stage of Change Model proposes that individuals work through five specific change Stages, progressing and sometimes regressing toward a goal of maintenance of the desired behavior (Prochaska, DiClemente & Norcross, 1992). The five change Stages include Precontemplation, Contemplation, Preparation, Action and Maintenance. After prolonged success at Maintenance a Termination Stage may be reached where behavior has been completely revised and no more effort is necessary to continue the change. Although the Stages are described as linear, relapse and recycling through various Stages is considered the rule rather than the exception. Linear progression is possible but appears to be a relatively rare occurrence.

Change Stages

The change Stages in order include: (a) Precontemplation, (b) Contemplation, (c) Preparation, (d) Action, and (e) Maintenance. In the Precontemplation Stage there is no planning or intention about a future
behavioral change. Individuals in this stage may be unaware that change is necessary even though close friends or family members may see the actual or potential problems with a behavior. No intention to change within six months, even with the wish to change, is characteristic of this Stage. Resistance to change is another hallmark of this stage.

Contemplation is the next Stage in this linear sequence of the change process. The Contemplation Stage is characterized by an awareness of the need for change and serious thought about changing the behavior including weighing the pros and cons. A Contemplator is an individual who is seriously thinking of attempting a behavioral change in the next six months. Individuals can remain stuck in the Contemplation Stage for long periods of time without making any commitment to action. The hallmark of the Contemplation Stage is knowing and understanding the desired behavioral change but not being quite ready to go forward with the actions necessary to attempt it.

The next Stage is the Preparation Stage where intention is actualized by some behaviors, such as small changes. Preparers intend to take action in the next month and may have taken prior action in the past year but were unsuccessful in achieving any significant major behavioral change with the past action. This Stage may be thought of as the beginning of the action stage.

The Action Stage involves a major or significant attempt to modify a behavior, the environment, or personal experiences in order to achieve the
desired change. This Stage involves overt action and the successful alteration of behavior for from one day to six months. The Action Stage requires much energy and commitment. The individual is actually doing something to change evidenced by significant overt actions. Difficulty in performing these changes may be the hallmark of this Stage.

Maintenance is the final Stage of this linear sequence, and is theorized as a continuation rather than the achievement of change. The Maintenance Stage can last a lifetime and is achieved when the desired behavioral change has consistently lasted for more than six months. Less energy and conscious commitment are needed to control overt behavior in this Stage, with stabilization of the behavior change and the avoidance of relapses, the Stage hallmarks.

In an intervention study with smokers Prochaska and DiClemente (1992) found that if subjects were able to progress from their initial Stage to the next linear stage soon after the intervention, such as from Precontemplation to Contemplation, they doubled their chances of taking action on their own in the next six months. Prochaska and DiClemente (1992) also found that each Stage required different interventions to progress the subject along toward Maintenance of the behavioral change. An individual's position in a Stage may thus have interventional prescriptive implications.

Action-oriented interventions may not work for individuals in the Precontemplative or Contemplative Stages as well as for individuals in the
Preparation or Action Stages. Prochaska, DiClemente and Norcross (1992) believe that mismatching of Stage and intervention may account for lack of overall success and statistical significance found in a variety of health care programs, with stratification of program outcome measure by Stage necessary in order to account for true program success or lack there of. In a study of an intervention program for weight control (Prochaska, Norcross, Fowler, Follick & Abrams, 1992), progression early into the Action Stage was related to increased success in losing weight. Change score served as a better predictor of outcome than age, socioeconomic status, problem severity and duration, goals and expectations, self-efficacy and social support.

Change Processes

The Transtheoretical Stage of Change Model also identifies processes utilized by both self-changers and those who change with the help of professional intervention, which are important in facilitating the change. These processes are composed of overt and covert activities that individuals utilize in attempts to change their behavior. The processes include consciousness raising, self-reevaluation, self-liberation, counterconditioning, stimulus control, reinforcement management, helping relationships, dramatic relief, environmental reevaluation and social liberation (Prochaska, DiClemente & Norcross, 1992) (see Table 2). In addition the process of interpersonal systems control may be
Table 2

Processes of Change per Change Stage

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<tr>
<th>Change Stages</th>
<th>Change Processes</th>
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<tr>
<td>Precontemplation</td>
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<td>Environmental reevaluation</td>
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<td>Contemplation</td>
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<td>Self-reevaluation</td>
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<td>Preparation</td>
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important for dietary fat reduction in the Maintenance Stage (Rossi & Rossi, 1993).

Individuals at each Stage of change utilize specific processes associated with that specific Stage (Prochaska, DiClemente & Norcross, 1992). Since these processes are specific to a Stage of change, interventions to facilitate change should be developed based on activities identified in the specific process.

For this study the Transtheoretical Stage of Change Model provided a framework in which to evaluate readiness to change, and may provide guidance for the future development of appropriate interventions to facilitate movement toward a desired primary preventive lifestyle behavior, avoidance of high fat foods.
CHAPTER 3

LITERATURE REVIEW

Introduction

Health promotion and primary prevention activities have not been distributed equally across all ethnic or cultural groups (United States Department of Health and Human Services, 1981). Rather these efforts have focused mainly on white middle-class men, even when higher rates of morbidity and mortality exist in ethnic minority populations (Gottlieb & Green, 1987). Participants in health promotion activities have typically been motivated individuals, affluent enough to be able to afford health promotion services, or those individuals who have such services provided as a work-related benefit (Gottlieb & Green, 1987). Often health promotion research and activities have excluded minority subjects, especially those with low socioeconomic status.

The incidence of cardiovascular disease as a major cause of morbidity and mortality in this country is well documented (Polednak, 1989). The major risk factors for the development of cardiovascular disease also are well documented (Kannel, 1990). However, successful strategies for interventions aimed at risk factor reduction, like controlling fat and cholesterol intake, have not been adequately studied, even for high risk populations. Wadden and Brownell (1984) emphasize that modification of the dietary habits of the American public is ripe for both research and clinical opportunities because so little has been done.
The variables associated with health promotion for African-Americans, especially those which are culturally influenced, have not been adequately assessed. The effects of patient education and community educational interventions targeting cardiovascular risk factor reduction and health promotional behaviors have been studied widely, but not within African-American populations. Specific studies addressing the effect of nursing educational interventions on the primary prevention of cardiovascular disease in the healthy relatives of hospitalized clients have not been reported in the literature.

This literature review will examine the incidence of cardiovascular disease in African-Americans with an emphasis on data from African-American women to support the urgency and necessity of primary prevention will this group. The risk factors for cardiovascular disease will be examined, with an in-depth analysis of serum lipid and dietary components. African-American diet will be examined for the presence of dietary risk factors for cardiovascular disease.

Data on health promotional dietary change in the context of the Transtheoretical Stage of Change Model will be presented. Variables associated with health promotion behaviors, especially for women, will be explored. A selection of educational in-hospital and community intervention programs will be included. Lastly, this literature review will examine the needs and anxiety of family members of clients hospitalized in critical or intensive care areas.
Cardiovascular Disease and African-Americans

African-Americans represent 12.1% of the total population of the United States comprising the largest minority group of about 30 million people (NHLBI, 1992a). California is one of 16 states where 80% of the African-American population resides (NHLBI, 1992). In 1989, 36% of total deaths in African-Americans were due to heart and cerebrovascular disease, higher than that of whites (NHLBI, 1992a). If African-Americans had the same death rate for cardiovascular disease as whites 165 fewer African-Americans would die each day (USDHHS, 1985).

Cardiovascular disease is as significant a concern for women as it is for men. Cardiovascular disease is the number one cause of death for American women over 40, claiming the lives of approximately 500,000 women annually (American Heart Association, 1990). All African-Americans are at higher risk for cardiovascular disease than individuals in other racial or ethnic groups, and African-American women have the highest risk of all American women (Polednak, 1989). Cardiovascular disease accounts for 25% of all deaths in African-Americans making it the leading cause of mortality (Gillum, 1982). The United States Department of Health and Human Services (1985) estimates that there are 7000 excess deaths per year in the African-American population due to cardiovascular disease, and that between 1979 and 1981 heart disease and stroke accounted for 30.8% excess deaths in African-Americans.
The average life expectancy of all American women is 78.6 years while the life expectancy of African-American women is 73.5 years (NHLBI, 1992a). In African-American women between the ages of 35 and 74 the death rate from cardiovascular disease has been estimated to be one and a half times that of white women and three times that of all other races (Murdaugh, 1990). In Los Angeles county mortality rates from heart disease for 25 to 64 year old African-American women are three times greater than the rates for white or Hispanic women (LADHS, 1994). African-American women have been estimated to have a 70% excess risk of cardiovascular disease when compared to white women across all social status groups (Johnson, Heineman, Heiss, Hames, & Tyroler, 1986). African-American women are twice as likely to experience angina pectoris as white women, and five times more likely than white men (Keil, Loadholt, Weinrich, Sandifer, & Boyle, 1984). Sudden death due to cardiovascular disease is higher for African-American women than for white women (Keller, 1990). In a study of racial differences of sudden death, Becker et al. (1993) found the incidence of cardiac arrest and subsequent death significantly higher for African-Americans at all age groups even after control for other variables.

Health outcomes from cardiovascular disease, or after a significant cardiovascular event, are poorer for women, especially African-American women. After a myocardial infarction, mortality rates have been assessed as 24% for white men, 34% for African-American men and 48% for African-
American women (Tofler, Stone, Muller, Willich, Davis, & Poole, 1987). Rankin (1990) found that women had a 70% greater mortality rate than men the first month after myocardial infarction, with greater degrees of angina and congestive heart failure. Both coronary angiography and coronary artery bypass grafts are less successful in women with reocclusion, dissection and mortality higher (Greenland et al., 1992; Wenger, 1990; Valle & Lemberg, 1992). Primary prevention of cardiovascular disease is urgently needed for women, especially African-American women.

**Risk Factors for Cardiovascular Disease**

The modifiable risk factors for cardiovascular disease in women parallel the risk factors in men, and include smoking, hypertension, hyperlipidemia, diabetes mellitus, obesity, sedentary lifestyle and stress (Murdaugh, 1990; Romeo, 1995). Gregory and Clark (1992) list the “big three” risk factors for cardiovascular disease in African-Americans to be smoking, hypertension, and elevated serum cholesterol. Family history of cardiovascular disease and age are non-modifiable risk factors for women, as well as men (Pearson, Jenkins & Thomas, 1991). In addition, oral contraceptives (Murdaugh, 1990) and premature menopause (Pearson, Jenkins & Thomas, 1991) also increase the risk of cardiovascular disease in women (Romeo, 1995). In a seven-country study of risk factors for cardiovascular disease, Keys, Menotti and Karvonen (1986), using regression analysis, found that 96% of the variation in death rates
from ischemic heart disease could be accounted for by a combination of the risk factors of fat intake, age, hypertension and smoking. Fat intake alone accounted for 44% of the variation in ischemic heart disease death rates across populations.

**Hyperlipidemia**

Hyperlipidemia has been identified as the most powerful predictor of cardiovascular disease, with the relation between serum lipids and cardiovascular disease described as direct and causal (Kannel, 1990; Steinberg, 1987; Hadley & Saarmann, 1991). As a precursor lesion in the pathogenesis of cardiovascular disease, fatty streaks of cholesterol appear on the intima of arteries (Pearson, Jenkins & Thomas, 1991). These fatty streaks are especially common in African-American children (Strong & McGill, 1960).

Hyperlipidemia has been identified as potentially the most modifiable of the risk factors, with dietary reductions in cholesterol intake able to reduce the size of atherosclerotic lesions (Kannel, 1990). Berlin (1992) using randomized controlled trials found that dietary changes such as the restriction of total, saturated and polyunsaturated fats and the inclusion of dietary fish oil supplements, along with other lifestyle changes, induced regression of pre-existing coronary artery lesions and lessened the frequency of angina in patients with symptomatic disease. Kannel (1990) states, "controlling the lipid factor is crucial in prevention and treatment" of cardiovascular disease (p. 126).
Most frequently, total serum cholesterol is used to screen for hyperlipidemia, but serum cholesterol is only part of the picture of serum lipids. Besides cholesterol serum lipids include several lipoproteins which provide a mechanism for transport of insoluble fats to body cells (Williams, 1989). The major serum lipoproteins include lipoprotein (a), chylomicrons, very low density lipoproteins (VLDLs), intermediate density lipoproteins (IDLs), low density lipoproteins (LDLs), and high density lipoproteins (HDLs), with their fat content inversely proportional to their density (Hadley & Saarmann, 1991). VLDLs and IDLs transport triglycerides in the blood, while LDLs and HDLs transport cholesterol (Hadley & Saarmann, 1991). Lipoprotein (a) is thought to competitively inhibit plasminogen activator and predispose individuals to thrombosis (McLean, Thomlison & Kuang, 1987). Kumanyika and Adams-Campbell (1991) believe that in African-Americans, diet and lifestyle are modifiable risk factors that operate through reversible intermediates including lipoproteins (i.e.: LDL-cholesterol, HDL-cholesterol and triglycerides) in the development of cardiovascular disease.

Overall serum lipid risk factor assessments in African-American populations have not been as extensively studied as in whites with data on African-American women even less abundant. However, the available data on serum lipids suggest that African-Americans in general appear to be at increased risk for cardiovascular disease. Twenty-four percent of African-
American men and women have high total cholesterol levels (>240 mg/dl) (NHLBI, 1992a), with African-American women having lower "protective" HDL-cholesterol levels than white women (Magnus, 1991). African-American women have been found to be less aware of their cholesterol level than white women, with 79% of African-American women compared to 72% of white women unaware that they had hypercholesterolemia (Sprafke, Burke, Folsom, & Hahn, 1989).

Total serum cholesterol levels and high or moderate risk cholesterol levels have in general been found to be similar in African-Americans and whites (USDHHS, 1980; National Center for Health Statistics, 1987). Edwards, Parker, Burks, West and Adams (1991) with a sample of 163 low income subjects, found African-American women to have a significantly higher blood pressure and serum cholesterol level when compared to white women. A borderline elevated total cholesterol level in African-Americans may be attributable to elevated HDL-cholesterol (Pearson, Jenkins & Thomas, 1991). In general African-Americans have demonstrated higher HDL-cholesterol levels than whites (Tyroler, Hames & Kushan, 1975; Tyroler, Glueck & Christensen, 1980; Freedman, Strogatz, Williamson & Aubert, 1992), but African-American women on average have lower levels of HDL-cholesterol than white women (Magnus, 1991). Associations between educational level and HDL-cholesterol have demonstrated a negative relation for African-American men, no relation for African-American women and
white men, and a positive relation for white women (Freedman, Strogatz, Williamson & Aubert, 1992).

Lipoprotein (a) has been found to be very high in African-Americans as compared to whites (Guyton, Dahlen & Patsch, 1985). Pearson, Jenkins and Thomas (1991) purport that lipoprotein (a) may constitute a high population attributable risk fraction for African-Americans. However, in a comparison of 111 African-American and 124 white clients with known cardiovascular disease, coronary artery lesions per angiogram were found to be similar in severity despite the African-American clients having significantly higher levels of lipoprotein (a) (Sorrentino, Vielhauer, Eisenbart, Fless, Scanu & Feldman, 1992). Additional research focusing on serum lipid measurement and correlation with pathophysiology needs to be conducted with African-Americans, separating results by gender, among other variables, to clarify lipid profiles and their contribution to cardiovascular disease risk in this group.

Dietary Risks for Cardiovascular Disease

Diet, especially the consumption of saturated fat and cholesterol, is strongly believed to play a major role in the development of the coronary atherosclerosis that leads to ischemic heart disease (Grundy & Denke, 1990). Williams (1989) has estimated that the average American diet obtains 45% of it's calories from fat. Thompson, Sowers, Frongillo and Parpia (1992) report that the major determinants of fat in the diets of American women derive from the
frequency of consumption of sweet grains, beef, eggs, cheese, cream, whole milk, salad dressing and butter or margarine.

The American Heart Association (AHA) Step I diet recommends that all Americans consume no more than 30% of calories from fat, 55% from carbohydrates and 15% from protein, with saturated fats accounting for no more than ten percent of total calories (NHLBI, 1994). Ramsey, Yeo and Jackson (1991) recommend that healthy persons be screened for hypercholesterolemia and if serum cholesterol is not elevated, be encouraged to follow the recommendations for a Step I diet. Ramsey and colleagues (1991) in review of eight clinical trials found Step I diets not effective in the lowering of cholesterol in patients who already had hypercholesterolemia. In an analysis of the adequacy of the nutritional intakes of 383 subjects following an AHA Step I diet, inadequate intakes of zinc, calcium, and vitamins A, D and E were found (Bae, Keenan, Fontaine, Wenz, Ripsin, & McCaffrey 1993).

In the human body cholesterol serves as a substrate to hormones and is vital to normal body functioning (Hadley & Saarmann, 1991). Exogenous cholesterol consumption is not necessary since cholesterol is synthesized in the liver. Dietary cholesterol is a saturated fat found in animal and diary products, with recommended consumption of no more than 300 mg per day (Expert Panel, 1988). As dietary saturated fat reduction is recommended, so is an increase in dietary polyunsaturated fat consumption. Americans consume about seven
percent of their caloric intake as polyunsaturated fats. An increase to ten percent is recommended, with monounsaturated fats making up another ten to 15% of calories (Expert Panel, 1988). Increasing dietary intakes of polyunsaturated fat may even be beneficial after heart injury. In a study of 505 patients one week post myocardial infarction, consumption of a reduced saturated fat diet, with substitutions of oils rich in antioxidants, was found to be beneficial in reducing myocardial necrosis and reperfusion injury (Singh, Niaz, Agarwal, Begom, & Rastogi, 1995).

Grundy and Denke (1990) report that over 80 years ago in 1913, two German scientists Anitschkow and Chalatow, demonstrated the development of atherosclerosis in rabbits fed a diet high in cholesterol. Many animal studies, using primates such as monkeys and baboons, have demonstrated that high dietary intakes of cholesterol result in severe hypercholesterolemia and atherosclerosis (Strong, 1976; Rudel, Parks & Bond, 1985). In the measurement of whole populations, total serum cholesterol levels have been found to be directly correlated with measurements of serum LDL-cholesterol (The Expert Panel, 1988). Keys (1970) found, in a study of the dietary intake of populations in seven countries, that the intake of saturated fat highly correlated with serum cholesterol levels.

Currently increases in dietary cholesterol consumption of 100 mg/day have been generally accepted to raise serum cholesterol four to five mg/dl
(Keys, 1988; Hegsted, 1986; Grundy, Bilheimer, Blackburn, Brown, Kwitterovich, Mattson, Schonfeld & Weidman, 1982). The "lipid hypothesis" maintains that dietary fat consumption influences serum lipid levels which in turn contribute to the prevention or exacerbation of atherosclerosis. This may not be the whole story.

Not all fat intake increases serum lipid levels. Through research with dietary fats such as vegetable and fish oils, human serum cholesterol concentrations have been found to decrease in response to consumption of these oils (Grundy & Denke, 1990). In 1965 Keys, Anderson and Grande reported that dietary saturated fats raised serum cholesterol about double what polyunsaturated fats would lower it. In a study of 40 healthy subjects randomly assigned to one of five test diets with varying degrees of saturated, monounsaturated and polyunsaturated fats, Wood, Kubena, O'Brian, Tseng and Martin (1993) found that total cholesterol levels measured five and six weeks later were significantly higher from baseline on the butter test diet (the diet highest in saturated fat) and significantly lower from baseline on the soft margarine test diet (the diet lowest in saturated and highest in polyunsaturated fats).

**Variability in the Response to Dietary Fats**

In non-human primates there is a high degree of variability in the response of serum levels of total cholesterol to the amount of cholesterol varied.
Some animals demonstrate marked elevations in serum cholesterol to diets high in cholesterol, "high-responders", while others do not demonstrate elevations in serum cholesterol to the same high cholesterol diets, "low-responders." In humans, the individual response to high cholesterol diets also varies but not to the degree found in the animal studies (Beynen & Katan, 1985; Katan, Beynen, DeVries & Nobels, 1986; Katan & Beynen, 1987). Grundy and Vega (1988) demonstrated an increase in all patients fed a diet high in saturated fatty acids, however the degree of elevation was individualized. Beynen and Katan (1988) argue that the range of response variability in serum cholesterol to consumption of high saturated fatty acid is relatively small and of no practical significance. More research is needed with respect to individual human response variation by type of saturated fat consumed (Grundy & Denke, 1990).

**Dietary Saturated Fatty Acids**

The major dietary saturated fatty acid in most American diets is palmitic acid (Grundy & Denke, 1990). Palmitic acid is the major saturated fatty acid found in animal fat, but can also be found in some vegetable oils. Consumption of palmitic acid is known to increase serum LDL cholesterol and total cholesterol levels (Grundy & Denke, 1990).

Myristic acid is a dietary saturated fatty acid found primarily in butter fat. Myristic acid is also suspected of raising total serum cholesterol levels. Less is
known about it with most diets containing myristic acid in only small amounts (Grundy & Denke, 1990). Another saturated fatty acid, stearic acid, is a component of cocoa butter and has been found to not raise serum total cholesterol levels (Bonanome & Grundy, 1988). Bonanome and Grundy (1988) reported that the hydrogenation of vegetable oils to produce margarines and shortenings results in the production of stearic acid. Bonanome and Grundy (1988) suggest that stearic acid containing margarine products be substituted for butter, lard and beef tallow in cholesterol controlling or lowering diets.

Tropical oils such as coconut oil and palm kernel oil contain lauric acid, a saturated fatty acid which has been suggested to raise serum total cholesterol levels as much, or even more than palmitic acid (Keys, Anderson & Grande, 1965; Reiser, Probstfield, Silvers, Shorney, Wood, O'Brien, Gotto & Insull, 1985). The influence of lauric acid on serum total cholesterol has not been well investigated and needs more research consideration before its effects on serum lipids can be ascertained with any certainty (Grundy & Denke, 1990).

**Dietary Monounsaturated Fatty Acids**

Oleic acid is the major monounsaturated acid in the diet. Oleic acid has been considered both neutral in its effects on serum cholesterol levels, and a potential cholesterol-lowering fatty acid (Grundy & Denke, 1990). Elaidic acid, a trans-monounsaturated fatty acid, occurs in the diet through the hydrogenation of vegetable oils and has primarily been reported to be neutral in its effects on
serum cholesterol (Grundy & Denke, 1990). Further investigation is needed on the influence of dietary monounsaturated fatty acids on serum lipids before definitive effects can be ascertained.

**Dietary Polyunsaturated Fatty Acids**

The major dietary polyunsaturated fatty acid is linoleic acid from plant oils such as soybean oil, rapeseed oil and linseed oil. Linoleic oil is well established to reduce serum total and LDL-cholesterol levels when substituted for saturated fatty acids (Grundy & Denke, 1990). Fish oils contain a variety of very long chain polyunsaturated fatty acids. Eicosapentaenoic acid and docosahexaenic acid account for 26% of the unsaturated fatty acids in fish oil (Grundy & Denke, 1990). Fish oils have also been hypothesized to decrease serum cholesterol levels. Future research on the influence of fish oils on serum lipids is necessary to ascertain their full effect.

**Dietary Carbohydrates**

Dietary carbohydrates consist of monosaccharides such as glucose, disaccharides such as sucrose, and polysaccharides which include all of the starches (Williams, 1989). In general carbohydrates have been considered neutral with respect to their action on serum cholesterol (Grundy & Denke, 1990). High carbohydrate ingestion, especially simple sugars, may contribute to an elevation in triglycerides and effect the size of LDL-cholesterol (Richards, Grundy & Cooper, 1989). Also, consumption of diets high in carbohydrates may
not contribute to a decrease in body stores of palmitic fatty acid because the liver can synthesize palmitate directly from carbohydrates (Grundy & Denke, 1989).

**Other Dietary Risk Factors for Cardiovascular Disease**

**Fiber.** Fiber is important for the promotion of normal elimination and may lower plasma cholesterol levels, decreasing risk for cardiovascular disease, colon cancer, and diabetes (Dudek, 1993; Godner, Anderson, & DeYoung, 1996; Eschleman, 1996; National Research Council, 1989; Williams, 1994). Inadequate fiber intake has been identified to be a consistent problem with African-Americans (Rogers, Simon, Zucker, Maccsey, & Newman-Palmer, 1995).

**Sodium.** Sodium is the principle extracellular electrolyte and the primary regulator of extracellular fluid volume. Sodium is also important for serum osmolarity, acid-base balance, and the regulation of cellular membrane potentials (Dudek, 1993; Godner, Anderson, & DeYoung, 1996; Eschleman, 1996; National Research Council, 1989; Williams, 1994). An excessive intake of sodium can lead to an increase in extracellular volume which can result in edema and hypertension, especially in salt-sensitive individuals (Haddy & Pamanni, 1995; Parmer, Stone & Cervenka, 1994). A sensitivity to salt with a propensity to retain salt and develop salt-dependent hypertension has been suggested as the mechanism for hypertension in many African-Americans (Campese, 1994). Hypertension is prevalent in the African-American population.
and is considered a major risk factor for the development of cardiovascular
disease (Daniels, Heiss, & David, 1988; Dischinger, Apostolides, & Entwisle,
1984; Gregory & Clark, 1992).

**Vitamin E.** Vitamin E is an antioxidant. Diets high in polyunsaturated fats
are also high in vitamin E. Although vitamin E deficiencies are rare, an
adequate dietary intake of vitamin E in necessary to maintain the health of body
tissues (Dudek, 1993; Godner, Anderson, & DeYoung, 1996; Eschleman, 1996;
National Research Council, 1989; Williams, 1994), and may provide protective
antioxidant effects important in the prevention of cardiovascular disease (Burton,
1994; Jha, Flather, Lonn, Farkouh, & Yusuf, 1995; Stampfer, Hennekens,
Manson, Colditz, Rosner, & Willett, 1993; Sinatra & DeMarco, 1995; Stampfer &

**Zinc.** Zinc is an important constituent of many enzyme systems including
those which synthesize proteins, transport carbon dioxide and utilize vitamin A
(Dudek, 1993; Godner, Anderson, & DeYoung, 1996; Eschleman, 1996; National
Research Council, 1989; Williams, 1994). Zinc also may play an important role
in maintaining cardiovascular health (Suciu, Chirulescu, Zeana & Pirvulescu,
1992; Walsh, Sanstead, Prasad, Newberne, & Fraker, 1994). Low zinc intakes
have been associated with traditional African-Americans diets (Mares-Perlman,
Subar, Block, Greger, & Luby, 1995).
Copper. Copper is contained in a number of body proteins and enzymes with an essential function in the utilization of iron for hemoglobin formation (Dudek, 1993; Godner, Anderson, & DeYoung, 1996; Eschleman, 1996; National Research Council, 1989; Williams, 1994). Copper deficiencies can result in skeletal, nervous, integumentary and reproductive system problems, myocardial degeneration and decreased arterial elasticity (Dudek, 1993; Godner, Anderson, & DeYoung, 1996; Eschleman, 1996; National Research Council, 1989; Williams, 1994). Copper deficiencies have also been proposed to increase oxidant stress (Strain, 1994).

Magnesium. Magnesium is required for numerous biochemical and physiological processes including the regulation of nerve and muscle contractions, glycolysis, formation of cyclic AMP, energy dependent membrane transport and the transmission of the genetic code (Dudek, 1993; Godner, Anderson, & DeYoung, 1996; Eschleman, 1996; National Research Council, 1989; Williams, 1994). Magnesium intake on average has been found to be lower in African-Americans than in whites, with low dietary and serum magnesium levels related to the development of atherosclerosis, cardiovascular disease, hypertension, and diabetes (Ma, Folsom, Melnick, Eckfeldt, Sharrett, Nabulsi, Hutchinson, & Metcalf, 1995).
Overnutrition

Obesity related to overnutrition by the consumption of more calories than needed may in some individuals raise the total serum cholesterol level, with visceral or upper body obesity being particularly hypercholesterolemic (Grundy & Denke, 1990). Grundy and Denke (1990) estimate that one third to one half of the mass hypercholesterolemia found in this country, and typical of similar affluent societies around the world, is the result of overeating and obesity. Obesity is also the most common cause of elevated triglyceride levels with overeating stimulating triglyceride synthesis in the liver (Grundy & Denke, 1990). Wolf and Grundy (1983) found HDL-cholesterol concentration reduced in obese subjects. Weight reduction increases HDL-cholesterol levels, with increased HDL-cholesterol levels once thought to be associated with exercise, now thought to occur as a result of weight loss from exercise and not as a result of exercise alone (Hadley & Saarmann, 1991).

Obesity is more common in African-American women with a 43.8% overall reported incidence (NHLBI, 1992a). Excess obesity in African-American women occurs in all socioeconomic strata (Gillum, 1987a). Flack and Wiist (1991) in an examination of cardiovascular risk factors in 661 adult African-Americans, found that by age 65, 90% of the women subjects were overweight.

Distribution of body fat may also play a role in the development of cardiovascular disease. Waist-to-hip circumference ratios greater than 0.8 in
women, indicating upper body or abdominal obesity, have been associated with an increased risk of cardiovascular disease independently of total level of body fat (Seidle, Deurenberg & Hautvast, 1987). Middle-aged African-American women in general have higher waist-to-hip rations than white women (Gillum, 1987b). "By all definitions" (p. 49) obesity occurs with high frequency in the African-American community (Kumanyika & Adams-Campbell, 1991).

The African-American Diet

Research has consistently revealed nutritional inadequacies in the American diet especially the diets of ethnic minority groups (Rogers, Simon, Zucker, Maceissy, & Newman-Palmer, 1995). African-American food preferences, especially with respect to fat-containing food consumption, have not been extensively studied or adequately measured, and are not reported in any detail in the literature. Usual food preferences of African-Americans have been described to include high amounts of meat, particularly pork, organ meat, eggs and fried foods, with lower consumption of calcium, fruits, vegetables, and fiber than whites (Kumanyika & Adams-Campbell, 1991). Magnus (1991) reports that African-American diets are high in pork products, fried foods, and baked goods high in saturated fat, total fat and sodium.

Shea, Melnik, Stein, Zansky, Maylahn and Basch (1993) assessed the atherogenic potential of diet in 3,606 subjects, including 1,035 African-Americans, using a 17 item food frequency questionnaire. In all age, gender and
race or ethnic specific population segments the foods contributing to high dietary fat consumption included eggs, whole milk, cheese, beef and butter or margarine. Shea and colleagues (1993) suggest that substitutions of less atherogenic food for these foods is an appropriate method to begin to decrease dietary fat consumption in adults.

The average percentage of calories from fat for Americans have been estimated to be as high as 45% (Williams, 1989). Block, Rosenberger and Patterson (1988) report that total dietary fat consumption in African-Americans did not appear significantly higher than that of whites, with African-Americans consuming 35-38% of their total calories as fat with 11-13% consumed as saturated fat. However, Block, Rosenberger and Patterson (1988) found higher than average dietary cholesterol consumption in African-Americans. Posner, Cupples, Gagnon, Wilson, Chetwynd, and Felix (1993) examined the dietary profiles of 1798 American men and 1845 women from Framingham, finding total fat intakes were 38%. When compared to the guidelines from Healthy People 2000 (USDHHS, 1990), only six to nine percent of the sample met total fat, nine to 14% met saturated fat, and fewer than three percent met fiber guidelines (Posner, Cupples, Gagnon, Wilson, Chetwynd, & Felix, 1993).

Jerome (1980) studied the nutritional adaptation and dietary changes of southern African-American women after they migrated from a rural environment to the inner city of Milwaukee, Wisconsin. Jerome found persistence in respect
to ideology about food, including the relation between food and health. Vegetable consumption was associated with health. Vegetables were considered "foods for strength." Other foods for strength included meat, milk and eggs. Some respondents in the study saw a direct relation between health and pork consumption.

Health Promotional Dietary Change

The Transtheoretical Stage of Change Model (SOCM) was developed as a general model of behavioral change (Prochaska & DiClemente, 1992), reflecting the temporal dimension in which change unfolds (Prochaska, 1992a). It has been utilized to measure change for smoking cessation, quitting cocaine use, condom use, safer sex (Prochaska, 1992a) mammography screening (Rakowski, 1990), exercise (Marcus, 1990), use of sunscreen (Rossi, 1990), premature psychotherapy termination (Medeiros & Prochaska, 1990), weight control (Prochaska, Norcross, Fowler, Follick & Abrams, 1990) and to index an individual's readiness to reduce dietary fat consumption (Rossi et al., 1993a), among others.

Prochaska (1992b) reports that when using a Stage algorithm with the question, "Have you reduced your consumption of high fat foods?" or "Do you limit your fat intake?", about two-thirds of subjects report that they have, placing them in the Action or Maintenance Stage for this question. Using the algorithm of "Do you limit your fat intake?", Curry, Kristal and Bowen (1991) found that
subjects who reported themselves to be in the Action or Maintenance Stage still had a diet which contained 35% of its calories from fat. The question of "Do you eat a low fat diet?" the average fat consumption of the Action or Maintenance group is decreased to 33% of calories from fat (Prochaska, 1992b).

Prochaska (1992b) found that subjects were unable to answer the question "Is fat 30% or less of your daily caloric intake." Prochaska (1992b) reports that using the 30% of calories from fat as an action criteria places most people in the Precontemplative Stage out of ignorance. Typically, about 50% of individuals in populations at risk due to an unhealthy behavior are not intending to take action in the foreseeable future, placing them in the Precontemplative Stage (Prochaska, 1992b). Most interventions implicitly or explicitly designed for individuals prepared to take action, with only a small proportion of people at risk in the Preparation Stage (Prochaska, 1992b). Needed are surveys of the Stage distributions of populations so to better design interventions to serve their needs rather than expect action oriented interventions to work (Prochaska, 1992b).

Failure to match dietary interventions with an individuals readiness to change has been suggested as a major component in low adherence rates (Rossi, Rossi & Prochaska, 1990). Changing dietary fat consumption requires the ongoing substitution of new more healthful behaviors for previously maintained poorer health practices (Rossi, Rossi & Prochaska, 1990).
Rossi (1993) examined dietary fat reduction in 200 male and female residents of Rhode Island, of which 92% were white. Subjects completed a Dietary Fat Reduction Behavioral Survey, a Transtheoretical Stage of Change Model Question on dietary fat reduction, and the Dietary Quick Fate Screen. Rossi (1993) found that dietary fat decreased with Stage progression. Precontemplators rarely used fat reduction strategies. Contemplators were split between not reducing fat intake and substituting lower fat foods for high fat foods. Contemplators rarely eliminated or avoided high fat foods. Preparers were actively engaged in experimentation with various means to reduce fat consumption including elimination, avoidance and substitution strategies, with a major emphasis on cutting down across all high fat foods. Subjects in the Action Stage were found to be settled into at least one consistent fat reduction behavior that worked for them. Maintainers were found to consistently engage in all fat reduction strategies.

Variables Affecting Health Promotional Change

The literature identifies many things that may potentially affect an individuals health-related choices and health promotional behavior. Included are attributional, individual and situational constructs. Cummings, Becker and Maile (1980) reviewed 14 models of voluntary health-related behavior in an effort to develop a unified framework for explaining health actions. Cummings and associates (1980) contend that with a continuing emphasis on prevention
and early detection of disease a unified framework would provide insights into
the multifaceted and complex phenomenon of why some people take an active
role in their health and some people do not. An analysis of 99 variables from 14
different models, by the various model authors themselves, resulted in the
identification of six general groups of factors which impact an individual's health-
related behavior: (a) Accessibility of health care services, (b) attitudes toward
health care, (c) perceptions of symptoms or threat of illness, (d) knowledge
about illness, (e) social network and social support, and (f) demographic
characteristics. Cummings and associates (1980) acknowledged that each of
these general groups was influenced by culture, with culture serving as the
thread between all of the groups. Many of the models reviewed directly listed
culture as a variable important to health care action.

Avis, McKinlay and Smith (1990) examined the level of cardiovascular risk
knowledge and behavior in a sample of 732 men and women, 88% who were
white. Total knowledge was positively related to education, female gender and
amount of exercise. The identification of a need to reduce dietary fat
consumption to decrease the risk of cardiovascular disease was positively
related to education, female gender and being a non-smoker. Knowledge of the
need to reduce dietary fat consumption was not found to be related to actual
cholesterol levels. Income or minority status was not found to be related to
cardiovascular risk knowledge. Avis and colleagues (1990) suggest that future
studies examine why persons who have knowledge of risk factors do not adopt healthy behaviors, with minorities, men and the less educated targeted for health promotional efforts.

Using a United States national probability sample of 22,043 adults, Cotugna, Subar, Heimendinger and Kahle (1992) found that 35% of the sample reported that they had made dietary changes in the past one to five years for health reasons. The dietary changes included decreased fat intake. Ninety percent of the sample agreed that diet was related to health. Of those whose did not make dietary changes the primary reasons were that they enjoyed the food they were eating and that they did not want to make a change. Cotugna and colleagues (1992) found education and income levels in general to be the major demographic variables that impacted health prevention knowledge, attitudes, beliefs and actions. Age, marital status, occupation, income, family history of illness and education have been reported to be directly related to health promotional behavior (Avis, McKinlay, & Smith, 1990; Devine & Olson, 1992; Gottlieb & Green, 1987; Shimakawa, Sorlie, Carpenter, Dennis, Tell, Watson & Williams, 1994). Health insurance status, length of time in Los Angeles, number of family members and recent experience of violence have been identified as potential barriers to personal health promotional actions (Cummings, Becker, & Maile, 1980; Devine & Olson, 1992; Keller & Coe, 1991).
In an exploratory study of the effect of women's social roles on personal nutrition care, Devine and Olson (1992) found that mid-life, premenopausal women could be divided into two life stage groups, "mothering" and "changing." The mothering group was comprised of women 32 to 43 years old with young children at home who juggled career and family responsibilities. Personal nutrition was not found to be a consideration with this group. The changing group was comprised of women 38 to 46 years old with older children at home or with children who had left home. Changing group women were conscientious about meal planning. Half of the changing group identified parental illness or a family history of dietary-related disease as a motivating factor in healthy food choices.

The specific variables which affect or relate to health promotion in African-Americans have not been extensively studied. In a study of the effect of ethnicity on health care practices Gottlieb and Green (1987) found for all ethnic groups and both genders that higher education, higher income and younger age had a direct positive influence on healthy practices. Gottlieb and Green (1987) also reported that the African-American women in the sample had lower education, lower income, a lower social network score, poorer health status and more stressful life events than sample white women. In a descriptive study of African-American women at risk for cardiovascular disease, role models, religious affiliation, feelings of susceptibility, commitment to change, barriers to
change and perceived loss of control were found to affect health promotion behavior (Keller & Coe, 1991).

Self-efficacy has been proposed as a strong predictor of health promotional behavior and may provide insight into individual motivation for behavioral change (Fleury, 1992). In a review of the results of 14 studies using self-efficacy theory with the cardiovascular risk reduction behaviors of smoking, weight management and exercise, Fleury (1992) found efficacy expectations to be an important variable in individual decisions to initiate lifestyle changes. Stratton (1993) explored the relation between self-efficacy and health status in women of four select ethnic groups. Using Sherer's General Self-Efficacy Scale, African-American women reported high levels of self-efficacy, but demonstrated no relation between self-efficacy and health status ($r = .02$).

For this study the sociodemographic variables of age, marital status, how long subjects have lived in Los Angeles, health insurance status, occupation, income, education, number of household members, family history of cardiovascular disease, and recent experience of random violence will serve as variables which may potentially effect health promotional behavior for African-American women. Age, marital status, occupation, income, and education have been reported to be directed related to health promotional behavior. Health insurance status, length of time in Los Angeles, number of family members and recent experience of violence will serve as a measure of potential barriers to
personal health promotional actions. Family history of cardiovascular disease will be measured as possibly a facilitator of change toward a healthier life style.  

**Health Care Practices Among African-Americans**

Studies of health care and preventive practices in African-Americans demonstrate less knowledge and less preventive care utilization as compared to other groups. Giger, Davidhizar and Turner (1992) report that African-Americans equate good health with luck or success. Weitzel and Waller (1990) found the least knowledge of nutrition-related preventive behaviors in African-Americans. Magnus (1991) reports that African-Americans do not have a demonstrated history of use of preventive services. McGinnis (1986) reports that African-Americans are less likely to utilize preventive care such as prenatal care, immunizations, dental care and cancer screenings, and are more likely than Whites to use the hospital setting as their primary source of care. If the hospital setting is a primary source of health care for African-Americans it may also be a good site in which to initiate health promotion.

Raczynski, Taylor, Cutter, Hardin, Oberman and Rappaport (1992) found that African-Americans less frequently reported common preventive actions as compared to whites. Williams (1979) found African-Americans less likely than whites to identify smoking, high fat intake, obesity and lack of exercise as risk factors for cardiovascular disease. In a study of beliefs about hypertension prevention in Hispanics and African-Americans, Kumanyika and colleagues...
(1989) found that at least 50% of African-American respondents could identify the four main risk factors for cardiovascular disease as high blood pressure, cigarette smoking, elevated serum cholesterol and diabetes. However, when asked about specific prevention strategies, only 30% of men and 37% of women identified eating balanced meals; 22% of men and 16% of women identified exercise; 8% of men and 10% of women identified maintenance of ideal weight; 31% of men and 33% of women identified reducing stress; and 11% of men and 10% of women identified stopping smoking as preventive health behaviors.

Inpatient Education to Change Health Behaviors

Client education during hospitalization has received some attention in the literature. Less attention has been given to the family members of hospitalized patients both from an interventional and also from an educational perspective. Studies have demonstrated that education and counseling delivered to clients, especially after a life-threatening illness such as a myocardial infarction, is effective in initiating positive behavior change. It is not known whether similar results could be achieved with family members.

Duryee (1992) examined 21 studies of nursing inpatient education programs for myocardial patients focusing on several questions about importance, appropriateness and effectiveness of such educational interventions. In studies which investigated the type of information patients identify as important, Duryee (1992) found that information about the specific management
of risk factors was consistently rated as more important to clients than explanatory information. Formal inpatient education was found to consistently increase knowledge, including knowledge of risk factor modification and lifestyle changes. Duryee (1992) found that although knowledge increased consistently, behavioral change was more difficult to document with activity and smoking most easily altered. Diet was found to be the most difficult to change.

When Duryee (1992) assessed studies which examined the effect of anxiety on learning, increasing anxiety was associated with less learning but results depended on length of hospital stay. In terms of presentation of information, Duryee (1992) found audiovisual methods to be as effective as live educators. Reading materials were frequently utilized, with all educational materials achieving some degree of success. Duryee (1992) recommends that future research focus on improving client adherence to more difficult lifestyle changes such as diet modifications, and include families in client teaching sessions. Berlin (1992) in a study of dietary and other lifestyle changes on the progression of coronary artery disease in symptomatic clients also suggests the development of new techniques to achieve dietary behavioral change.

Miller, Wikoff, Garrett, McMahon and Smith (1990) examined the effect of a nursing intervention given at 30 days post myocardial infarction on regimen compliance after two years. They found the intervention group significantly more
compliant to diet than a control group. The control group however, was significantly more compliant with smoking cessation.

DiTullio, Granata, Taloli, Broccolino, Reaicati, Zaini and Beili (1991) evaluated the determinants of long term smoking cessation in myocardial infarction patients concluding that education during hospital stay is crucial in promoting successful smoking cessation. Rigotti, Singer, Malley, and Thibalt (1991) used a prospective observational study to study smoking cessation after myocardial infarction, concluding that hospitalization in a coronary care unit is a stimulus to long term smoking cessation and may represent a time when patients are particularly susceptible to lifestyle change interventions. Smokers who were hospitalized with a new diagnosis of cardiovascular disease had the highest smoking cessation rate (<53%).

Taylor, Houston-Miller, Killen and DeBusk (1990) demonstrated that a nurse managed intervention initiated during hospitalization with telephone follow-up after discharge significantly maintained smoking cessation in myocardial infarction patients one year later (71%) as compared to a usual-care group (45%). In-hospital nursing interventions have been successful in promoting positive health care change in patients.

Family Needs and Anxiety During Hospitalization

Intensive care units have been hypothesized as stressful for the family members of hospitalized patients (Hickey, 1985; Ritchie, 1981). It is not known
whether the situational anxiety associated with hospitalization of a family member can serve as a motivating factor for health behavior change. Chartier and Coutu-Wakulczyk (1989) measured the needs and anxiety levels of predominately female (75%) family members of patients hospitalized in an intensive care unit. The study confirmed the presence of anxiety in family members with a negative correlation found between anxiety and the demographic variables of age and education. Family needs, as measured by the Critical Care Family Needs Inventory, were influenced by prior knowledge and on-site sources of worry, accounting for nine percent of the variance in anxiety.

Rukholm, Bailey, Coutu-Wakulczyk and Bailey (1991) examined the perceived needs and anxiety levels in relatives of intensive care unit patients, again confirming the presence of anxiety and demonstrating a significant relation between family needs and anxiety. Worries, trait anxiety, age and family needs accounted for 38% of the variance in the situational anxiety of family members. Hummel (1993) in a study of perceived needs of family members of critically ill patients in an emergency department found the most important needs of family members to be assurance, information and proximity. Nurses and physicians were found to be able to meet more family member needs than other members of the health care team, and more than other family members or friends.
Community Based Educational Programs

Keller (1990) reports that in the African-American population patient education must be a major component of all risk factor reduction and prevention programs, and must include interventions which address specific African-American cultural and socioeconomic differences. Educators and educational materials must be congruent with African-American belief systems about health. Educational programs must be practical, and culturally sensitive and competent. Gottlieb and Green (1987) contend that interactions with any ethnic or minority group should better reflect the cultural values of the group with participants involved in the planning process. Keller (1990) also specifically emphasizes the need for "strong physical education and nutrition education programs" (p. 8) to be established for African-Americans. Women respond better to lifestyle changes than men including dietary modifications so that the "focus (of community cardiovascular preventive programs) must now emphasize risk reduction in women through low fat, lipid-lowering diets, weight reduction, regular aerobic exercise and control of ... hypertension and diabetes." (Valle & Lemberg, 1992, p. 127). Community programs focused on control of hypertension in African-Americans have received much more attention than cholesterol reduction programs.

Ammerman and colleagues (1992) developed a nutritional education program for cardiovascular disease prevention targeting low income southern
African-Americans. The program was designed to be delivered by primary care physicians and included a dietary risk assessment, a culturally specific structured dietary treatment program, and a system for review and analysis of program outcome. Counseling sessions utilize brief, concentrated efforts targeting the most atherogenic dietary behaviors of clients. These brief counseling sessions are limited to about five minutes in length. The program so far has achieved acceptance from both physicians and clients, and has demonstrated a greater understanding of dietary change and increased confidence in the ability to make changes in the clients. A five year randomized controlled trial is underway to assess program effectiveness in decreasing serum cholesterol levels.

Wiist and Flack (1990) screened African-American church members for hypercholesterolemia, inviting half of those identified into a six week education class focused on lowering blood cholesterol. At the time of screening all subjects screened were given a copy of the screening results and brief counseling, including recommendations to quit smoking (if applicable) and to reduce their saturated fat intake by substituting lower fat foods. Six months after the initial screening 75% of the group returned for a follow-up serum cholesterol level. No significant difference were found between the intervention group that received the educational class and the control group that did not. The intervention group demonstrated a 10% decrease in cholesterol level (23.4 mg/dl, from 233.9 to
210.4 mg/dl), while the control group demonstrated a 16% decrease in cholesterol level (38.7 mg/dl, from 241.5 to 202.9 mg/dl)! Twenty percent more of the women in the control group had a decrease in cholesterol level than women in the intervention group, resulting a statistically significant (p < .03) lowering of cholesterol for the control group. With educational level, gender, blood pressure, body mass and age entered as covariates a univariate regression analysis revealed no covariate relation to change in cholesterol level.

Schapira, Kumar, Lyman and Baile (1991) examined the effectiveness of two brief and one longer term dietary intervention on reduction of calories and fat intake, weight reduction and increased dietary fiber intake in women. The ethnicity of the subjects was not reported. The brief interventions were comprised of one four hour class. All three interventions produced significant reductions in fat and calories, and significant increases in fiber intake. Schapira and colleagues (1991) concluded that a brief dietary intervention was successful in decreasing fat intake to less than 30% of total calories in 51% of subjects. Brief dietary interventions may be a practical and cost effective way to alter dietary habits in a population.

Hyman, Flora, Reynolds, Johannsson and Farquhar (1991) found that three months after a public cholesterol screening subjects reported consuming diets lower in fat. Both subjects with normal and elevated cholesterol levels had decreased their fat intake at three months. At the time of the screening subjects
were given their cholesterol values, printed information on the meaning of their values, and booklets on how to modify their diets. Hyman and associates (1991) found no adverse effects in quality-of-life for individuals who found out they were hypercholesterolemic, and refuted the results of Tymstra and Bieleman (1987) who found that normal cholesterol levels on screening provided false assurance to individuals who subsequently lost interest in improving their diets.

Conclusion

Cardiovascular disease is a major problem for African-American women with prevention efforts essential. African-American women have poorer outcomes after a cardiovascular event. The modifiable risk factors for the development of cardiovascular disease in African-American women are similar to the risk factors for cardiovascular disease in other groups, including consumption of diets with over 30% of calories from fat, over 10% from saturated fat and high in cholesterol. In addition obesity is a major problem and risk factor for mid-life African-American women. Interventions must begin early in the lives of African-American women, especially dietary interventions, in order to decrease the incidence of cardiovascular morbidity and mortality. African-American women to be targeted first for intervention should include those with an additional unmodifiable risk factor, such as family history of cardiovascular disease.
Health promotion and the variables that affect health promotional activities have not been well documented for African-Americans. Variables that may affect health promotion include age, marital status, length of time in the community, health insurance status, occupation, income, education, number of household members, family history of cardiovascular disease, and recent experience of random violence.

This study examined the dietary practices and the dietary risk of cardiovascular disease for mid-life African American women in relation to variables purported to influence dietary choice. Specific foods and the reasons that specific dietary choices were made were also investigated.
CHAPTER 4

METHODOLOGY

Design Overview

The design of this study included two separate but related parts, both emphasized increasing the knowledge and understanding of diet and dietary choices in African-American women. The first part of this study consisted of interviews with 100 women comprising a community dietary assessment. The second part consisted of two focus group interviews structured around investigating the health-related purpose of food to the lives of African-American women.

The community dietary assessment partially replicated the work of Rossi, Greene, Reed, Prochaska, Velicer and Rossi (1993a) by testing the validity of Transtheoretical Stage of Change Model (SOCM) for dietary fat consumption with African-American women. Rossi and colleagues (1993a) described the distribution and examined the validity of the SOCM in a sample of primarily white, middle-class women.

Since this study focused on African-American women, and no data were available on utilization of the SOCM with primarily African-American samples, it was necessary to investigate the applicability of the SOCM to this group. This community dietary assessment also described daily nutrient intake, and the
relationship between dietary fat consumption and various sociodemographic variables, level of ethnocultural association, and SOCM Stage.

The focus group participants examined the cultural meaning of food in relation to health for mid-life African-American women, and the perceived "costs" of adopting a recommended preventive response (in this case a lower fat dietary intake). The focus group responses were analyzed in comparison to the theoretical model-identified costs or barriers to change which included: (a) inconvenience, (b) expense, (c) unpleasantness, (d) difficulty, (e) complexity, (f) side effects, (g) disruption of daily life, and (h) overcoming habit strength.

Part I: Community Dietary Assessment

Sample

All subjects who participated in the study were American-born African-American women between the ages of 25-50 years old. All subjects were able to read and write English and had no personal medical history of cardiovascular disease. At the time of participation no subject was consuming any special diet such as a diabetic diet or involved in any commercial or medically prescribed weight loss program. All subjects were free-eating adults. The sociodemographic characteristics of the subjects are contained in Table 7.

Subjects were selected by convenience sampling. One hundred subjects participated in the community dietary assessment survey. Subjects were recruited by a variety of means including bulletin board notices, newspaper ads,
flyers distributed to church and community groups, talks at church and community groups, and by snowball sampling. Attempts were made to recruit subjects from diverse neighborhoods throughout Los Angeles, and from a variety of socioeconomic levels.

Subjects were interviewed and completed the study questionnaires in a variety of settings including their homes, worksites and public places in the community. Public places in the community included fast food and other restaurants, churches, parks, recreation centers, and schools, among others. Subjects were met at sites and times of their choice.

Data Collection Procedure

After a potential subject had been recruited, she was met for data collection at a place and time that was most convenient for her. The study and what participation in the study entailed was explained. A written consent to participate in the study was obtained prior to any data collection (see Appendix A). The subject was then instructed on how to complete the study instruments, given the instruments and allowed an hour to complete them. Privacy was secured for the duration of instrument completion.

After the instruments were completed the subject was interviewed for the first of three 24 hour dietary recalls. Two more interviews were conducted on randomly selected days within two weeks after the first 24 dietary recall. For the second and third interviews the subject was telephoned and completed the
additional 24 hour dietary recalls. The 24 hour dietary recalls were not completed on consecutive days. After completion of the three dietary recalls the subject was mailed a $10.00 gift certificate to a grocery, department, or specialty store of her choice, from a list of eight stores, as appreciation for participation in the study.

Instruments

All subjects completed four instruments: (1) a sociodemographic questionnaire, (2) the Transtheoretical Stage of Change Model for dietary fat consumption, (3) the Pros and Cons of Decisional Balance Inventory for dietary fat consumption, and (4) the African-American Ethnocultural Association Scale. The order of the administration of the instruments was randomized to minimize potential order effects.

Reliability estimates. Reliability was examined by test-retest for the Transtheoretical Stage of Change Model (SOCM) for dietary fat consumption, the Pros and Cons of Decisional Balance Inventory (PCDBI) for dietary fat consumption, and the African-American Ethnocultural Association Scale (AAEAS). Retests were completed between ten days and two weeks of the first test. Cronbach alpha estimates of internal consistency were calculated for the pros and cons of the PCDBI. Reliability and internal consistency coefficients are presented in Table 3.
### Table 3

**Test-Retest\(^a\) Reliability and Internal Consistency Estimates for Study Measures**

<table>
<thead>
<tr>
<th>Measure</th>
<th>n</th>
<th>r</th>
<th>p</th>
<th>Cronbach (\alpha)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stage of Change Model</td>
<td>25</td>
<td>.5612</td>
<td>.002**</td>
<td></td>
</tr>
<tr>
<td>Pros of Dietary Fat Consumption</td>
<td>25</td>
<td>.1679</td>
<td>.402</td>
<td>.72(^d)</td>
</tr>
<tr>
<td>Cons of Dietary Fat Consumption</td>
<td>25</td>
<td>.4131</td>
<td>.032*</td>
<td>.76(^d)</td>
</tr>
<tr>
<td>Ethnocultural Association Scale(^b)</td>
<td>25</td>
<td>.7788</td>
<td>.000**</td>
<td></td>
</tr>
<tr>
<td>Ethnocultural Association Rating(^c)</td>
<td>25</td>
<td>.7038</td>
<td>.000**</td>
<td></td>
</tr>
</tbody>
</table>

\(^a\) Test-retest interval was 7 - 10 days. \(^b\) Scale composed of 14 yes and no questions. \(^c\) Self-rating of on a scale of 1 (low) to 10 (high). \(^d\) \(N = 100\).

\(^*p < .05. \,**p < .01.\)
Sociodemographic questionnaire. The sociodemographic questionnaire (see Appendix B) assessed subject age, presence of a spouse or significant other, how long subjects have lived in the Los Angeles area, health insurance status, employment, income, education, number of household members, family history of cardiovascular disease, and recent experience of random violence. In addition to these ten quantitative items, the last question on the questionnaire asked subjects to list the reasons they had, if any, for consuming the types of food they consume. The sociodemographic questionnaire was pilot-tested on four African-American women, who met the sample selection criteria for the study, to assess clarity and understandability before it was used for data collection.

Transtheoretical Stage of Change Model. The Transtheoretical Stage of Change Model (SOCM) (see Appendix C) was developed as a general model of behavioral change (Prochaska & DiClemente, 1992). It has been utilized to measure change for smoking cessation, quitting cocaine use, condom use, safer sex (Prochaska, 1992a) mammography screening (Rakowski, 1990), exercise (Marcus, 1990), use of sunscreen (Rossi, 1990), premature psychotherapy termination (Medeiros & Prochaska, 1990), weight control (Prochaska, Norcross, Fowler, Follick & Abrams, 1990) and to index an individual's readiness to reduce dietary fat consumption (Rossi et al., 1993a), among others. The SOCM classifies subjects into one of five discrete categories which represent the five
Stages of change: (a) Stage 5 - Precontemplation, (b) Stage 4 - Contemplation, (c) Stage 3 - Preparation, (d) Stage 2 - Action, or (e) Stage 1 - Maintenance. This categorical classification system of discrete Stages has been demonstrated to be robust over a variety of behaviors and replicable across studies (Prochaska & DiClemente, 1992). Researchers, clinicians and clients have found that the Stages of change correspond to their experiences with both self-initiated and intervention or therapy-assisted change (Prochaska & DiClemente, 1992).

The validity of the SOCM was most clearly tested by an examination of the impact of initial Stage on participation and outcome. DiClemente, Prochaska, Velicer, Fairhurst, Rossi and Vehasgnez (1993) in a study of smoking cessation found that Precontemplators used intervention materials less than subjects in Contemplation or Preparation stages. At one month posttest, three times as many Contemplators and seven times as many Preparation Stage subjects had attempted to quit smoking as compared to those in the Precontemplative Stage. This same pattern occurred at longer posttest intervals. Smoking cessation activity and success were found to be clearly modulated by Stage, supporting the relevance and predictive validity of the Stage categories for intervention-assisted behavior change.

Rossi, Greene, Reed, Prochaska, Velicer and Rossi (1993) used four slightly different SOCMs to compare dietary fat consumption Stages across three
samples of primarily white, middle-class women. Also measured in two of the samples were the pros and cons of decisional balance, which weigh the positive and negative aspects of engaging in a particular behavior, and actual dietary fat consumption. The pattern of Stage variation for pros and cons, and actual dietary fat consumption were used to test the validity of the SOCM for assessing dietary fat reduction change. Rossi and colleagues (1993a) demonstrated a pattern of pros and cons, and dietary fat consumption in relation to SOCM Stages consistent with patterns produced from the use of change staging in a wide range of other problem behaviors, supporting the validity of the SOCM to measure dietary fat consumption across SOCM Stages.

The community dietary assessment portion of this study partially replicated the work of Rossi and associates (1993a). Instead of four slightly different SOCMs for dietary fat reduction only one was used. The one chosen was most appropriate for the aims of this study and the sample selected. The SOCM used in this study focused on consistently avoiding high fat foods. The SOCM Stages used in this study were as follows: Stage 5 - Precontemplation, Stage 4 - Contemplation, Stage 3 - Preparation, Stage 2 - Action, and Stage 1 - Maintenance (see Table 4).

This SOCM for avoiding high fat foods, when compared to actual dietary fat consumption, produced a staging distribution in two separate samples in which subjects decreased their fat consumption as they progressed through the
<table>
<thead>
<tr>
<th>Stage</th>
<th>Title of Stage</th>
<th>Description of Stage-Related Behavior</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Maintenance</td>
<td>Consistently avoids high fat foods and has done so for &gt; 6 months</td>
</tr>
<tr>
<td>2</td>
<td>Action</td>
<td>Consistently avoids high fat foods but it is a recent change, &lt; 6 months</td>
</tr>
<tr>
<td>3</td>
<td>Preparation</td>
<td>Does not consistently avoid high fat foods but is planning to make a change soon, in &lt; 1 month</td>
</tr>
<tr>
<td>4</td>
<td>Contemplation</td>
<td>Does not consistently avoid high fat foods but is planning to make a change in 6 months</td>
</tr>
<tr>
<td>5</td>
<td>Precontemplation</td>
<td>Does not consistently avoid high fat foods and has no plans to change</td>
</tr>
</tbody>
</table>
stages (Rossi et al., 1993a). In this study reliability of the SOCM was examined through test-retest (see Table 3). Validity of the SOCM was supported by an analysis of the relation between SOCM Stage, Pros and Cons of Decisional Balance Inventory, and dietary fat consumption.

**African-American Ethnocultural Association Scale.** The African-American Ethnocultural Association Scale (AAEAS) (see Appendix D) was developed to measure degree of personal association with African-American culture through social relationships, culture-related behaviors, and preferences for media, entertainment, food, and service. The AAEAS was developed from a cultural awareness and ethnic loyalty tool used with Chicano groups in Southern California (Keefe & Padilla, 1987). Content validity of the AAEAS was evaluated and supported by 12 African-Americans of various backgrounds. The AAEAS was pilot tested before incorporation in this study. A known-groups assessment was completed with African-American, white, Hispanic and Asian subjects, supporting scale validity.

The AAEAS is a self-report measure comprised of 15 questions, 14 of which are answered by "yes" or "no". A "yes" answer signifies an African-American ethnocultural association, culture-related behavior or preference. A final score from zero to 14 is calculated based on the number of "yes" answers, and is interpreted as the level of ethnocultural association. In addition the final question serves as a built-in measure of validity, asking the respondent to rate
their own ethnocultural association on a scale from one to ten, with one being
the least amount of association and ten being the greatest amount. Reliability of
the AAEAS was supported by test-retest (see Table 3). The response to the final
question was correlated with the overall score and supported the validity of the
AAEAS ($r = .74$, $p = .001$).

**Pros and Cons of Decisional Balance Inventory.** The Pros and Cons of
Decisional Balance Inventory (PCDBI) (see Appendix E) for dietary fat
consumption is an eight item self-report questionnaire designed to measure the
positive and negative aspects of changing behavior toward reducing dietary fat
intake (Rossi, Rossi, Prochaska & Velicer, 1993). Four items are pros and four
items are cons. Subjects respond to each item on a five point Likert-type scale
which ranges from a one of "not important" to a five of "extremely important."

These pros and cons have been identified as marker indicators of an
individual's decision to progress toward change early in the change stages,
particularly to move from Precontemplation to Action (Velicer, DiClemente,
Prochaska & Brandenburg, 1985). The pros represent the positive aspects of
changing a behavior and facilitate change, while the cons represent the negative
aspects or benefits of changing behavior and serve as barriers to change (Rossi
et al., 1993b). The two factor pros and cons structure across the stages of
change has been demonstrated to be robust with consistent patterns replicated
in 12 diverse problem behavior areas (Prochaska et al., 1992).
Rossi, Rossi, Prochaska and Velicer (1993) examined validity, reliability and the two factor measurement structure of the Pros and Cons of Decisional Balance Inventory for dietary fat reduction on a sample of 196 adults. The sample was predominantly white (92%). For dietary fat reduction, subjects rated pros higher than cons in the Precontemplation and Contemplation stage, while cons were found to be rated higher than pros in the Action and Maintenance stages (Rossi et al., 1993b). This pattern is consistent with the pattern found with other behaviors.

Using structural equation modeling, Rossi and associates (1993b) identified a two factor correlated model as providing the best fit to the data, supporting the measurement structure of the instrument. A one way multivariate analysis of variance (MANOVA) and follow-up univariate analyses of variance (ANOVA), with stage of change as the independent variable, and pros and cons as the dependent variables, supported the instrument's internal validity. Cronbach alpha measures of internal consistency demonstrated \( \alpha = 0.86 \) for pros and \( \alpha = 0.84 \) for cons.

In this study subjects rated pros higher than cons in the Precontemplation stage, which is consistent with the findings of Rossi and colleagues (1993b). Cons were rated higher than pros in the Contemplation and Preparation stages which is consistent with a desire to change. In the Action and Maintenance stages pros and cons were rated approximately the same. Subject responses to
the PCDBI across the SOCM Stages demonstrated a two factor correlated model consistent with the results found by Rossi and colleagues (1993b). A one way MANOVA with stage of change as the independent variable and pros and cons as the dependent variables revealed significant F ratios for all tests (see Table 5). A follow-up univariate ANOVA revealed a significant difference between Pros and SOCM Stages, $F(4, 95) = 3.97$, $p = .005$, with a post hoc Bonferroni test identifying a significant difference ($p < .05$) between Stages 1 and 5. A second follow-up univariate ANOVA also revealed a significant difference between Cons and SOCM Stages, $F(4, 95) = 3.82$, $p = .006$, with a post hoc Bonferroni test identifying a significant difference ($p < .05$) between Stages 1 and 3.

**24 hour dietary recalls.** Subjects completed three 24 hour dietary recalls. Repeated 24 hour recalls are appropriate for measuring current diets of groups of subjects, and have demonstrated reliability and validity when compared to other dietary intake techniques (Bingham & Nelson, 1991). The validity and reliability of the recalls were not assessed in this study.

The 24 hour dietary recalls consisted of a formal interview format containing a series of systematic questions which prompted the subject to recall everything they ate or drank from the time they awoke on the previous day to the time they awoke on the morning of the interview (see Appendix F). To help estimate the sizes and/or amounts of the foods they consumed subjects received diagrams of shapes and sizes for comparison (see Appendix G).
Table 5

Summary of Multivariate Analysis of Variance (MANOVA) Results with Stage of Change Model (SCCM) Stage as the Independent Variable and the Pros and Cons of Decisional Balance as the Dependent Variables (N = 100)

<table>
<thead>
<tr>
<th>Test Name</th>
<th>Value</th>
<th>Approx. F Hypoth.</th>
<th>DF</th>
<th>Error DF</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pillais</td>
<td>.278</td>
<td>3.831</td>
<td>8</td>
<td>190</td>
<td>.000*</td>
</tr>
<tr>
<td>Hotellings</td>
<td>.323</td>
<td>3.751</td>
<td>8</td>
<td>186</td>
<td>.000*</td>
</tr>
<tr>
<td>Wilks</td>
<td>.741</td>
<td>3.791</td>
<td>8</td>
<td>188</td>
<td>.000*</td>
</tr>
</tbody>
</table>

Note. Multivariate tests of significance (S = 2, M = \(\frac{3}{4}\), N = 46). F statistic for Wilks' Lambda is exact.

* p < .01.
Part II: Focus Groups

Eleven subjects participated in two focus group interviews discussing strategies for dietary primary preventive intervention development with African-American women. The focus groups participants were African-American women who had met the subject selection criteria for the study but had not participated in the community dietary assessment portion of the study. One focus group consisted of six friends who responded as a group to a posted flyer announcing the need for research participants. The second focus group consisted of five nurses who responded to a verbal request to participate in a focus group. The focus group members chose the time and site for the discussion. Each focus group lasted approximately 1½ hours.

The first focus group interview was held at Harold and Belle's restaurant in south central Los Angeles over dinner. The second focus group was held at Kaiser Sunset Medical Center in Hollywood in a hospital classroom. Both focus group discussions were guided by the same schedule of topics (see Table 6). The investigator and another recorder took notes during the discussion.
<table>
<thead>
<tr>
<th>Topics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Significance of Food for Health</td>
</tr>
<tr>
<td>Prevention Beliefs</td>
</tr>
<tr>
<td>Motivation to Change</td>
</tr>
<tr>
<td>Information Necessary for Change, including “Costs” &amp; Barriers to Change</td>
</tr>
<tr>
<td>Nurses as Change Agents</td>
</tr>
</tbody>
</table>
CHAPTER 5

RESULTS

One hundred African-American women between the ages of 24 and 50 years old participated in the dietary assessment data collection. All subjects completed four self-report questionnaires and three 24 hour dietary recalls. All subjects were able to complete all parts of the data collection. There were no missing data.

Eleven subjects participated in two focus groups discussing strategies for dietary primary preventive intervention development with African-American women. One focus group consisted of six women who were friends of each other. They responded as a group to a posted flyer announcing the need for research participants. The second focus group consisted of five nurses who responded to a verbal request to participate in a focus group. The first focus group was held at Harold and Belle's restaurant in south central Los Angeles. The second focus group was held at Kaiser Sunset Medical Center in Hollywood.

Dietary Assessment

Sample

One hundred subjects participated in the dietary assessment data collection. Subjects were recruited by a variety of means including bulletin board notices, newspaper ads, flyers distributed to church and community groups, talks
at church and community groups, and by snowball sampling. Attempts were made to recruit subjects from diverse neighborhoods throughout Los Angeles, and from a variety of socioeconomic levels. The sociodemographic characteristics of the sample are presented in Tables 7 and 8.

**Daily Nutrient Intake**

The average daily dietary nutrient intake, other than fat intake, for the entire group is summarized in Table 9. Table 9 also contains the Recommended Daily Allowances (RDAs) (National Research Council, 1989) for each nutrient. Average daily dietary intake of amount of fat and percentage of calories from fat are summarized in Table 10 for total fat, saturated fat, monounsaturated fat, polyunsaturated fat and cholesterol. The American Heart Association (AHA, 1995) Step I diet recommendations for fat consumption are presented in Table 11 with the percentage of the sample whose diets did not meet the AHA recommendations.

Subject written responses to the question of personal reasons for choosing foods were separated into ten categories including a) health and nutrition, b) likes and preferences, c) taste, d) convenience, e) weight, f) medical problems, g) culture, h) money, i) stress, and j) miscellaneous. The most frequent reasons mentioned fell into the category of health and nutrition with 32 subjects listing a health or nutrition reason for choosing food. The next most frequent reasons mentioned fell into the category of personal likes and
<table>
<thead>
<tr>
<th>Demographic Variables</th>
<th>Continuous</th>
<th>Dichotomous</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
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<tr>
<td>Age (yrs)</td>
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</tr>
<tr>
<td>Income (k/yr)</td>
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<td>25.74</td>
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<tr>
<td>Education (yrs)</td>
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<tr>
<td>Household Number</td>
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<tr>
<td>Residence in LA (yrs)</td>
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<td></td>
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<td>Significant Other</td>
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<td></td>
</tr>
<tr>
<td>Private Insurance</td>
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</tr>
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<td>Family Hx of Heart Disease</td>
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<td></td>
</tr>
<tr>
<td>Experience of Violence</td>
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<td></td>
</tr>
</tbody>
</table>
| Table 8
<table>
<thead>
<tr>
<th>Subject Occupations</th>
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<tbody>
<tr>
<td><strong>Health Care</strong> (32)</td>
</tr>
<tr>
<td>RN (18)</td>
</tr>
<tr>
<td>&quot;nurse&quot; (5)</td>
</tr>
<tr>
<td>cardiology tech (4)</td>
</tr>
<tr>
<td>medical assistant (3)</td>
</tr>
<tr>
<td>student nurse (1)</td>
</tr>
<tr>
<td>unit secretary (1)</td>
</tr>
<tr>
<td><strong>Education</strong> (9)</td>
</tr>
<tr>
<td>teacher (2)</td>
</tr>
<tr>
<td>research assistant (2)</td>
</tr>
<tr>
<td>substitute teacher (1)</td>
</tr>
<tr>
<td>educator (1)</td>
</tr>
<tr>
<td>math tutor (1)</td>
</tr>
<tr>
<td>teacher's aide (1)</td>
</tr>
<tr>
<td>educational consultant (1)</td>
</tr>
<tr>
<td><strong>Entertainment Industry</strong> (2)</td>
</tr>
<tr>
<td>TV producer/actress (1)</td>
</tr>
<tr>
<td>model (1)</td>
</tr>
<tr>
<td><strong>Managerial/Administration</strong> (9)</td>
</tr>
<tr>
<td>administrator (3)</td>
</tr>
<tr>
<td>management (2)</td>
</tr>
<tr>
<td>office manager (1)</td>
</tr>
<tr>
<td>college administrator (1)</td>
</tr>
<tr>
<td>assistant director of a university health service (1)</td>
</tr>
<tr>
<td>director of youth services (1)</td>
</tr>
<tr>
<td><strong>Miscellaneous</strong> (13)</td>
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<tr>
<td>unemployed (10)</td>
</tr>
<tr>
<td>did not list occupation (3)</td>
</tr>
<tr>
<td>self employed (1) (included in unemployed)</td>
</tr>
<tr>
<td>retired (1) (included in unemployed)</td>
</tr>
</tbody>
</table>

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Table 9

**Average Daily Nutrient Intake\(^a\) and Recommended Dietary Allowances\(^b\) (RDA)**

Comparisons (N = 100)

<table>
<thead>
<tr>
<th>Dietary Variable</th>
<th>Daily Intake</th>
<th>RDA Comparison</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>Calories</td>
<td>1911.27</td>
<td>752.44</td>
</tr>
<tr>
<td>Protein (gm)</td>
<td>75.49</td>
<td>38.28</td>
</tr>
<tr>
<td>Carbohydrates (gm)</td>
<td>236.94</td>
<td>104.05</td>
</tr>
<tr>
<td>Fiber (gm)</td>
<td>15.96</td>
<td>8.32</td>
</tr>
<tr>
<td>Vitamin A (IU)</td>
<td>8996.06</td>
<td>15292.13</td>
</tr>
<tr>
<td>Thiamin (mg)</td>
<td>1.42</td>
<td>1.18</td>
</tr>
<tr>
<td>Riboflavin (mg)</td>
<td>1.63</td>
<td>1.40</td>
</tr>
<tr>
<td>Niacin (mg)</td>
<td>22.99</td>
<td>16.67</td>
</tr>
<tr>
<td>Vitamin B(_6) (mg)</td>
<td>1.82</td>
<td>1.52</td>
</tr>
<tr>
<td>Folate (mcg)</td>
<td>273.15</td>
<td>268.03</td>
</tr>
<tr>
<td>Vitamin B(_12) (mcg)</td>
<td>3.88</td>
<td>5.03</td>
</tr>
<tr>
<td>Vitamin C (mg)</td>
<td>122.18</td>
<td>87.91</td>
</tr>
<tr>
<td>Vitamin E (mg)</td>
<td>10.40</td>
<td>15.79</td>
</tr>
<tr>
<td>Calcium (mg)</td>
<td>662.53</td>
<td>526.84</td>
</tr>
<tr>
<td>Phosphorus (mg)</td>
<td>1144.30</td>
<td>626.46</td>
</tr>
<tr>
<td>Magnesium (mg)</td>
<td>272.36</td>
<td>173.99</td>
</tr>
<tr>
<td>Iron (mg)</td>
<td>15.50</td>
<td>13.24</td>
</tr>
<tr>
<td>Zinc (mg)</td>
<td>10.86</td>
<td>10.56</td>
</tr>
<tr>
<td>Copper (mg)</td>
<td>1.30</td>
<td>.84</td>
</tr>
<tr>
<td>Sodium (mg)</td>
<td>3806.57</td>
<td>3109.56</td>
</tr>
<tr>
<td>Potassium (mg)</td>
<td>2508.9</td>
<td>1190.46</td>
</tr>
</tbody>
</table>

\(^a\) Nutrients listed do not include dietary fat consumption. \(^b\) Represent the minimum daily values from the National Research Council. (1989).


\(^c\) Recommended maximum daily sodium consumption (National Research Council, 1989).
Table 10

**Average Daily Dietary Fat Consumption by Grams and by Percentage of Calories as Fat (N = 100)**

<table>
<thead>
<tr>
<th>Dietary Fat Variables</th>
<th>Amount M</th>
<th>SD</th>
<th>Percentage of Calories M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Fat (gms)</td>
<td>74.87</td>
<td>32.35</td>
<td>34.56</td>
<td>6.93</td>
</tr>
<tr>
<td>Saturated Fat (gms)</td>
<td>24.21</td>
<td>12.22</td>
<td>10.98</td>
<td>2.68</td>
</tr>
<tr>
<td>Monounsaturated Fat (gms)</td>
<td>28.13</td>
<td>12.77</td>
<td>12.96</td>
<td>3.04</td>
</tr>
<tr>
<td>Polyunsaturated Fat (gms)</td>
<td>16.78</td>
<td>7.31</td>
<td>7.95</td>
<td>2.78</td>
</tr>
<tr>
<td>Cholesterol (mg)</td>
<td>272.55</td>
<td>155.49</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 11

Average Daily Dietary Fat Consumption by Percentage of Calories as Fat in Comparison to the Recommendations of the American Heart Association Step I Diet\(^a\) (N = 100)

<table>
<thead>
<tr>
<th>Dietary Fat Consumption</th>
<th>Step I Diet % of Calories from Fat</th>
<th>Sample %</th>
<th>% of Sample &gt; AHA Step I Diet</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Fat</td>
<td>&lt; 30</td>
<td>34.56</td>
<td>6.93</td>
</tr>
<tr>
<td>Saturated Fat</td>
<td>&lt; 10</td>
<td>10.98</td>
<td>2.68</td>
</tr>
<tr>
<td>Monounsaturated Fat</td>
<td>10</td>
<td>12.96</td>
<td>3.04</td>
</tr>
<tr>
<td>Polyunsaturated Fat</td>
<td>&gt; 10</td>
<td>7.95</td>
<td>2.78</td>
</tr>
<tr>
<td>Cholesterol (mg/day)</td>
<td>300</td>
<td>272.55</td>
<td>155.49</td>
</tr>
</tbody>
</table>

\(^a\) National Heart Lung and Blood Institute (1995). \(^b\) Percentage of subjects who consumed less than 10% of their diet as polyunsaturated fat.
preferences with 23 comments. The category of taste had 20 comments. Convenience had 17, weight had 12, medical problems had 11, culture and lifestyle had nine, and money had four comments. Stress was listed as a reason by two subjects, and one subject just wrote "recommended" as her answer to the question. Her response was categorized as miscellaneous. Table 12 lists the categories of reasons for choosing food and some examples of subject comments. A complete list of subject comments is included in Appendix H.

**Stage of Change Model**

The Stage of Change Model (SOCM) classifies subjects into one of five discrete categories which represent the five stages of change, Stage 5 is Precontemplation; Stage 4 is Contemplation; Stage 3 is Preparation; Stage 2 is Action; and Stage 1 is Maintenance. The application of the SOCM to dietary fat consumption proposes that fat consumption will decrease with progression of change from Precontemplation (Stage 5) to Maintenance (Stage 1). Stages 1 and 2 represent those who currently consistently avoid high fat foods. Stages 3 and 4 represent those who are thinking of consistently avoiding high fat foods but who do not currently do so. Stage 5 represents those who are neither consistently avoiding high fat food or thinking of doing so. Of the 100 subjects, 65% reported that they were currently consistently avoiding high fat foods (SOCM Stages 1 & 2). Twenty-five percent reported that they were going to make a change and avoid high fat foods in the future (SOCM
### Table 12

**Categories of Reasons and Examples of Comments\(^a\) for Choosing Foods**

<table>
<thead>
<tr>
<th>Reason</th>
<th>Example Comment(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health/Nutrition (32)(^b)</td>
<td>&quot;I eat the kinds of food such as chicken, fish, fresh vegetables, fruit, water, fresh juices &amp; sometimes red meat; because I believe you are what you eat. The way you eat reflects how you feel, and how much energy you have to do the things you want to do; as one becomes older. The way you eat can add years to your life &amp; prevent unusual illnesses from occurring.&quot;</td>
</tr>
<tr>
<td>Preferences (23)</td>
<td>&quot;There is no important reason I just eat them because I enjoy it.&quot;</td>
</tr>
<tr>
<td>Taste (20)</td>
<td>&quot;I suppose I let my taste buds guide my decisions. I do try to eat at least one balanced meal a day. There are days when I eat two or more. Those once a month cravings women get (contribute) to my eating habits, but are not limited to any specific cultural menu.&quot;</td>
</tr>
<tr>
<td>Convenience (17)</td>
<td>&quot;Convenience, because at times going to a diner or fast food restaurant saves me time and effort.&quot;</td>
</tr>
<tr>
<td>Weight (12)</td>
<td>&quot;My family and myself have decided to work on our weight since we have been somewhat overweight. My daughter continues to talk to us (mother and father) about our weight.&quot;</td>
</tr>
<tr>
<td>Medical Problems (11)</td>
<td>&quot;Cholesterol free which is important to me. I have had lab results which indicate high levels of cholesterol.&quot; &quot;Due to my father's heart attack &amp; death I try to watch my fat intake.&quot;</td>
</tr>
<tr>
<td>Culture (9)</td>
<td>&quot;I eat these foods because its in my culture. I've been raised on these foods.&quot;</td>
</tr>
<tr>
<td>Money (4)</td>
<td>&quot;The kind of food I buy is dependent on what I can afford to buy (around sales/coupons). Buy extra vitamins and minerals to supplement what my diet is providing.&quot;</td>
</tr>
<tr>
<td>Stress (2)</td>
<td>&quot;Stress, boredom, worried.&quot;</td>
</tr>
<tr>
<td>Miscellaneous (1)</td>
<td>&quot;Recommended.&quot;</td>
</tr>
</tbody>
</table>

\(^a\) A complete list of comments is included in Appendix H. \(^b\) Numbers in parentheses after categories of reasons indicate the number of subjects who included that reason in their written comments. Numbers total more than 100 because some subjects wrote multiple reasons for choosing the foods they chose to eat.
Ten percent of subjects reported that they did not currently avoid high fat foods and that they were not thinking of changing their diet in the future to avoid them (SOMC Stage 5). The percentage of subjects per SOMC Stage is presented in Figure 2.

Amounts of dietary fat consumption per SOMC stage are summarized in Table 13. A one-way ANOVA revealed a significant difference between stages for amount of monounsaturated fat consumed $F (4, 96) = 2.88, p = .0266$. A post hoc Scheffe test found no groups to be independently statistically significantly different at $p < .05$. No significant differences were found for total fat, saturated fat, polyunsaturated fat and cholesterol consumption between SOMC stages. A visual representation of the differences between stages are presented in Figures 3 and 4.

Percentage of calories from fat per SOMC stage are summarized in Table 14. A one-way ANOVA demonstrated a significant difference in percentage of calories from polyunsaturated fat per SOMC stage $F (4, 95) = 4.01, p = .0048$. A post hoc Scheffe test revealed a significant difference ($p < .05$) between stages 3 and 5, and between stages 4 and 5. No significant differences were found for percentage of calories from total fat, saturated fat, or monounsaturated fat per SOMC stage. A visual representation of the differences between stages is presented in Figure 5.
Figure 2. Percentage of subjects per Stage of Change Model (SOCM) Stage.
Table 13

Average Daily Dietary Fat Consumption in Grams by Stage of Change Model

(SOCM) Stage (N = 100)

<table>
<thead>
<tr>
<th>SOCM Stage</th>
<th>Total Fat</th>
<th>Saturated Fat</th>
<th>Monounsat. Fat</th>
<th>Polyunsat. Fat</th>
<th>Cholesterol (mg)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
<td>M</td>
</tr>
<tr>
<td>1</td>
<td>73.76</td>
<td>27.21</td>
<td>23.40</td>
<td>10.07</td>
<td>26.97</td>
</tr>
<tr>
<td>2</td>
<td>56.35</td>
<td>28.14</td>
<td>18.76</td>
<td>10.62</td>
<td>20.94</td>
</tr>
<tr>
<td>3</td>
<td>91.34</td>
<td>37.08</td>
<td>31.21</td>
<td>13.60</td>
<td>35.90</td>
</tr>
<tr>
<td>4</td>
<td>82.24</td>
<td>45.45</td>
<td>26.94</td>
<td>18.30</td>
<td>33.29</td>
</tr>
<tr>
<td>5</td>
<td>77.13</td>
<td>27.81</td>
<td>24.34</td>
<td>9.88</td>
<td>27.94</td>
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</table>

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Figure 3. Mean fat consumption per Stage of Change Model (SOCM) Stage.
Figure 4. Mean cholesterol consumption per Stage of Change Model (SOCM) Stage.
Table 14

Average Daily Dietary Fat Consumption as Percentage of Calories from Fat by Stage of Change Model (SOCM) Stage (N = 100)

<table>
<thead>
<tr>
<th>SOCM Stage</th>
<th>Total Fat</th>
<th>Saturated Fat</th>
<th>Monounsaturated Fat</th>
<th>Polyunsaturated Fat</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>1</td>
<td>33.94</td>
<td>6.24</td>
<td>10.72</td>
<td>2.57</td>
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<tr>
<td></td>
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<td></td>
<td>12.41</td>
<td>2.87</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>17.73</td>
<td>7.05</td>
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<td>2</td>
<td>33.09</td>
<td>6.57</td>
<td>10.61</td>
<td>2.59</td>
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<td></td>
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<td>12.21</td>
<td>2.64</td>
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<td>3</td>
<td>35.16</td>
<td>7.68</td>
<td>12.03</td>
<td>3.39</td>
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<td>13.80</td>
<td>3.15</td>
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<td></td>
<td></td>
<td></td>
<td>17.08</td>
<td>6.81</td>
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<td>4</td>
<td>34.17</td>
<td>5.15</td>
<td>10.65</td>
<td>2.34</td>
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<td>14.21</td>
<td>2.91</td>
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<td>5</td>
<td>39.62</td>
<td>10.77</td>
<td>12.30</td>
<td>2.93</td>
</tr>
<tr>
<td></td>
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<td></td>
<td>14.08</td>
<td>3.92</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>19.24</td>
<td>7.41</td>
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</tbody>
</table>
Figure 5. Mean percentage of calories from fat per Stage of Change Model (SOCM) Stage.
Pros and Cons Decisional Balance Inventory

The Pros and Cons Decisional Balance Inventory (PCDBI) measures the positive and negative aspects of dietary fat consumption (Rossi, Rossi, Prochaska, & Velicer, 1993). The pros represent the positive aspects of avoiding fat and facilitate change, while the cons represent the negative aspects and serve as barriers to change (Rossi et al., 1993b).

The PCDBI per SOCM stage is summarized in Table 15. A one-way ANOVA demonstrated a significant difference for Pros between SOCM stage, $F(4, 96) = 3.9731, p = .0050$. A post hoc Tukey-HSD test revealed a significant difference for Pros ($p \leq .05$) between stages 1 and 5. A one-way ANOVA demonstrated a significant difference for Cons between SOCM stage $F(4, 96) = 3.8245, p = .0063$. A post hoc Tukey-HSD test revealed a significant difference ($p \leq .05$) between stages 1 and 3. A graph of mean Pros and Cons per SOCM stage is presented in Figure 6.

African-American Ethnocultural Association Scale

The African-American Ethnocultural Association Scale (AAEAS) is a self-report measure consisting of 15 questions, 14 of which are answered by "yes" or "no". A "yes" answer signifies an African-American ethnocultural association, culture-related behavior or preference. A final score from zero to 14 is calculated based on the number of "yes" answers, and is interpreted as the level of ethnocultural association. The mean AAEAS score for this sample was
<table>
<thead>
<tr>
<th>SOCM Stage</th>
<th>Pros M</th>
<th>Pros SD</th>
<th>Cons M</th>
<th>Cons SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>6.50</td>
<td>4.05</td>
<td>6.58</td>
<td>4.53</td>
</tr>
<tr>
<td>2</td>
<td>8.08</td>
<td>3.17</td>
<td>8.08</td>
<td>3.71</td>
</tr>
<tr>
<td>3</td>
<td>9.10</td>
<td>4.25</td>
<td>11.80</td>
<td>4.21</td>
</tr>
<tr>
<td>4</td>
<td>8.60</td>
<td>3.22</td>
<td>9.80</td>
<td>4.69</td>
</tr>
<tr>
<td>5</td>
<td>11.60</td>
<td>5.66</td>
<td>8.10</td>
<td>4.46</td>
</tr>
</tbody>
</table>
Figure 6. Mean Pros and Cons of Decisional Balance per Stage of Change Model (SOCM) Stage.
M = 6.12, SD = 3.36, indicating a moderate level of ethnocultural association. The AAEAS score per SOCM stage is summarized in Table 16. A one-way ANOVA revealed no significant difference between SOCM stages related to level of ethnocultural association.

**Regression Analysis**

Stepwise multiple regression procedures were used to analyze the relationship between eight dietary fat consumption variables and change stage, comprising the dependent variables, and the independent variables of age, education, income, significant other, household number, employment, household cook, private insurance, length of time in Los Angeles, family history of heart disease, experience of random violence, and ethnocultural association (see Table 17).

Stepwise regression analysis examining the relationship between the independent variables and SOCM Stage (see Table 18) demonstrated a significant relationship between SOCM Stage and age, length of time the subject had lived in Los Angeles, and years of education. Average age per SOCM stage is summarized in Table 19. A one-way ANOVA revealed a significant difference in age related to SOCM Stage, F (4, 95) = 2.92, p = .0250. A post hoc Scheffe test found no groups to be independently statistically significantly different at p < .05. A one-way ANOVA revealed no significant difference in length of time the subject had lived in Los Angeles related to SOCM Stage, F (4, 95) = .95,
Table 16

Average African-American Ethnocultural Association Score for Stage of Change Model (SOCM) Stage (N = 100)

<table>
<thead>
<tr>
<th>SOCM Stage</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>5.98</td>
<td>3.13</td>
</tr>
<tr>
<td>2</td>
<td>5.15</td>
<td>4.02</td>
</tr>
<tr>
<td>3</td>
<td>6.40</td>
<td>3.65</td>
</tr>
<tr>
<td>4</td>
<td>6.07</td>
<td>3.39</td>
</tr>
<tr>
<td>5</td>
<td>7.90</td>
<td>3.28</td>
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</tbody>
</table>
Table 17

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>Dependent Variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>Total Fat (gms)</td>
</tr>
<tr>
<td>Education</td>
<td>Percentage of Total Calories from Fat</td>
</tr>
<tr>
<td>Income</td>
<td>Saturated Fat (gms)</td>
</tr>
<tr>
<td>Significant Other</td>
<td>% of Calories from Saturated Fat</td>
</tr>
<tr>
<td>Household Number</td>
<td>Monounsaturated Fat (gms)</td>
</tr>
<tr>
<td>Employment</td>
<td>% of Calories from Monounsaturated Fat</td>
</tr>
<tr>
<td>Household Cook</td>
<td>Polyunsaturated Fat (gms)</td>
</tr>
<tr>
<td>Private Insurance</td>
<td>% of Calories from Polyunsaturated Fat</td>
</tr>
<tr>
<td>Length of Time in LA</td>
<td>Cholesterol (mg)</td>
</tr>
<tr>
<td>Family Hx of Heart Disease</td>
<td>Stage of Change Model Stage</td>
</tr>
<tr>
<td>Victim of Random Violence</td>
<td></td>
</tr>
<tr>
<td>Ethnocultural Association</td>
<td></td>
</tr>
</tbody>
</table>

Note. Ten stepwise regression analyses were completed, each with all independent variables and one of the dependent variables.
Table 18

Summary of Stepwise Regression Analysis Results for All Independent Variables with Stage of Change Model (SOCM1) Stage as the Dependent Variable (N = 100)

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>B</th>
<th>SE B</th>
<th>Beta</th>
<th>T</th>
<th>Sig T</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Step 1</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>-.0737</td>
<td>.0233</td>
<td>-.3039</td>
<td>-3.158</td>
<td>.0021**</td>
</tr>
<tr>
<td><strong>Step 2</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>-.0846</td>
<td>.0231</td>
<td>-.3487</td>
<td>-3.658</td>
<td>.0004**</td>
</tr>
<tr>
<td>Time in LA</td>
<td>.0271</td>
<td>.0107</td>
<td>.2420</td>
<td>2.539</td>
<td>.0127*</td>
</tr>
<tr>
<td><strong>Step 3</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>-.0859</td>
<td>.0227</td>
<td>-.3542</td>
<td>-3.790</td>
<td>.0003**</td>
</tr>
<tr>
<td>Time in LA</td>
<td>.0245</td>
<td>.0106</td>
<td>.2180</td>
<td>2.317</td>
<td>.0226*</td>
</tr>
<tr>
<td>Education</td>
<td>-.1244</td>
<td>.0560</td>
<td>-.2055</td>
<td>-2.220</td>
<td>.0288*</td>
</tr>
</tbody>
</table>

Note. $F (1, 98) = 9.97$, $p = .0021$, $R^2 = .0924$ for Step 1. $F (2, 97) = 8.49$, $p = .0004$, $R^2 = .1490$ for Step 2. $F (3, 96) = 7.53$, $p = .0001$, $R^2 = .1905$ for Step 3.

*The regression analysis model included the independent variables of age, education, income, significant other, household number, employment, household cook, private insurance, length of time in LA, family history of heart disease, victim of random violence, as well as ethnocultural association.

*p < .05. **p < .01.
Table 19

Average Age Related to Stage of Change Model (SOCM) Stage (N = 100)

<table>
<thead>
<tr>
<th>SOCM Stage</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>38.03</td>
<td>5.99</td>
</tr>
<tr>
<td>2</td>
<td>38.15</td>
<td>5.81</td>
</tr>
<tr>
<td>3</td>
<td>37.90</td>
<td>5.07</td>
</tr>
<tr>
<td>4</td>
<td>34.00</td>
<td>6.22</td>
</tr>
<tr>
<td>5</td>
<td>33.10</td>
<td>5.53</td>
</tr>
</tbody>
</table>
p = .4403. A one-way ANOVA revealed no significant difference in years of education related to SOCM Stage, F (4, 95) = 1.80, p = .1349.

Stepwise regression analyses examining the relationship between the independent variables, and the dependent variables of dietary fat consumption revealed a consistent significant relationship between ethnocultural association and dietary fat consumption for six of the nine dietary fat consumption variables (see Table 20). Percentage of calories from monounsaturated fat was found to be significantly related to age, F (1, 98) = 3.97, p = .0491, R² = .0389 (see Table 21). A stepwise regression analyses found cholesterol consumption to be significantly negatively related to employment, F (1, 98) = 4.46, p = .0373, R² = .0435, in Step 1. Both employment and age were significantly negatively related to cholesterol consumption, F (2, 97) = 4.3, p = .0161, R² = .0817, in Step 2 (see Table 22). Correlation coefficients calculated between AAEAS and dietary fat consumption variables are presented in Table 23.

Focus Groups

Two focus groups were held for the purpose of eliciting information that would be helpful with the development of an intervention targeting primary preventive dietary change. Each focus group lasted approximately 1\frac{1}{2} hours. The same schedule of topics was used to direct the discussion for both focus groups. Responses to the topics were recorded by handwritten notes. The focus group discussions are summarized in Tables 24 and 25.
Table 20

Summary of Stepwise Regression Analyses Results for the Independent Variable of African-American Ethnocultural Association with Dietary Fat Consumption Variables as the Dependent Variable (N = 100)

<table>
<thead>
<tr>
<th>Dependent Variables</th>
<th>B</th>
<th>SE B</th>
<th>Beta</th>
<th>T</th>
<th>Sig T</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Fat (gms)(^b)</td>
<td>3.114</td>
<td>.9210</td>
<td>.3232</td>
<td>3.381</td>
<td>.0010*</td>
</tr>
<tr>
<td>% Calories Total Fat(^c)</td>
<td>.6232</td>
<td>.1988</td>
<td>.3019</td>
<td>3.135</td>
<td>.0023*</td>
</tr>
<tr>
<td>Saturated Fat (gms)(^d)</td>
<td>1.1547</td>
<td>.3485</td>
<td>.3174</td>
<td>3.313</td>
<td>.0013*</td>
</tr>
<tr>
<td>% Calories Saturated Fat(^e)</td>
<td>.2761</td>
<td>.0756</td>
<td>.3462</td>
<td>3.653</td>
<td>.0004*</td>
</tr>
<tr>
<td>Monounsaturated Fat (gms)(^f)</td>
<td>1.0115</td>
<td>.3702</td>
<td>.2661</td>
<td>2.733</td>
<td>.0075*</td>
</tr>
<tr>
<td>Polyunsaturated Fat (gms)(^g)</td>
<td>.7298</td>
<td>.2072</td>
<td>.3352</td>
<td>3.522</td>
<td>.0007*</td>
</tr>
</tbody>
</table>

Note. The regression model with percent of calories from polyunsaturated fat as the dependent variable had no statistically significant F ratio. The regression model with percent of calories from monounsaturated fat as the dependent variable is presented in Table 21.

\(^a\) Each regression analysis model included the independent variables of age, education, income, significant other, household number, employment, household cook, private insurance, length of time in LA, family history of heart disease, victim of random violence, as well as ethnocultural association. \(^b\) F = 11.43, p = .0010, R\(^2\) = .1045. \(^c\) F = 9.83, p = .0023, R\(^2\) = .0911. \(^d\) F = 10.98, p = .0013, R\(^2\) = .1007. \(^e\) F = 13.34, p = .0004, R\(^2\) = .1198. \(^f\) F = 7.467, p = .0075, R\(^2\) = .0708. \(^g\) F = 12.41, p = .0007, R\(^2\) = .1124.

\(^*\) p < .01.
Table 21

**Summary of Stepwise Regression Analysis** Result for the Independent Variable of Age with Percentage of Calories from Monounsaturated Fat as the Dependent Variable (N = 100)

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>B</th>
<th>SE B</th>
<th>Beta</th>
<th>T</th>
<th>Sig T</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Calories from Monounsaturated Fat</td>
<td>-.1003</td>
<td>.0503</td>
<td>-.1973</td>
<td>-1.993</td>
<td>.0491*</td>
</tr>
</tbody>
</table>

*The regression analysis model included the independent variables of age, education, income, significant other, household number, employment, household cook, private insurance, length of time in LA, family history of heart disease, victim of random violence, as well as ethnocultural association.

*p* < .05.

Table 22

Summary of Stepwise Regression Analysis Results for All Independent Variables with Cholesterol Consumption (mg) as the Dependent Variable (N = 100)

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>B</th>
<th>SE B</th>
<th>Beta</th>
<th>T</th>
<th>Sig T</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Step 1</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Employment</td>
<td>-107.585</td>
<td>50.947</td>
<td>-.2086</td>
<td>-2.112</td>
<td>.0373*</td>
</tr>
<tr>
<td>Age</td>
<td>-5.136</td>
<td>2.558</td>
<td>-.1977</td>
<td>-2.007</td>
<td>.0475*</td>
</tr>
<tr>
<td>Employment</td>
<td>-123.383</td>
<td>50.791</td>
<td>-.2393</td>
<td>-2.429</td>
<td>.0170*</td>
</tr>
</tbody>
</table>

Note. F (1, 98) = 4.46, p = .0373, R² = .0435 for Step 1; F (2, 97) = 4.31, p = .0161, R² = .0817 for Step 2.

*The regression analysis model included the independent variables of age, education, income, significant other, household number, employment, household cook, private insurance, length of time in LA, family history of heart disease, victim of random violence, as well as ethnocultural association.

* p < .05.
Table 23

Summary of Correlation Coefficients Between African-American Ethnocultural Association and Dietary Fat Consumption Variables (N = 100)

<table>
<thead>
<tr>
<th>Dependent Variables</th>
<th>Pearson r</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Fat (gms)</td>
<td>.3232</td>
<td>.001*</td>
</tr>
<tr>
<td>Percentage of Total Calories from Fat</td>
<td>.3019</td>
<td>.002*</td>
</tr>
<tr>
<td>Saturated Fat (gms)</td>
<td>.3174</td>
<td>.001*</td>
</tr>
<tr>
<td>Percentage of Calories Saturated Fat</td>
<td>.3019</td>
<td>.002*</td>
</tr>
<tr>
<td>Monounsaturated Fat (gms)</td>
<td>.2661</td>
<td>.007*</td>
</tr>
<tr>
<td>Percentage of Calories Monounsaturated Fat</td>
<td>.1775</td>
<td>.077</td>
</tr>
<tr>
<td>Polyunsaturated Fat (gms)</td>
<td>.3352</td>
<td>.001*</td>
</tr>
<tr>
<td>Percentage of Calories Polyunsaturated Fat</td>
<td>.1873</td>
<td>.062</td>
</tr>
<tr>
<td>Cholesterol</td>
<td>.1736</td>
<td>.084</td>
</tr>
</tbody>
</table>

*p < .01.
<table>
<thead>
<tr>
<th>Topic</th>
<th>Summary of Discussion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Significance of Food for Health</td>
<td>Food is important for health; specific foods may be eaten during various illnesses; food is very important for celebration; celebrations must have a lot of food; socially unacceptable to not have a lot of food, especially meats; “I was trying to be healthier and had more fruits and vegetables at a party and my father embarrassed me by telling me I was being cheap;” traditional soul food is a must for holidays and celebrations; convenience and ease is important in selecting foods.</td>
</tr>
<tr>
<td>Prevention Beliefs</td>
<td>Belief that taking care of your self leads to better health; may be more of a belief than a behavior; attitude of “I'll do it tomorrow, no time to do it today;” change is hard.</td>
</tr>
<tr>
<td>Motivation to Change</td>
<td>Health education from doctors, media, workshops, church conferences; church is a good way to get information out; change sometimes occurs due to religious reasons such as Muslims do not eat pork.</td>
</tr>
<tr>
<td>Information Necessary for Change</td>
<td>Must be specific and practical; must include rationale; one-on-one individualized instruction is the best and considered the most respectful; “don't show me no video, talk to me;” need options for control; sometimes it’s good to isolate the wife from her husband; should start with the wife alone.</td>
</tr>
<tr>
<td>Nurses as Change Agents</td>
<td>Viewed as positive, empathetic, and practical; nurses know how to do it, how to make it happen; “down to earth” versus doctors.</td>
</tr>
<tr>
<td>Topic</td>
<td>Summary of Discussion</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Significance of Food for Health</td>
<td>Food is important for health; “eat everything on your plate, people in Africa are starving;” “you are what you eat;” food is a form of hospitality and celebration; there must be lots of food at celebrations, especially meats; soul food is a must for holidays and celebrations, but it takes time to cook; traditional foods have changed with time to be healthier; fast food is eaten for convenience; dietary interventions/changes are often too hard to make.</td>
</tr>
<tr>
<td>Prevention Beliefs</td>
<td>Belief that taking care of your self leads to better health, but this is a recent change in the community; younger people are more diet conscious; prevention knowledge emphasizes breast self exams, pap smears, cholesterol, exercising and “watching” food; stress is a big problem.</td>
</tr>
<tr>
<td>Motivation to Change</td>
<td>After “mom had a heart attack” or after a family member has an illness; after talking to a nutritionist at the hospital; high blood pressure is also a motivating factor; “do or die.”</td>
</tr>
<tr>
<td>Information Necessary for Change</td>
<td>How tos; specific instructions, reasons, verbal interactions, one-on-ones are the most helpful; books are not helpful; videos may be helpful; interactions with other African-Americans are best; not useful are scare tactics or telling only the most economical ways; want options; good to involve others in case something is missed.</td>
</tr>
<tr>
<td>Nurses as Change Agents</td>
<td>More personable than doctors; nurses are viewed as caring and knowledgeable.</td>
</tr>
</tbody>
</table>
CHAPTER 6
DISCUSSION

The overall aims of this study were to describe the average daily nutrient intake of mid-life African-American women focusing on dietary fat consumption, and then to examine the relationship of dietary fat consumption to sociodemographic variables and ethnocultural association. Information was also gathered from two focus groups for the purpose of future development and implementation of interventions for African-American women directed at primary preventive dietary change.

Diet

Average Daily Nutrient Intake

Many dietary problems were exposed in an analysis of the average daily nutrient intake of the subjects. Research has consistently revealed nutritional inadequacies in the American diet especially the diets of ethnic minority groups (Rogers, Simon, Zucker, Macessy, & Newman-Palmer, 1995). Over three-quarters of the subjects did not consume enough fiber (86%), calcium (76%), or zinc (77%). Fiber is important for the promotion of normal elimination and may lower plasma cholesterol levels, decreasing risk for cardiovascular disease, colon cancer, and diabetes (Dudek, 1993; Godner, Anderson, & DeYoung, 1996; Eschleman, 1996; National Research Council, 1989; Williams, 1994).
Inadequate fiber intake has been identified to be a consistent problem with African-Americans (Rogers, Simon, Zucker, Maccsey, & Newman-Palmer, 1995).

Calcium is important for bone and tooth strength, nerve conduction, muscle contraction, blood clotting, enzyme activation, vitamin B\textsubscript{12} absorption, and cellular membrane permeability (Dudek, 1993; Godner, Anderson, & DeYoung, 1996; Eschleman, 1996; National Research Council, 1989; Williams, 1994). Zinc is an important constituent of many enzyme systems including those which synthesize proteins, transport carbon dioxide and utilize vitamin A (Dudek, 1993; Godner, Anderson, & DeYoung, 1996; Eschleman, 1996; National Research Council, 1989; Williams, 1994). Zinc also may play an important role in maintaining cardiovascular health (Suciu, Chirulescu, Zeana & Pirvulescu, 1992; Walsh, Sanstead, Prasad, Newberne, & Fraker, 1994). Low zinc intakes have been associated with traditional African-Americans diets (Mares-Perlman, Subar, Block, Greger, & Luby, 1995).

Over half of the subjects did not eat enough vitamin B\textsubscript{6} (pyridoxine) (53%), magnesium (65%), iron (67%), and copper (70%). Vitamin B\textsubscript{6} is important for transamination reactions, in the metabolic transformation of amino acids such as the synthesis of heme, and in the metabolism of lipids and nucleic acids (Dudek, 1993; Godner, Anderson, & DeYoung, 1996; Eschleman, 1996; National Research Council, 1989; Williams, 1994). Vitamin B\textsubscript{6} along with folic acid, and
B₁₂, are important in the prevention of hyperhomocysteinemia, a major risk factor for vascular disease (Sinatra & DeMarco, 1995).

Magnesium is required for numerous biochemical and physiological processes including the regulation of nerve and muscle contractions, glycolysis, formation of cyclic AMP, energy dependent membrane transport and the transmission of the genetic code (Dudek, 1993; Godner, Anderson, & DeYoung, 1996; Eschleman, 1996; National Research Council, 1989; Williams, 1994). Magnesium intake on average has been found to be lower in African-Americans than in whites, with low dietary and serum magnesium levels related to the development of atherosclerosis, cardiovascular disease, hypertension, and diabetes (Ma, Folsom, Melnick, Eckfeldt, Sharrett, Nabulsi, Hutchinson, & Metcalf, 1995).

Iron is a constituent of hemoglobin, myoglobin and several enzymes in every cell which are important for energy production (Dudek, 1993; Godner, Anderson, & DeYoung, 1996; Eschleman, 1996; National Research Council, 1989; Williams, 1994). Copper is contained in a number of body proteins and enzymes with an essential function in the utilization of iron for hemoglobin formation (Dudek, 1993; Godner, Anderson, & DeYoung, 1996; Eschleman, 1996; National Research Council, 1989; Williams, 1994). Copper deficiencies can result in skeletal, nervous, integumentary and reproductive system problems, myocardial degeneration and decreased arterial elasticity (Dudek,
Only 53% of the subjects were consuming enough vitamin E. Vitamin E is an antioxidant. Although vitamin E deficiencies are rare, an adequate dietary intake of vitamin E is necessary to maintain the health of body tissues (Dudek, 1993; Godner, Anderson, & DeYoung, 1996; Eschleman, 1996; National Research Council, 1989; Williams, 1994), and may provide protective antioxidant effects important in the prevention of cardiovascular disease (Burton, 1994; Jha, Flather, Lonn, Farkouh, & Yusuf, 1995; Stampfer, Hennekens, Manson, Colditz, Rosner, & Willett, 1993; Sinatra & DeMarco, 1995; Stampfer & Rimm, 1995).

Diet rich in polyunsaturated fats are also high in vitamin E. Eighty-one percent (81%) of the subjects were consuming less than the recommended ten percent or more of their calories from polyunsaturated fats. This low consumption of polyunsaturated fats contributed to the low vitamin E intake. Consumption of a reduced saturated fat diet, with substitutions of oils rich in antioxidants, has been found to be beneficial in reducing myocardial necrosis and reperfusion injury after myocardial infarction (Singh, Niaz, Agarwal, Begom, & Rastogi, 1995).

Seventy-three percent (73%) of the subjects were consuming over the recommended dietary allowances of sodium. Sodium is the principle

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extracellular electrolyte and the primary regulator of extracellular fluid volume. Sodium is also important for serum osmolarity, acid-base balance, and the regulation of cellular membrane potentials (Dudek, 1993; Godner, Anderson, & DeYoung, 1996; Eschleman, 1996; National Research Council, 1989; Williams, 1994). An excessive intake of sodium can lead to an increase in extracellular volume which can result in edema and hypertension, especially in salt-sensitive individuals (Haddy & Pamanni, 1995; Parmer, Stone & Cervenka, 1994). A sensitivity to salt with a propensity to retain salt and develop salt-dependent hypertension has been suggested as the mechanism for hypertension in many African-Americans (Campese, 1994). Hypertension is prevalent in the African-American population and is considered a major risk factor for the development of cardiovascular disease (Daniels, Heiss, & David, 1988; Dischinger, Apostolides, & Entwisle, 1984; Gregory & Clark, 1992).

Dietary Fat Consumption

The mean percentage of calories from fat for the sample was 34.56%, with mean percentage of calories from saturated fat 10.98%, for monounsaturated fat 12.96%, and for polyunsaturated fat 7.95%. The current American diet has been estimated to contain on average approximately 37% of calories from fat (Connor, Gustafson, Sexton, Becker, Artaud-Wild, & Connor, 1992). The average percentage of calories from fat for Americans have been estimated to be as high as 45% (Williams, 1989). Posner, Cupples, Gagnon,
Wilson, Chetwynd, and Felix (1993) examined the diets of 3543 American men and women finding total fat intakes were 38%. When compared to the guidelines from Healthy People 2000 (USDHHS, 1990), only six to nine percent of the sample met total fat, nine to 14% met saturated fat, and fewer than three percent met fiber guidelines (Posner, Cupples, Gagnon, Wilson, Chetwynd, & Felix, 1993). Twenty to 50% consumed more than 300 mg of cholesterol a day (Posner, Cupples, Gagnon, Wilson, Chetwynd, & Felix, 1993). African-Americans have been estimated to consume 33-38% of their total calories as fat with 11-13% of calories from saturated fat (Block, Rosenberger & Patterson, 1988). The percent of calories from fat consumed by the subjects is consistent with what has been found in other American and African-American groups.

Although 65% of subjects reported that they were currently consistently avoiding high fat foods, 77% of subjects had diets which contained more than 30% of their calories from fat. Sixty-one percent consumed over ten percent of their calories from saturated fat, 85% consumed more than ten percent of their calories from monounsaturated fat, and 81% consumed less than ten percent of their calories as polyunsaturated fat. Thirty-seven percent consumed more than 300 mg of cholesterol a day, and if a more conservative estimate of maximum daily cholesterol consumption is used (200 mg), 58% consumed more than the conservative amount. African-Americans have been reported to consume on
average more cholesterol than the typical American diet (Block, Rosenberger, & Patterson, 1988).

These results support the need for dietary intervention with African-American women. The efficacy of the role of diet in prevention efforts of cardiovascular disease is strongly supported (Truswell, 1994). Substantial and sustained dietary fat reduction can be achieved at a low cost (Chlebowski, Blackburn, Buzzard, Rose, Martino, Khandekar, York, Jeffery, Elashoff & Wynder, 1993). Dietary intervention which follows the American Heart Association Step I diet limiting fat intake to 30% of total calories has been successful in reducing atherogenic serum lipid levels in women (Dallongeville, Leboeuf, Blais, Touchette, Gervais, & Davignon, 1994; Geil, Anderson, & Gustafson, 1995), and has demonstrated decreased size of coronary lesions and other clinical benefits (Amsterdam, Hyson, & Kappagoda, 1994). However, subjects following an AHA Step I diet have been found to be consuming inadequate quantities of zinc, calcium and vitamins A, D and E (Bae, Keenan, Fontaine, Wenz, Ripsin, & McCaffrey 1993).

Types of Foods Consumed

African-American diets have been described as high fat including high amounts of meat, particularly pork, organ meat, eggs, fried foods, and baked goods high in saturated fat and sodium (Kumanyika & Adams-Campbell, 1991; Magnus, 1991). An examination of the types of foods that provided most of the
fat for the subjects included fatty meats such as sausage, bacon, and ribs, fried foods, eggs, and fast food, particularly Chinese and Mexican takeout food. This is consistent with other surveys of African-American diets which have found fried foods, eggs, whole milk, cheese, beef and butter or margarine to be the primary foods contributing dietary fat consumption (Patterson, Harlan, Block, & Kahle, 1995; Shea, Melnik, Stein, Zansky, Maylahn & Basch, 1993). The subjects in this study did not consume a large amount of cheese, milk or other dairy products that are also high in fat. This may have been due to an intolerance for diary products although lactose intolerance was not assessed in the sample. Lactose maldigestion has been identified as a greater problem in African-Americans as compared to whites, with the prevalence significantly increasing with age (Rao, Bello, Warren, & Brown, 1994). The pattern and types of high fat foods consumed by the subjects is consistent with the types of foods reported in the literature in the typical African-American diet, specifically the traditional Southern rural farm pattern of diet (Jerome, 1980).

Traditional African-American diets have been described as hypertensinogenic and atherogenic (Pearson, Jenkins, & Thomas, 1991). Low fiber intakes, low consumption of vitamin E, high sodium intakes and the consumption of greater than 30% of calories from fat, greater than 10% from saturated fat, and less than 10% from polyunsaturated fat may translate into an increased dietary risk for cardiovascular disease and other dietary related...
pathophysiology for many of the subjects in this study. In Los Angeles county the death rate from cardiovascular disease for mid-life African-American women is three times the rate for white, or Hispanic women (LADHS, 1992). The death rates for cancer in Los Angeles county are also significantly higher in mid-life African-American women than to women from other ethnic groups (LADHS, 1992). The diets of African-Americans in Los Angeles county may play a significant role in the development of pathophysiology. Prevention of health problems related to high dietary fat intake for African-American women needs to focus on decreasing total fat and saturated fat consumption, an increasing polyunsaturated fat consumption (Edwards, 1995). Sodium intake should be decreased and fiber consumption increased (Edwards, 1995). Additional research must focus on dietary vitamin and mineral deficiencies and their association or role in the development of cardiovascular disease and cancer in African-Americans.

Reasons for Choosing Foods

The most frequent reasons given for choosing the types of foods eaten were health-related. Thirty -two (32) subjects listed health or nutrition related reasons for choosing the food they ate demonstrating an awareness of the health or nutrition related value of food. Americans in general have made the connection between food and health (Coating, Subar, Heimendinger, & Kahle, 1992). Subjects commented that they were trying to “lessen fat intake for better
health" and "stop eating fatty foods." One subject commented that she chose the food she chose "to maintain optimum health (and) weight, (and) to improve skin and hair..." This is consistent with other studies of African-American beliefs about food. African-Americans have been found to perceive a positive relationship between food and health (Flaskerud, 1993; Jerome, 1980).

Likes and preferences were the next most frequently mentioned category with 23 subjects including comments like, "I eat whatever I feel like eating for now. However, in the next few months I will diet (and) exercise," or "it's what I like and what my husband likes." Twenty subjects commented on taste as a reason for selecting foods, "I eat what I like as opposed to what's healthiest, unless it is coincidentally healthy and suits my taste."

Convenience was important for 17 subjects with comments such as, "convenience, because at times going to a diner or fast food restaurant saves me time and effort," and "because I don't cook very often I eat a lot of fast food." Twelve subjects mentioned weight loss as a reason for choosing foods, "I like to try to maintain a low fat diet in order to stay lean."

Eleven of the subjects were already concerned with medical problems related to food. "I try to avoid salt intake due to high blood pressure." "Basically I'm a junk food eater but I have decreased intake to a minimum" "(I) avoid fats." "I try very hard to maintain a moderate fat diet because my mother died of colon cancer," and "because of health reasons, I have high blood pressure."
Cultural food patterns, money and stress were also mentioned by a few subjects as reasons for choosing the foods they chose. Overall answers to this question demonstrated an awareness of the association between food and health, or food and disease for a majority of the subjects. Fat intake and fat related diseases were mentioned often, demonstrating knowledge of the effect of a specific nutrient, dietary fat, on the prevention or risk for health problems.

Protection Motivation Theory describes the "costs" of behavioral change as inconvenience, expense, unpleasantness, difficulty, complexity, side effects, disruption of daily life, and overcoming habit strength (Rogers, 1983). Barriers identified to the adoption of low fat diets have included taste, cost, convenience, lack of support and lack of knowledge (Lloyd, Paisley, & Mela, 1995). All of the hypothesized costs and barriers were clearly identified by the sample in answer to the question of why they choose the types of food they choose, emphasizing the difficulties in the avoidance of high fat foods.

Stage of Change Model

Utilization with African-American Subjects

The Stage of Change Model (SOCM) for dietary fat consumption predicts a difference in dietary fat consumption related to the Stages of Change, with dietary fat consumption decreasing with progression from Precontemplation to Maintenance (Rossi, Greene, Reed, Prochaska, Velicer & Rossi, 1993a). Rossi and colleagues (1993a) found a lower consumption of fat in Stages 1
(Maintenance) and 2 (Action), than in Stages 3 (Preparation), 4 (Contemplation) and 5 (Precontemplation). In one of two samples studied dietary fat consumption was lowest in the Action Stage. For subjects in this study no statistically significant difference was found between the Stages related to amounts of dietary fat consumed. The pattern of dietary fat consumption was consistent with the SOCM with persons in Stages 3, 4 and 5 consuming more total fat, saturated fat, monounsaturated fat, polyunsaturated and cholesterol than those in Stages 1 and 2.

The SOCM also predict a difference in the percentage of calories from fat consumed related to the Stages of Change, with percentage of calories from dietary fat consumption decreasing with progression from Precontemplation to Maintenance (Rossi, Greene, Reed, Prochaska, Velicer & Rossi, 1993a). No statistically significant difference was found between Stages related to percentage of total calories from fat, or for percentage of calories from saturated or monounsaturated fat. A significant difference was found for polyunsaturated fat between persons in Stages 5 and Stages 3 and 4, with those in Stage 5 consuming more polyunsaturated fat. This is consistent with the SOCM’s proposition that those in Stage 5 would consume the most fat. The pattern of the SOCM with respect to percentage of calories from fat is consistent with the findings of Rossi and colleagues (1993a). It is also consistent with what the model would predict, with those in Stages 3, 4 and 5 having a greater
percentage of their total calories and calories from saturated fat, monounsaturated fat than those in Stages 1 and 2. For polyunsaturated fat persons in Stage 3 consumed less of their calories from polyunsaturated fat than those in Stage 1. This difference may be more indicative of a greater amount of saturated fat consumed by persons in Stage 3, rather than a true decreased polyunsaturated fat consumption.

Of the 100 subjects who participated, 65% reported that they were already consistently avoiding high fat food with 52% reporting that this was a long term change, placing them in the Maintenance Stage (Stage 1) of the SOCM. Rossi and colleagues (1993a) also found the majority of subjects from two different samples self-reported to be in the Action or Maintenance Stages (see Table 26).

When actual average dietary fat consumption was examined, the subjects in Stages 1 and 2 did not consume less than 30% of their calories from fat. Only 13 of the 52 subjects who reported that they were in the Maintenance Stage (Stage 1) had diets with less than 30% of calories from fat. Of the 13 subjects in the Action Stage (Stage 2), only 3 had diets with less than 30% of calories from fat. A dietary fat consumption greater than 30% of calories places them at higher risk for heart disease and other pathophysiological problems related to excess fat consumption.
Table 26

Comparison of Percentage of Subjects per Stage of Change Model (SOCM)

<table>
<thead>
<tr>
<th>Stage</th>
<th>Percentage of Subjects per SOCM Stage</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Current Study (N = 100)</td>
</tr>
<tr>
<td>1 (Maintenance)</td>
<td>52</td>
</tr>
<tr>
<td>2 (Action)</td>
<td>13</td>
</tr>
<tr>
<td>3 (Preparation)</td>
<td>10</td>
</tr>
<tr>
<td>4 (Contemplation)</td>
<td>15</td>
</tr>
<tr>
<td>5 (Precontemplation)</td>
<td>10</td>
</tr>
</tbody>
</table>

The pattern of dietary fat consumption is consistent with what is predicted by the SOCM. However, the results raise questions about the validity of the SOCM, using the algorithm for "avoiding high fat food." This algorithm may not be able to accurately discriminate between high and low dietary fat consumption with respect to amount of fat consumed, percentage of calories from fat, and the recommendations of the American Heart Association (NHLBI, 1994) for a Step I diet. A larger sample may be needed to more accurately assess the validity of the SOCM in African-American women. The scale may be valid but not reliable. In self-reports subjects frequently underestimate their activities that are harmful (Sprafka, Norsted, Folsom, Burke, & Luepker, 1992).

The test-retest reliability of the SOCM was acceptable ($r = .5612, p = .002$). The initial test was a paper and pencil self-report while the retest was completed over the phone with the subject verbally responding to the SOCM question she had first answered with paper and pencil. The difference in the administration of the SOCM question may have decreased the overall test-retest reliability of the SOCM.

Pros and Cons of Decisional Balance Inventory

The Pros and Cons of Decisional Balance Inventory (PCDBI) has been used as a validity check of the SOCM (Rossi, Greene, Reed, Prochaska, Velicer & Rossi, 1993a; Rossi, Rossi, Prochaska & Velicer, 1993). Rossi and colleagues (1993a) found that in both of two samples, subjects in Stage 1 (Maintenance)
rated Cons higher than Pros. For Stage 2 (Action) in one sample subjects rated Cons higher than Pros, and in the other sample Pros and Cons were rated approximately the same. In this study no statistically significance difference was found between subject ratings of Pros and Cons for SOCM Stages 1 (Maintenance) and 2 (Action). There were virtually no numerical differences between subject ratings of Pros and Cons for these two Stages which is inconsistent with what would be expected. The similarity of subject rating of Pros and Cons for Stage 2 is consistent with the rating found in one of the samples of Rossi and colleagues (1993a) in their study. The expectation would be that subjects in Stages 1 and 2 would rate the Cons of a high fat diet higher than the Pros.

Rossi and colleagues (1993a) found for both of two samples subjects in Stages 4 (Contemplation) and 5 (Precontemplation) rated Pros higher than Cons. Subject ratings of Pros and Cons for Stage 3 (Preparation) were not reported (Rossi, Greene, Reed, Prochaska, Velicer & Rossi, 1993a). In this study subjects in Stages 3 (Preparation) and 4 (Contemplation) rated Cons higher than the Pros numerically. In Stage 5 (Precontemplation), the Pros were rated numerically much higher than the Cons. The rating of Cons higher than Pros in by persons in Stages 3 and 4 is consistent with the SOCM's theory of how change progresses. Before action is taken to implement that change, there must be a belief that the change is necessary and will be beneficial (Prochaska
& DiClemente, 1992). Rating Cons higher than Pros by persons in Stages 3 and 4 may be an illustration of the though process that precede and may initiate behavior change. In Stages 3, 4 and 5 the PCDBI is consistent in demonstrating a difference in Pros and Cons that would support the validity of the SOCM.

Sociodemographic Variables and Ethnocultural Association

Many sociodemographic variables have been identified in the literature as being related to health promotional behaviors such as a reduction in dietary fat consumption. Many of these variables have not been adequately studied in African-American samples. For this study the sociodemographic variables of age, marital status, how long subjects have lived in Los Angeles, health insurance status, occupation, income, education, number of household members, family history of cardiovascular disease, and recent experience of random violence were examined in relation to dietary fat consumption. Age, marital status, occupation, income, family history of illness and education have been reported to be directly related to health promotional behavior (Avis, McKinlay, & Smith, 1990; Cotugna, Subar, Heimendinger, & Kahle, 1992; Devine & Olson, 1992; Gottlieb & Green, 1987; Shimakawa, Sorlie, Carpenter, Dennis, Tell, Watson & Williams, 1994). Health insurance status, length of time in Los Angeles, number of family members and recent experience of violence have been identified as potential barriers to personal health promotional actions (Cummings, Becker, & Maile, 1980; Devine & Olson, 1992; Keller & Coe, 1991).
The results of this study did not support a relationship between dietary fat consumption and the variables of age, education, income, having a significant other, household number, employment, being the household cook, having private insurance, the length of time living in Los Angeles, a family history of heart disease, or being a victim of random violence. Age was found to be significantly related to Stage of Change with older subjects more likely to have made changes to avoid high fat foods. This is consistent with the literature which found healthy premenopausal women in their 40s successful in initiating positive lifestyle changes for the prevention of cardiovascular disease (Devine & Olson, 1992; Simkin-Silverman, Wing, Hansen, Klem, Pasagian-Macaulay, Meilahn & Kuller, 1995).

The African-American Ethnocultural Association Scale (AAEAS) score was the only variable that was found to be consistently related to dietary fat consumption. Subjects who scored higher in ethnocultural association consumed diets higher in fat.

The validity of the AAEAS as an index of culture was supported by the data. Culture may provide an obstacle to choosing healthy low fat foods (Brownell & Cohen, 1995). The identified relationship between the AAEAS and dietary fat consumption supports its validity as an measure of African-American culture. The AAEAS was designed with a internal self-report validity check between the number of "yes" answers and a self-reported rating of ethnocultural
association on a scale of zero to ten. The correlation between the number of
"yes" answers and the self-reported ethnocultural association rating
demonstrated an acceptable association ($r = .2846, p = .004$) further supporting
the validity of the AAEAS. Both the scale ($r = .7788, p < .000$) and the self-report
rating ($r = .7038, p < .000$) had good test-retest reliability correlations. The first
administration of the AAEAS was with a paper and pencil test while the retest
measure was completed as a verbal response to the questions of the scale over
the phone.

Traditional African-American diets have been described as unhealthy with
respect to the development of hypertension and cardiovascular disease due to
culturally influenced patterns of high levels of dietary fat consumption (Pearson,
Jenkins, & Thomas, 1991). Culture has been identified as a variable which is an
important mediator of change including change in dietary practices (Carter,
1995; Goldschmidt, 1971; Kumanyika & Adams-Campbell, 1991; Russell &
Jewell, 1992). Interventions must consider the cultural context of participants
and the importance of role of African-American culture in all health care
decisions including dietary decisions (Kumanyika, Morssink, & Agurs, 1992). A
valid measure of cultural association may thus serve as an important referent for
culturally appropriate care.
Focus Group Information

The purpose of the focus groups was to gather information for the development and implementation of interventions for African-American women directed at primary preventive dietary change. Both focus groups were talkative and all participants contributed to the discussions. The focus groups again emphasized and supported the importance of health to the African-American community, and the connection between food and health. “You are what you eat” came up in both groups. This connection between food and health was consistent with the responses to the question about reasons for choosing food from the first part of the study.

The focus groups also verbalized a willingness to change dietary practices when the necessity for change was made clear. This is also consistent with the ratings of the subjects in the first part of the study on the SOCM. Sixty-five percent of the subjects in the first part of the study rated themselves as already consistently avoiding high fat foods. Those subjects were not only willing to change their traditional dietary practices they were already attempting to do so.

Intervention Development

Both groups emphasized the need for specific information to overcome the obstacles and barriers to change. Both felt that individualized one-on-one interventions would be the most helpful to educate and teach new health
practices. Written information and/or booklets were not perceived as helpful with African-American groups. Nurses were viewed as empathetic and reliable providers of information. Nurses were seen as more caring and more accessible than physicians. Both groups felt that nurses could be effective change agents.

Cultural Ecology Theory proposes that the ideology of a culture is most resistant to change and changes the slowest (Goldschmidt, 1971). Food choices are influenced by both the ideology and social structures of a cultural group. For the women who participated in this study African-American cultural ideology about food was in the midst of change especially with the older mid-life women in the sample. The subjects in both parts of this study expressed the belief that healthy diets were important for health.

Limitations of the Study

Sample Adequacy

African-American women from throughout the greater Los Angeles area participated in the study. Attempts were made to include a diversity of women in the sample. Since convenience sampling was used and subjects self-selected to be included in the study, the sample is biased by including subjects who may have been more concerned about their health or more motivated to change their dietary behaviors to influence their health in the first place. Based on an evaluation of the demographic variables the subjects who participated in this study appear to be primarily middle class African-American women and thus may
not represent African-American women from other socioeconomic strata, even though working class and upper class women were also included in the sample.

The study was designed to collect accurate dietary data using portion size representations and a structured interview schedule for 24 hour dietary recalls. Twenty-four hour dietary recalls are considered an accurate and reliable technique to measure diet (Bingham & Nelson, 1991). Throughout data collection, subjects were encouraged to be as accurate as possible about reporting their dietary intakes. Due to the nature of the process of dietary recall and the extremely personal nature of food intake, it is possible that reports of dietary intake did not accurately portray actual dietary intake. It is most likely even with ongoing encouragement to be accurate in the reporting of food intake, subjects underestimated their consumption of foods not generally associated with a healthy diet. For example subjects may not have reported the consumption of a Snickers bar because candy consumption is generally considered not a healthy dietary choice. Errors that would have occurred with respect to the dietary analysis would thus underestimate dietary fat consumption.

On the other hand, dietary recalls were done randomly so that subjects were not aware of when they would be called and could not alter their dietary intakes on a specific day to include less fat. Three hundred (300) days of food intake were analyzed. The first dietary recall was done on food the subjects had
consumed the day before the interview before the subject knew she was going to be completing a dietary recall. The remaining two dietary recalls were completed by phone calls on random days. The phone calls may have allowed the subjects to feel more comfortable in reporting their intake accurately.

The SOCM and PCDBI had established validity before they were used in this study. The validity of both of these instruments was also supported by the data from the study. The AAEAS was developed to be used as a measure of culture for this study. Content and know group validity was assessed prior to its use. A built in validity assessment supported the validity of the AAEAS. Test-retest reliability for the SOCM and AAEAS was assessed and supported. The PCDBI demonstrated good internal consistency but not test-retest reliability. Because of the nature of the PCDBI subjects may have altered their responses with the second administration of the instrument based on what they perceived was a more appropriate response (hypothesis guessing) (Cook & Campbell, 1979). Hypothesis guessing would explain the poor test-retest reliability coefficient.

Advancement of Nursing Science

The major contribution of this study to nursing science is a better understanding of the diet of mid-life African American women, especially with respect to dietary fat consumption. Dietary information is important in providing a baseline for understanding the complex relationships between diet and health.
These results also can be used to better understand the dietary risk of mid-life African American women for a variety of dietary related problems including cardiovascular disease and cancer.

This study also examined the use of the Transtheoretical Stage of Change Model for Dietary Fat Consumption with African-American women. The results of this research support the use of the SOCM with African American women finding a consistent decrease in dietary fat with self-reports of avoiding high fat foods. The SOCM may provide a useful tool in the identification of mid-life African American women at dietary risk for cardiovascular disease and cancer, as an adjunct other assessment methods.

This study also supports the relationship between African-American ethnocultural association (culture) and dietary choices, especially dietary fat consumption. This study supports the need to consider cultural association in both dietary risk assessment and in the development of culturally competent and sensitive interventions to use with African American women. An assessment of a strong cultural association may also be predictive of higher fat diets and increased risk for cardiovascular disease and cancer. Screening for cultural association may thus provide clues for the practitioner about the possibility of increased dietary risk in some individuals.
Recommendations for Future Research

Future research into dietary risk and dietary primary prevention with African American women should focus on four general areas. The first area is the development of accurate tools to measure diet and the variables related to diet. Without accurate tools and the methodological approaches which promote accurate reporting of diet, all other efforts to quantify and study diet are futile. Future research should also focus on the identification of sociodemographic and cultural variables which are related to increased dietary risk for health problems. With the identification of these variables women who have one or more of these risks can be targeted for further assessment and intervention if necessary.

The process of dietary change for mid-life African-American women also needs further investigation. Primary preventive change must occur early and premenopausally in mid-life African-American women in order for the change process to occur and progress before age and menopause further increase the risk for health-related problems. The issues of change initiation and progression need to be further clarified.

If change is to be initiated and maintained then the most appropriate time or best window of opportunity for dietary intervention needs to be ascertained in order to promote change in the most effective and efficient manner. Future research should investigate motivation and barriers to change, as well as the best time to initiate change. The focus groups perceived nurses as informational
resources for health related counseling. Nurses interact on a continual basis with family members of patients hospitalized for cardiovascular disease and cancer. Nurses may thus be available and able to offer counseling to family members who are at increased risk genetically during a time in their life when no other member of the health care team has the same opportunity or skills for intervention. Nurses may be in a better position than physicians to teach health promotional activities to families and increase compliance not only with clients but with their families as well (Bednash, 1996; Romeo, 1995). Seeing a family member hospitalized for a major illness may provide the motivation necessary to initiate primary preventive change (Rogers, 1983).

Lastly research should focus on the development and testing of culturally competent and sensitive interventions for the initiation and promotion of primary preventive dietary change. This study found cultural association to be an important variable related to dietary fat consumption. An individual's culture creates a frame of reference for understanding or making sense of a situation, and for decision making (Goldschmidt, 1971). Interventions which are not framed within a cultural context may not be comfortable intellectually or emotionally and thus have less chance for success (Brown & Williams, 1994; Carter, 1995; Kumanyika, Morssink, & Agurs, 1992; Russell & Jewell, 1992). Interventions which respect and facilitate cultural beliefs and practices are more likely to be implemented (Brown & Williams, 1994; Carter, 1995; Kumanyika, Morssink, &
Agurs, 1992; Russell & Jewell, 1992). For example, the preparation of foods that are culturally associated with health promotion or disease treatment, with celebrations or ceremonies, can be altered by substituting lower fat ingredients or polyunsaturated fats thereby showing respect and giving credibility to cultural beliefs and practices.

Conclusion

Dietary fat intake was a concern for the majority of the subjects in this study. Ninety percent reported that they currently did or intended to avoid high fat foods in their diets. Furthermore 32% of the subjects cited health as one of the most important reasons for choosing the types of food they choose. This is consistent with African-American cultural beliefs that food has an important impact on health. Age was also shown to have a relationship to making a primary preventive change. The older mid-life women in this study avoided or intended to avoid high fat foods at a greater rate than did the younger women. This supports the observation that greater concern is placed on health as we age.

Although the women who participated in this study had intentions or reported that they were engaged in avoiding high fat foods, they still on average consumed more than the Step I (NHLBI, 1994) dietary fat primary preventive recommendations for all Americans. The knowledge and intentions of the subjects toward healthy diets were good. The subjects however, were not able to
translate their knowledge and intentions into more healthy dietary practices. This finding illustrates the need for intervention.

Combining the desire to reduce dietary fat intake with interventions that will structure and guide the change process necessary to decrease dietary fat consumption to the level of the Step I diet might have significant benefit in the primary prevention or risk reduction for the dietary influences on cardiovascular disease and cancer.
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African-American Women’s Dietary Health Promotion Project - Phase I
UCLA School of Nursing

Consent

I consent to participate in the African-American Women’s Dietary Health Promotion Project (Phase I) which is a research project designed to describe the dietary practices of 30 to 45 year old African-American women. My participation will include an initial session where I will complete some questionnaires and then be interviewed about my diet, and two follow-up phone calls within the first week after the initial session for two more dietary interviews. It has been explained to me that the reason I have been included in this study is because I am an African-American woman between the ages of 30 and 45 years. I understand that there are no risks to me if I participate in this study and that if I would like, I may receive a written nutritional summary of my diet, which may be a benefit to me to have. I also understand that my participation may benefit other African-American women.

I understand that all of my answers will be kept strictly confidential and will not be reported associated with my name or any information about me that could identify me. I understand that all of my answers are voluntary, that I do not have to answer any question if I do not want to, and that I may stop at any time. I also understand that I can withdraw from participation at any time and my answers will not be used.

I understand that Ellen Daroszewski who can be reached at [REDACTED] will answer any questions I may have at any time concerning my participation in this project. If the study design or the use of the information is to be changed, I will be so informed and my consent reobtained.

Participant: ___________________________ Date: __________________
Witness: ____________________________ Date: __________________

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African-American Women's Dietary Health Promotion Project

Directions: Read each item carefully and answer by writing in your response in the space provided or by making the appropriate choice from the answers offered. Do not leave any item blank. If you have questions about how to answer an item check with the research assistant who gave you these forms.

1. What is your current age in years?: ______________

2. How many years of school have you completed?: ______________
   (for example: graduation from high school is 12 years of education completed, for each year of college add 1 to 12)

3. Are you employed outside the home?: Yes: ________ No: ________
   If Yes: Full Time: ________
   Part Time: ________
   Occupation: ________________________________

4. If you are married are you currently living with your husband, or if you are not married are you currently living with a partner?:
   Yes: ________ No: ________

5. How many people currently live in your household (including children)?:
   ______________

6. Who does most of the cooking in your household?
   ________________________________

7. What is your approximate yearly household income in thousands of dollars?:
   $ ______________
8. How many years have you lived in the Los Angeles area?:

____________________

If you moved here from somewhere else where did you live before?

____________________

9. Are you currently covered for health care by private health insurance?:

(for example: Kaiser, Blue Cross Prudent Buyer, Sigma, Health Net, California Care, Maxicare, etc.)

Yes: ___ No: ___

10. Have you or has anyone in your family been a victim of random or criminal violence?

(for example: been beaten up, assaulted, shot, stabbed, or injured in some way by someone you don't know)

Yes: ___ No: ___

If Yes, You: ___ or Who: ____________________________

How long ago: _______________________________________

11. What are the most important reasons you eat the kinds of food you do? Please write in your answer in the space provided below.
Appendix C
African-American Women's
Dietary Health Promotion Project

Directions: Please select an answer (one) to the question below based on your current food choices.

Do you consistently avoid eating high fat foods?

_____ YES, it has been for more than 6 months.
_____ YES, it has been, but for less than 6 months.
_____ NO, but I intend to make it so in the next 30 days.
_____ NO, but I intend to make it so in the next 6 months.
_____ NO, but I do not intend to make it so in the next 6 months.
African-American Women's
Dietary Health Promotion Project

Directions: Please mark yes or no to the following 14 questions, and circle your response to the last question on this survey. If you do not know how to answer a question leave it blank.

yes __ no __ 1. At the present time are most of your friends African-American?

yes __ no __ 2. Are your neighbors mostly African-American?

yes __ no __ 3. Are the people at places where you go to have fun (parties, dances, picnics) mostly African-American?

yes __ no __ 4. Are most of the people at your church African-American?

yes __ no __ 5. Do you talk differently to persons of other races than you do to African-Americans?

yes __ no __ 6. Do you prefer soul food over other types of food?

yes __ no __ 7. Do you eat soul food on most holidays?

yes __ no __ 8. Is your favorite music by an African-American musician or band?

yes __ no __ 9. Do you listen to mostly African-American radio stations?

yes __ no __ 10. Would you prefer to go to or patronize businesses that are owned by African-Americans?

yes __ no __ 11. Do you prefer to watch movies or TV shows that have mostly African-American actors and actresses in them?

yes __ no __ 12. Would you prefer to see an African-American doctor or nurse when you are sick?

yes __ no __ 13. Would you prefer to go to a party where most of the people are African-American?

yes __ no __ 14. Would you prefer to have members of your family marry people who are African-American?

On the scale below from 1 to 10, with 1 being the least and 10 being the most, please circle the number which represents how you would rate your amount of everyday contact with African-American culture.

1 2 3 4 5 6 7 8 9 10

very little very much

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African-American Women's
Dietary Health Promotion Project

Directions: Read each statement carefully and circle the number which corresponds to how important the statement is to you.

1. Because I continue to eat foods high in fat, some people I know think I am neglecting my health.

   1  2  3  4  5  
   Not Important  Extremely Important

2. People close to me disapprove of my eating a diet which is too high in fat.

   1  2  3  4  5  
   Not Important  Extremely Important

3. Other people are bothered by my having a diet which includes a large amount of fat.

   1  2  3  4  5  
   Not Important  Extremely Important

4. People think I am foolish for ignoring the warnings about eating foods that are too high in fat.

   1  2  3  4  5  
   Not Important  Extremely Important

5. I am relaxed and therefore more pleasant to be with when free to eat foods high in fat.

   1  2  3  4  5  
   Not Important  Extremely Important

6. Consuming my favorite high fat foods is a quick way to satisfy my hunger.

   1  2  3  4  5  
   Not Important  Extremely Important

7. My family and friends like me better when I am happily eating foods high in fat which I enjoy than when I am miserably trying to give them up.

   1  2  3  4  5  
   Not Important  Extremely Important

8. I am more content with myself when I am eating the high fat foods I enjoy.

   1  2  3  4  5  
   Not Important  Extremely Important
African-American Women's
Dietary Health Promotion Project
Dietary Interview Guidelines

1. Start by preparing the subject for what she is about to do.

"The purpose of this interview is to recall everything that you ate or drank yesterday from the time you got up to the time you went to sleep."

"I will need to know what each food or drink was and how much of it you ate or drank."

2. Focus the subject on remembering the day. Remind them which day of the week it was (i.e.: Monday, Tuesday, etc.). If the day was too unusual, or too stressful, or they can remember what they ate tell them you will call them back in a few days on a "better" day for them.

"Was yesterday a special day for any reason (i.e.: a birthday, some other celebration, etc.)?"

"What time did you get up in the morning?"

"Was this your usual time to get up?"

3. Focus them next on the very first thing they ate or drank. Avoid using names of meals. Instead go from one food or drink to the next food or drink they consumed. Include water.

"What was the first thing you ate or drank after you got up in the morning?"

"After that what was the next thing you ate or drank?"

4. Record commercial or brand names for items (i.e.: Big Mac).

5. As subjects recall the food or drink, also have them recall the amount. If they do not know the amount use common size references (i.e.: 3 oz of meat = the size of a cigarette pack) or refer them to the figures they have for size, etc.
6. Food by food, ask if they put anything on or in the main item they ate or drank. List any condiments they used. Include ingredients that go into preparing food.

"Did you put anything in (on) that?"

"Did you put any sugar or milk in your coffee?"

"Did you use butter, margarine or jelly on your toast?"

"Did you use mayonnaise or mustard on that sandwich?"

"Were there potato chips on the top of the tuna casserole?"

"What kind of dressing did you put on your salad?"

7. Ask the type of food or additive.

"What type of milk (cheese, lunch meat, soda, etc.) was it?"

"Was that a diet or regular Coke/Pepsi/etc.?"

"What type of oil did you use to fry with?"

8. Ask about fat added or fat removed.

"Did you cook those peas (greens, carrots, etc.) with butter or margarine?"

"Was it light butter (margarine, mayonnaise, cream cheese, etc.)?"

"Was it a nonfat yogurt, mayonnaise, sour cream, etc.?"

9. Avoid suggesting what they should be eating.

10. Recap each episode of food consumption for the subjects after you finish recording it, asking them if there was anything else they ate or drank during that time.

11. Ask them if they took any vitamins, minerals or dietary supplements during the day.
12. During the evening food recall ask them what they ate or drank after their last meal of the day. Include alcoholic beverages (do not be judgmental about their alcohol consumption). Ask if they had snacks or extra desserts before bed.

13. Ask what time they went to bed/sleep. Ask if they got up during the night and had anything else to eat.

14. Recap the main food highlights (big events, major food activities) of entire day for the subjects. Ask if there is anything else. It is unusual to lack coffee/tea or soft drinks from daily food recall.

15. If a subject names a food or drink you haven't heard of have them describe it, or its components.

16. Thank them for their time and ask if they have any questions for you. If this is their first telephone interview tell them that you will be calling them back in a few days to interview them again. If this is their second interview tell them that their gift certificate will be mailed to them shortly.
Comments on Reasons for Choosing Foods

**Health/Nutrition (32)**

"They're healthy and good for you, some more than others." (4)
"lessen fat intake for better health..." (3)
"I need H2O to (increase) my fluid intake and to stop eating fatty foods." (19)
"I feel fantastic!" (14)
"I am vegetarian because it makes me feel better, it is less costly in lines last to feed me. It is less polluting to my body. I have been vegetarian 12 years." (36)
"I eat the kinds of foods such as chicken, fish, fresh vegetables, fruit, water, fresh juices & sometimes red meats; because I believe you are what you eat. The way you eat reflects how you feel, and how much energy you have to do things you want to do; as one becomes older. The way you eat can add years to your life & prevent unusual illnesses from occurring." (58)
"I try to eat healthy; vegetables, fruits, whole wheat breads, a little red meat. Only on Fridays do I eat fast foods or order out. I was employed with a steady income and medical benefits from 1987 until February of 1994. I am researching medical health insurance currently. I'm making an effort to eat healthy, therefore I won't be sick." (52)
"to maintain optimum health & weight, to improve skin and hair, and with social events" (48)
"maintain youthful appearance, healthy" (46)
"so that we may live a more healthy life, and live longer" (45)
"The past year I have tried to change my diet, in order to establish a more healthy way of eating. I have not eaten any kinds of meat for over one year and now trying to avoid fried foods and sweets (pastries, cakes, etc.)." (83)
"My father is a diabetic, so I have to be health conscious because those are the only foods my mom will fix for us to eat, plus I have grown to like many of them, and I am in the high risk group for diabetes due to me father is a diabetic." (82)

**Likes/Pleasure/Preferences (23)**

"I eat whatever I feel like eating for now. However, in the next few mos. I will diet & exercise." (74)
"There is no important reason I just eat them because I enjoy it." (93)
"It's what I like and my husband likes." (98)
"They are my favorite. Some are healthy. The diet changed since I moved to CA - I do not eat the proper required meals per day." (47)
"Because I like the food that I eat and I try to eat a balance meal." (57)
"the foods that I like to eat" (66)
Likes/Pleasure/Preferences (cont)

"because I enjoy them" (60)
"Because that's what I want to eat at the time." (12)
"Desire" (17)

Taste (20)

"I eat what I like as opposed to what's healthiest, unless it is coincidentally healthy and suits my taste." (33)
"I suppose I let my taste buds guide my decisions. I do try to eat at least one balanced meal a day. There are days when I eat two or more. Those once a month cravings women get attribute to my eating habits, but are not limited to any specific cultural menu." (21)
"taste, flavor, color" (92)

Convenience (17)

"I don't cook - so most of what I eat is take out or pre-packaged" (33)
"not enough time to prepare healthy meals. always busy" (10)
"easy access, not much time to prepare food daily" (9)
"convenience, because at times going to a diner or fast food restaurant saves me time and effort" (67)
"I do not know how to cook, out of convenience - fast food works for me" (38)
"I eat at my parents home almost everyday. The meals are prepared low sodium and the least amount of fat because my father has high blood pressure. I try to eat healthy at home but out during school hours I eat fast foods because I am rushed for time. If I have time I eat mostly healthy foods." (90)
"Because I don't cook very often I eat a lot of fast food." (88)

Weight/Weight Loss (12)

"My family and myself have decided to work on our weight since we have been some what over weight. My daughter continues to talk to us (mother and father) about our weight." (13)
"I am loosing weight. I plan to do it slowly and not eat diet foods other than soda & sugarfree gum. I feel so much better eating this way. It's cheaper and I don't think about food all day. I have three meals a day - nothing in between except diet soda & sugarfree gum. All my meals are weighed and measured. I am concerned about my health: Since I've been eating like this my overall health has improved." (59)
**Weight/Weight Loss (cont)**

"I like to try and maintain a low fat diet in order to stay lean."(91)
"I’m a compulsive overeater so I follow a special food plan which is low fat, low refined sugars and no refined grains. Each meal is weighed & measured and I only eat 3 meals a day."(81)

**Medical Problems (11)**

- elevated cholesterol(63)(20)
- hypertension on both mother and father’s side of the family"(20)
- "I try to avoid salt intake due to blood pressure. Basically I’m a junk food eater but I have decreased intake to a minimum. Avoid fats."(1)
- "Cholesterol free which is important to me. I have had lab results which indicate high levels of cholesterol."(26)
- "I do dietary counseling. I am aware of the risks involved when eating high fat foods. I also have a lactose intolerance so I try to avoid dairy products."(25)
- "I do not eat red meat as its digestion time is much longer than fish or poultry and I have a sluggish metabolism."(85)
- "Because of my family’s health problems I try to eat (decreased) fat foods, food that are not fried."(80)
- "I try very hard to maintain a moderate fat diet because my mother died of colon cancer."(77)
- "for health reasons. At my age it is very important to keep healthy. I am very health conscious & with a healthy condition it is scary."(76)
- "because of health reasons, I have high blood pressure"(75)
- "due to my father’s heart attack & death I try to watch my fat intake"(69)

**Habit/Lifestyle/Culture (9)**

- "My religious beliefs does not condone the eating of certain foods."(14)
- "I eat these foods because its in my culture, I've been raised on these foods."(96)
- "Because of eating habits and lifestyle originating in childhood."(72)

**Money (4)**

"The kinds of food I buy is dependent on what I can afford to buy. (around sales/coupons) Buy extra vitamins and minerals to supplement what my diet is providing."(11)
Stress (2)

"stress, boredom, worried"(65)

Miscellaneous (1)

"recommended"(43)