

THE EFFECT OF A HEALTH INFORMATION INTERVENTION
ON KNOWLEDGE AND HEALTH PRACTICES REGARDING
COLORECTAL CANCER IN AFRICAN AMERICANS

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DEDICATION

This Dissertation is dedicated

To My Mother

Effie Roberta Adams

(a constant source of inspiration and support)

&

To The Memory of My Father

Clarence Lewis Adams

(who in life and death serves as an inspiration for me
to do my best)

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ABSTRACT

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An experimental pretest-posttest control group design was used to investigate the effect of a health information intervention on knowledge and health practices regarding colorectal cancer in 97 African American adults. Four Baptist churches located in predominantly African American communities provided a convenience sample randomly assigned to one of two groups. Cox's (1982) Interaction Model of Client Health Behavior (IMCHB) formed the conceptual framework. Data were collected using the researcher-designed 44-item Colorectal Cancer Knowledge and Health Practices (CCKHP) instrument and the 18-item Denyes' (1990) Self-Care Practices Instrument (DSCPI-90) as pretest and the CCKHP instrument as posttest. The experimental group listened to a 20-minute health information program focused on the meaning of colorectal cancer, risk factors, signs and

symptoms, and screening and preventive health practices. Five brochures containing basic health information regarding cancer, information specific for females and males, and information regarding colorectal cancer were given to both groups. The control group received only the brochures; no information was discussed with them. Three stool collection kits for hemoccult testing and written and verbal instructions were given to all subjects interested in being screened. Both groups received the CCKHP posttest 2 weeks later.

The majority of subjects were female (66%), employed full time (48%) with family incomes between \$10,000 and \$30,000 (47%). The alpha coefficient was .05, power at .80, and .4 effect size. Chi square, Mann-Whitney U, and t test for independent samples were used to test the five hypotheses. No significant differences existed between groups in knowledge scores (H3), health practices (H1), utilization of health care services (H2), intent to adhere to recommended health practices (H4), and utilization of health services related to self-care practices (H5).

Positive correlations were found between knowledge of cancer and self-care practices, family income, and education level. The experimental group's hemoccult test return of

48% was higher than average return rates reported in the reviewed literature. Based on data analysis, the method of presenting health information had no significant bearing on subjects' knowledge attainment. Therefore, nurses' use of printed handouts regarding health information may be equally as effective as structured classes in increasing individuals' knowledge regarding colorectal cancer and self-care practices.

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CHAPTER 1

INTRODUCTION

Over the past decade much attention has been directed toward the incidence, survival, and mortality rates of cancer in the American population. Incidence rates quoted in this study address the number of newly diagnosed cases of cancer within a given year, survival rates refer to the number of individuals diagnosed with cancer and remaining under treatment or have been identified as cured, and mortality rates address the number of individuals who have died from cancer within a given year. In this chapter, a general overview of the magnitude of cancer in both the general population and in African American adults is presented. Comparisons of African American adults with Caucasians are made to demonstrate ethnic disparity. The rates and comparisons are used to report the global magnitude of cancer in general and colorectal cancer specifically.

Considering all ages combined, cancer is reported as the second leading cause of death in the United States adult population (Wingo, Tong, & Bolden, 1995). In the early 1980s, the National Cancer Institute (NCI) set as one of its

of its goals to decrease the 1980 mortality rate of cancer by one-half as the year 2000 arrived (DeVita, 1985). This national goal for cancer control was based on the assumptions that some cancers can be prevented and that the survival rate among cancer patients can be improved through individual and institutional changes (National Institutes of Health (NIH), 1986). The incidence, survival, and mortality rates of cancer may change significantly as individuals adopt favorable lifestyle alterations.

Although cancer does not discriminate on the basis of race, religion, ethnicity, or economic status, the odds of surviving cancer are not the same for all ethnic groups (NIH, 1986). Differences have been reported in incidence, survival, and mortality rates among ethnic groups. Six cancer sites--lung, prostate, breast, colon, pancreas, and ovary--were estimated to be the leading sites of cancers causing deaths among male and female African Americans and Caucasians in the United States (ACS, 1995). Using 1991 data to calculate rates, the American Cancer Society (ACS, 1995) reported an 8% difference in incidence rates between Caucasians and African Americans with actual rates being 439 per 100,000 for African Americans and 406 per 100,000 for Caucasians. The survival rate for all cancer sites combined between 1983 and 1990 was 56% in Caucasians but only 40% in

African Americans (ACS, 1995). The margin of disparity has widened by 3% from the 1989 reported 50% and 37% which was calculated from data collected between 1979 and 1984 (ACS, 1989). For the 25 primary cancer sites for which data were available, African Americans have lower survival rates for all but three relatively low-incidence cancers (brain tumors, multiple myeloma, and ovarian) (Price, Desmond, Wallace, Smith, & Stewart, 1988). The cancer mortality rate for Caucasians and African Americans was reported to be equal 30 years ago; however, since that time the mortality rate for Caucasians has increased 10%, while the rate for African Americans has increased nearly 50% (ACS, 1990). Jones and Newell (1989) reported a 20% higher mortality rate, reflecting a smaller disparity than the ACS (1990). These facts reveal a greater increase in the number of new cases, a shorter survival rate, and a higher mortality rate in most cancers in African Americans.

Gender differences in cancer incidence and mortality rates were reflected in the literature (Bal, 1992; Freeman, 1989). African American males were reported to have the highest overall mortality rate, followed by Caucasian males and African American females, with Caucasian females having the lowest cancer mortality (Freeman, 1989). Bal stated that over the past 3 decades, the age adjusted cancer

mortality rate for African American men increased from 21% to 66% above the rates for all races combined and the rate for African American females has gone from being marginally below to 10% above the all races category. Conclusively, African American males have the highest overall cancer mortality rate with African American women ranking somewhat lower.

Colorectal cancer in the African American population was the site specific cancer focus in this study. It has been reported as the cancer site having the second highest incidence and mortality rate that affects both sexes (Mirand & Knapp, 1991). Silverberg, Boring, and Squires (1990) reported that for the state of Texas, the colorectal area was the third most frequent site for new cancer in 1990 and the second most frequent site causing the greatest number of estimated cancer deaths for 1990. The Surveillance, Epidemiology, and End Results (SEER) program of the NCI reported that colon cancer increased in incidence from 1973 to 1985 by 9.6% with ethnic and gender differences (NCI, 1988). The incidence for colon cancer showed a sharp increase in African Americans of both sexes, and for rectal cancer there was stability in the incidence rate for all ethnic groups (NCI, 1988). More recent findings indicated that colorectal cancer has moved from second to lung cancer

in 1989 to third place in incidence and mortality rates in 1993 and 1994 (ACS, 1993a, 1994a). The ACS (1993a) has reported a decline in the mortality rate of colorectal cancer in African American females and an increase in African American males. Colorectal cancer remains a major health problem for African American males and females.

Lack of knowledge regarding risk factors, screening tests, and preventive health practices has been cited as a factor contributing to the increased morbidity and mortality rates of colorectal cancer as well as the disparity among ethnic groups (Coreil, 1984; Freeman, 1989). It has been documented in the literature that some risk factors for developing colorectal cancer can be altered during one's lifetime based on changes in one's lifestyle and consciously altering environmental factors (Kinsella, 1993). Recommendations for correcting the disparities among ethnic groups and for reducing the overall morbidity and mortality rates of colorectal cancer are to: (a) improve the cost-effectiveness of cancer screening; (b) provide adequate access to appropriate health agencies for individuals with signs and symptoms of cancer; and, (c) provide awareness seminars targeted to the disadvantaged and to ethnic groups with high morbidity and mortality rates (Coreil, 1984; Freeman, 1989). Developing methods and techniques for

improving African Americans' knowledge regarding risk factors, protective practices, and participating in early screening would assist the NCI in meeting its objective of reducing the incidence and mortality of colorectal cancer by the year 2000.

Dietary practices were cited in several studies as contributing factors in the development of colorectal cancer (Newell & Boutwell, 1981; U.S. Department of Health & Human Services (DHHS), 1991), with one of the most significant associations being the positive correlation between dietary intake of fat and colon cancer (Nigro & Bull, 1987). When taken in combination, some nutrients or food products were found to have an inhibitor effect on the development of colorectal cancer; some of those substances were phenols, selenium, calcium, vitamins A, C, and E, and the carotenoids (Nigro & Bull, 1987). African American adults are known to include foods in their diet which have more nitrate, animal foods, and not enough fiber in relation to protein, fat, and carbohydrates; additionally, they are found to include inadequate amounts of thiamine, riboflavin, vitamins A and C, and iron. Women are generally more obese and prepare foods using more fat (Hargreaves, Baquet, & Gamshadzahi, 1989). Inadequate health practices in the form of dietary practices were found to contribute to increased incidence

and mortality rates of colorectal cancer in African American adults.

Based on findings presented above, colorectal cancer is considered a major health problem and is represented disproportionately in African American adults. Programs designed for African Americans with the expected outcome of increasing their knowledge level regarding risk factors and preventive health practices have been recommended. The professional nurse has both the academic and clinical expertise to develop educational programs designed to increase the African American's awareness regarding colorectal cancer as well as the ability to develop strategies which will motivate them to engage in preventive and protective dietary practices.

Problem of Study

It was believed that a major contributing factor to the disparity in the colorectal mortality rates of Caucasians and African Americans was due to a lack of knowledge in African Americans regarding risk factors, signs and symptoms, and preventive health practices. Therefore, the purpose of this study was to investigate the effect of a health information intervention on knowledge and health practices regarding colorectal cancer in African Americans.

Rationale for Study

Several researchers who included African Americans as subjects cited findings to the effect that a majority of the subjects had limited knowledge of risk factors, warning signs, and screening tests for colorectal cancer (Dent & Goulton, 1982; Evaxx Inc., 1981; Price, Desmond, Wallace, Smith, & Stewart, 1980). A number of researchers have recommended that educational interventions be targeted toward lesser educated populations as well as ethnic groups with high morbidity and mortality rates (Freeman, 1989; Polednak, 1990). Several factors pointed to the need for studying the effect of health information interventions on knowledge as a possible determinant of a person's decision to engage in preventive health practices. One factor was related to the limited number of studies found in the literature investigating these variables as they relate to individual participation in screening for colorectal cancer. The disproportionate decline in the incidence and mortality rates of colorectal cancer in African Americans was a second factor that warranted studying African American adults' knowledge and health practices (ACS, 1994a). Some health professionals believe that an increase in knowledge and preventive health practices will facilitate a decrease in the incidence and mortality rates of colorectal cancer

(Weinrich, Weinrich, Boyd, Johnson, & Frank-Stromborg, 1992). There have been studies investigating knowledge, attitudes, and health practices of African Americans and Caucasian Americans in various parts of the United States and other countries (Evaxx Inc., 1981; Price et al., 1988); however, one study was identified that investigated the effect of a health information intervention on knowledge and practices regarding colorectal cancer in African Americans (Weinrich et al., 1992). The literature reflects a need for studying knowledge and health practices regarding colorectal cancer in African American adults due to the disparity in the incidence and mortality rates and the limited number of studies reported in the literature.

This research study was designed to test the effect of a health information intervention on knowledge and health practices regarding colorectal cancer in African Americans. It was anticipated that the results of this study can be used to provide direction for the development of nursing interventions that will facilitate improving the knowledge level of African Americans regarding risk factors, signs, and symptoms. An improved knowledge level may also increase this group's participation in early screening as well as preventive and protective health practices. If these goals

are realized, a reduction in incidence and mortality rates associated with colorectal cancer in African Americans may be realized in years to come.

Conceptual Framework

The conceptual framework used to guide the investigation of the effect of a health information intervention on knowledge and health practices regarding colorectal cancer in African Americans was Cox's (1982) Interaction Model of Client Health Behavior, abbreviated as IMCHB (see Figure 1). Each major constructs and their concepts are addressed, followed by an explanation of the model's application to this research. The IMCHB's constructs as related to the four nursing paradigms--person, nursing, environment, and health, are discussed briefly.

The IMCHB is based on three constructs--client singularity, client-professional interaction, and health outcome behavior (Cox, 1982). Client singularity is the major construct that represents person in the model. Concepts which make up this construct are background variables, intrinsic motivation, cognitive appraisal, and affective response. Background variables include the person's demographic characteristics, influences of the person's social groups, previous health care experiences, and environmental resources, such as individual financial

resources and availability of health care facilities. According to Cox, these variables have reciprocal actions with each other in successive and concurrent manners which result in specific health behaviors. Intrinsic motivation is represented as the client's need to be in control to make choices based on desire and competency level. This need is referred to in the model as self-determinism and provides causal factors impacting behavior (Cox, 1982, 1985). Cognitive appraisal is represented as the person's perception or interpretation of an existing health state and the choice of health practices that affect or influence the health state (Cox, 1982). Affective response is an expression of the person's emotions regarding the health state or an existing health problem (Cox, 1982). The four major concepts making up client singularity--background variables, intrinsic motivation, cognitive appraisal, and affective response--were developed by Cox (1982) to explain the variables which cause an individual to move toward health related behaviors.

Client-professional interaction is the second major construct of the IMCHB. This construct has four concepts which define the interaction process--health information, affective support, decisional control, and professional-technical competencies (Cox, 1982). Cox (1982) purported

that the degree of influence of each of the four concepts will vary according to the client's singularity and the specific health need. The four concepts are defined in the following ways. Health information is content that provides knowledge regarding the nature of the existing or potential health problem. In Cox's (1982) discussion of the IMCHB, she supported both health information and knowledge as necessary components to impact positive health behaviors. She further asserted that the composition of client singularity plus the relationship the client has with the health professional, and the amount of discerned personal control over the situation, will collectively influence the client's processing and utilization of the health information. Affective support is recognized as care provided by the professional in response to the client's emotional arousal regarding a health state. Decisional control involves the person's expectations of having the power to participate in making decisions that will lead to positive outcomes. Professional-technical competencies are the skills (of the professional) that will lead the client toward an improved health state or outcome. Cox (1982) viewed each of these four concepts as interdependent in the client-professional interaction, each contributing in varying degrees depending upon the client's make-up at the

time of assessment. The make-up and extent of interdependence of health information, affective support, decisional control, and the professional-technical competencies of the nurse will influence an individual's decisions toward health behaviors.

Health outcome is the third major construct in the IMCHB. It is the outcome measure of the client's health behavior. Five concepts are used to represent this construct--utilization of health care services, client health-status indicators, severity of health care problems, adherence to the recommended care regimen, and satisfaction with care (Cox, 1982). Cox has not provided definitions for these concepts; rather, she suggested that the variables are to be operationalized specific to the nature or objectives of the study (Cox, 1982). The fact that Cox has not given the variables specific defining characteristics allows more flexibility in the use of this construct. The concepts from this construct that are used in this research are defined in the section Definition of Terms.

Cox (1982) described the model as being "nonrecursive," meaning nonrepetitive, and having a multidirectional causal flow with feedback mechanisms that suggest the mutual influence of one set of constructs on another. However, the schematic diagram shown in Figure 1 does not support the

previous statement; rather it shows multidirectional flows among the concepts of client singularity and client professional interaction. There is evidence of multidirectional flow between intrinsic motivation, cognitive appraisal, affective response, and the concepts of client-professional interaction. Unidirectional flow is shown between background variables and other concepts of client singularity, between client singularity and health outcomes, and between client-professional interaction and health outcomes. The IMCHB supports the client's taking an active and informed role in personal health care decision making. An assumption upon which the IMCHB is based is that clients should be allowed optimal control within the limitations of environmental factors affecting their singularity in determining a personal health state and subscribing to practices which will improve that health state. Cox's (1982) suggestion that the model can be most useful when the client is in control limits the model's applicability to various health settings and client situations.

Cox (1982) stated that the model depicts a relationship between the client and the provider that involves a continuous reciprocal interaction between aspects of the client's singularity, the interaction process, and health

care outcomes. Further, the model ascribes to the professional nurse the capacity to be a potential influence on the client's decision to engage in or to improve preventive health practices (Cox, 1982).

The paradigm of person was represented by the construct client singularity. Nursing was represented by the construct of client-professional interaction. Environment was the factor which impacted client singularity to seek an interaction with a professional. Health was the state of client singularity and the outcome which resulted from the client-professional interaction (Cox, 1982).

The fact that the client was viewed as responsible and in control of personal health problems which may exist and health promotion efforts which may be practiced was an important consideration in the use of the IMCHB to guide this study. Subjects selected were responsible for, and in control of, their health promoting practices. The researcher interacted with the clients in an effort to influence their health outcome. This influence was depicted through utilization of health screening services (taking a hemoccult kit home and returning the used kit to the recommended laboratory for analysis) and expressed intent by subjects to adhere to recommended preventive health practices considered protective against colorectal cancer.

Although this research study was guided by all three constructs of the model (see Figure 2), it did not measure every concept that makes up the three constructs. Cox (1986) suggested that partial testing of the model, or selective application of the model, is both possible and acceptable. In this study, the element of client singularity consisted of three of the four background variables (demographic characteristics, previous health care experience, and environmental resources) and cognitive appraisal. The element of client-professional interaction was represented by the concept of health information. Adherence to the recommended care regimen and utilization of health care services were interpreted as the element of health outcome.

This research study tested the effect of a health information intervention on knowledge and health practices regarding colorectal cancer in African Americans. The Interaction Model of Client Health Behavior (Cox, 1982) was used to guide the research. The proposition tested was as follows: Given the background variables and cognitive appraisal of African Americans, a specific client-professional interaction of health information on colorectal cancer provided by a competent professional nurse increases

utilization of health care services and intent to adhere to the recommended care regimen. The client professional interaction was expected to alter the client's cognitive appraisal and thereby change the two health outcome measures of interest.

Assumptions

The following assumptions were based on Cox's (1982) model, the Interaction Model of Client Health Behavior:

1. Clients are in control of personal health problems which may exist and health promotion efforts which may be practiced.
2. Clients are capable of making informed independent, and competent choices about their health care behavior.
3. The interaction between the client and the professional will affect health outcomes of the client.
4. Knowledge (health information) is a necessary condition for effecting positive health behaviors.

Hypotheses

The effect of an educational intervention on knowledge and health practices of African Americans has not been adequately described in the literature. Therefore, this study was designed to test the following hypotheses:

- H1. There will be a difference between the experimental and control groups in terms of health practices after attending a health information intervention presented by a registered professional nurse.
- H2. The experimental group will utilize health care services more than the control group after attending a health information intervention presented by a registered professional nurse.
- H3. The experimental group will have a greater difference in pretest and posttest knowledge scores than the control group after attending a health information intervention presented by a registered professional nurse.
- H4. The experimental group will have more subjects than the control group committing to an intent to adhere to recommended health care regimen for prevention of colorectal cancer after attending a health information intervention presented by a registered professional nurse.
- H5. There will be a positive relationship between subjects' utilization of health services and their self-care practices.

Definition of Terms

For purposes of this study, the following terms were defined conceptually and operationally:

1. African American was defined conceptually as an individual of African descent who was born in the United States and who is of parents who were American born (American Heritage, 1993). African American was defined operationally as a subject's verbal or written acknowledgment of being "African American" (or other names which imply African American ethnicity such as black or Negro) when asked as well as circling African American on the demographic form.
2. Colorectal cancer was conceptually defined as a malignant neoplastic disease involving the large intestine and the rectum. The lesions are adenocarcinomas and arise from the large intestine and the rectum in the following fractional percentages: 1/2 arise in the rectum, 1/5 in the sigmoid colon, approximately 1/6 in the cecum and ascending colon, and the rest in other sites of the colon (Anderson, Anderson, & Glanze, 1994). Operationally, colorectal cancer was defined as a confirmed diagnosis by a physician made on the basis of a pathology report.

3. Health practices was defined in a similar manner as preventive health practices and involved intentional behaviors directed toward the removal or avoidance of encumbrances throughout the life cycle that may prevent the emergence of optimum health (Pender, 1987). Operationally, health practices was defined as the total score on the Denyes' (1990) Self-Care Practices Instrument (DSCPI-90) and results from the health practice subscale on the researcher-designed Colorectal Cancer Knowledge and Health Practices (CCKHP) instrument.
4. Health information was conceptually defined as the act of informing or being informed about factors which will aid in rendering an organism free from disease or abnormality (American Heritage, 1993). Operationally, it was defined as a 20-minute lecture which was presented to the subjects by a professional nurse who discussed: the meaning of colorectal cancer, risk factors, recommended preventive health practices, screening test recommended by the American Cancer Society for early detection, and recommendations for access to health care if symptoms were experienced. Health information was also defined as the printed

handouts which were given to subjects in both the control and the experimental groups.

5. Intent to adhere was conceptually defined as a verbal, written, or mental commitment to stick fast or faithful attachment to something (American Heritage, 1993). The phrase, intent to adhere, was operationally defined as checking "yes" to the question "Do you intend to change your eating habits to (further) reduce your risk for colorectal cancer?".
6. Knowledge (identified as cognitive appraisal in Cox's model) was conceptually defined as a person's perception or interpretation of an existing health state and the choice of health practices that affect or influence the health state (Cox, 1982). Operationally, knowledge was the subjects' total score on the Knowledge subscale of the CCKHP instrument.
7. Utilization of health services was conceptually defined as clients being allowed optimal control within the limitations of environmental factors affecting their singularity in determining a personal health state and subscribing to practices which will improve that health state (Cox, 1982). Operationally, this term was defined as subjects collecting stool specimens for occult screening and mailing the specimens to the

designated laboratory in the prestamped and preaddressed envelope provided by the researcher.

Limitations

The limitations of this study included the following:

1. Only selected components of the Interaction Model of Client Health Behavior were used in this study. Those components not used, intrinsic motivation, affective response, effective support, and decisional control, potentially could have affected the variables under study.
2. The sample was drawn from one ethnic group; therefore, the findings cannot be generalized to other ethnic groups.
3. Some intact groups were used with random assignment to experimental or control group; thus, generalization to the total population cannot be done.
4. Subjects were selected from only four areas in the city; therefore, the results can only be generalized to the target population in these geographic areas.

Summary

Cancer is the second leading cause of death in the American population. Colorectal cancer ranks third in incidence and mortality rates among the various types of

cancers; however, it is the second leading cancer that affects both men and women. Likewise, colorectal cancer is disproportionately represented in the African American community. Reasons for this disparity have been identified as: (a) lack of knowledge regarding risk factors, signs and symptoms and (b) failure to engage in protective health practices and early screening.

This research study was designed to investigate the effect of a health information intervention on knowledge and health practices regarding colorectal cancer in African Americans. The Interaction Model of Client Health Behavior (IMCHB) was the conceptual framework used to guide the research (Cox, 1982). Selected concepts of client singularity, client professional interaction, and health outcomes were used to determine the effect of health information regarding colorectal cancer on the cognitive appraisal, utilization of health care services, and intent to adhere to recommended health care practices in a sample of African American adults.

CHAPTER 2

A REVIEW OF THE LITERATURE

Colorectal cancer has been identified as a significant health problem affecting African Americans. A lack of knowledge regarding risk factors, signs and symptoms, and screening methods for early detection has been suggested as a contributing factor for the high incidence and mortality rates of colorectal cancer. Another area which has drawn attention regarding this health problem is the dietary practices of African Americans. The use of fats in large portions, especially when preparing foods, has been addressed as a practice which may contribute to the development of colorectal cancer. Thus, knowledge and health practices are considered two primary areas in which changes may positively affect the incidence and mortality rates of colorectal cancer in African Americans.

Cox's (1982) Interaction Model of Client Health Behavior (IMCHB) was used to guide this review of literature which has been divided into four major sections. The first section includes literature related to the scope of the problem of colorectal cancer in African American adults which reflects background variables from Cox's model.

Comparisons of African Americans with Caucasian Americans have been cited from some studies to demonstrate ethnic disparity. The second section covers a description of the first dependent variable, knowledge of cancer's risk factors and sign and symptoms and represents cognitive appraisal in the IMCHB. The third section depicts the second dependent variable, health practices, which is divided into two subsections: (a) adherence to recommended health practices and (b) utilization of health services, the first and fourth components of health outcome in the IMCHB. The fourth section reviews literature in the area of health information interventions by registered nurses, which is the independent variable in this study and represents client-professional interaction in the IMCHB. Studies are presented which depict the relevance of structured health teaching designed to affect the knowledge and health practices of clients in the community and those that present themselves to health care settings. Although several of the studies cited in this chapter did not involve African American subjects and were not related to providing cancer related information to subjects, they were included to show the significance of the variable being discussed. The objective of this review of the literature was to provide a basis for the significance

of this study and a background against which the results may be measured.

Scope of the Problem

The American Cancer Society (ACS) reported in 1989 that about 151,000 new cases of colorectal cancer developed each year and about 61,000 people died from the disease annually (ACS, 1990). Although the incidence rate of colorectal cancer had been relatively stable for four decades, in 1980 it was the most common type of cancer that affected both sexes (National Cancer Institute (NCI), 1988), and in 1994 colorectal cancer was reported to be the second most common cancer affecting both sexes (ACS, 1994a). Boring, Squires, and Heath (1992) reported that according to 1991 statistics colorectal cancer ranked fourth in new cancer cases diagnosed in African American adults. Colorectal cancer is the third leading cause of death in both sexes in the United States (ACS, 1994a). According to 1989 statistics, after age 40, the incidence of colorectal cancer tends to increase with more than 94% of all cases occurring after the age of 50 (ACS, 1990).

Ethnic differences cited by the ACS (1990) revealed that although there had been a consistent increase in the incidence of colorectal cancer in both Caucasians and African Americans, the increase was greater for African

Americans than Caucasians. Bal (1992) concurred with these findings. He stated that colon cancer incidence had increased 30% in African Americans since 1973 and was, at the time of his publication, higher than that of Caucasians.

In reporting trends in cancer survival by site and race, 1980-85 statistics revealed a 54% five-year survival rate for African Americans (ACS, 1990). The 1983-90 reported survival rate for African Americans was 49.5% which reflected a statistically significant ($p \leq .05$) difference in rates compared to 1974-76 (ACS, 1995).

According to Silverberg, Boring, and Squires (1990), the 1986 reported mortality rate in the United States for colon and rectal cancer for males adjusted for all ages was second to lung cancer. A total of 250,559 deaths were reported for all cancers; there were 85,057 reported deaths from lung cancer and 27,469 reported deaths from colon and rectum cancer. Silverberg et al. reported the following statistics for females during 1986: the number of females who died from all cancers was reported as 218,817; the number of deaths from breast cancer was the highest with 40,539 reported deaths, deaths from lung cancer were second in number with 40,465 reported, and deaths from colon and rectum cancer were in third place with 28,347 deaths (Silverberg et al., 1990).

Risk and Protective Factors

Several researchers have cited dietary practices as major environmental factors in the etiology of colon and rectal cancer (Berg, Howell, & Silverman, 1973; Hargreaves, Baquet, & Gamshadzahi, 1989; Levine, Tenner, & Fromn, 1992; Miller, Howe, Jain, Craib, & Harrison, 1983; Nigro & Bull, 1987). Miller et al. conducted a study of food items and food groups as risk factors in a case-controlled study of diet and colorectal cancer. They found that the variable which produced the greatest reduction in the relative risk estimates for saturated fat for male colon cases was butter, with the estimates for medium and high saturated fat intake 1.4 and 2.0 (p trend = .006) without butter and 1.4 and 1.7 (p trend = .03) when butter was included. For female colon cases the maximum reduction in relative risk for saturated fat was with miscellaneous milk products, when the estimates for saturated fat fell from 2.2 and 2.0 (p trend = .002) to 2.1 and 1.8 (p trend = .01). Thus, the data for colon cancer strongly suggested that saturated fat was the primary risk factor rather than any individual food item or food group (Miller et al., 1983).

Hargreaves et al. (1989), in their study of diet, nutritional status, and cancer risk in African Americans, reported that the dietary risk factors for colon cancer were

as follows: high-meat, high-fat, low-fiber intake. Foods and food substances were categorized as carcinogens or cocarcinogens and were identified as initiators (nitrosamines, pyrolysates, or alcohol), promoters (fat, fatty or fried meats, sweet desserts, coffee, cholesterol, and conditions such as obesity and being underweight), and protectors (fruits, vegetables, carotenoids, retinoids, vitamin C, and fiber). African American adults reported a higher intake of nitrate, meat, eggs, proportion of calories from fats, sweet foods, and refined cereals and a lower intake of fruits, vegetables, fiber, vitamin A and C, and iron than Caucasians. Levine et al. (1992) supported findings previously cited. They found that a diet high in fruits, vegetables, and whole grains with a reduction in fat would reduce the risk of colorectal cancer. Risk reduction may also be related to how much people actually engage in protective behaviors.

Knowledge

Knowledge, referred to as cognitive appraisal in Cox's (1982) IMCHB model, is defined as a person's perception or interpretation of an existing health state and the choice of health practices that affect or influence the health state. Lack of knowledge about the risk factors of cancer has been

cited as a contributing factor to the higher incidence and low survival rates in African Americans.

Researchers employed with the African-American-owned Evaxx Inc. (1981) research corporation conducted a study of black Americans' attitudes toward cancer and cancer tests. The researchers concluded that a difference in knowledge and attitude greatly contributed to differences in preventive health practices. Only 26% of the subjects interviewed (n = 750 African American adult males and females 18 years and older) admitted to having heard of proctoscopic examinations for colon and rectum cancer. These findings were consistent with those published in the NCI (1988) study of cancer of the colon and rectum. Another noteworthy finding of Evaxx Inc. was that only 30% of the lower income African Americans (<\$7,500/year) were knowledgeable about cancer and the seven warning signs, compared to 51% of those with higher income (>\$15,000/year). However, the practice of getting regular physical checkups was almost equal between the lower income blacks (42%) and the higher income blacks (47%). According to the researchers who conducted the Evaxx study, a greater number of African Americans (59%) than Caucasian Americans (36%) felt that "getting cancer is a death sentence for most people," and many blacks (33%) felt that "if I got cancer I'd rather not know about it"

(p. 7). Also noteworthy was the discovery that many African Americans (69%) thought they themselves were not likely to get cancer (Evaxx, 1981).

Michielutte and Diseker (1982) conducted a study of racial differences in knowledge of cancer in an effort to study the problem of growing racial differences in cancer mortality. The mean total knowledge score for Caucasians was 7.83 ($SD = 3.09$) compared to 5.83 ($SD = 3.18$) for African Americans. These differences were statistically significant ($F(1, 138) = 12.03, p \leq .001$). The investigators attributed the ethnic disparity in cancer incidence to environmental exposure accompanied by a persistent disadvantage with respect to survival once the disease is diagnosed. Environmental exposure was interpreted to mean smoking, diet, and alcohol consumption. When asked to rank the five leading causes of death in the United States, 44% of Caucasians ($n = 98$) answered correctly and 24% African Americans ($n = 42$) answered correctly. When asked to identify the warning signs of cancer, 14% African Americans compared to 25% Caucasians selected "changes in bowel or bladder habits" and 38% African Americans compared to 50% Caucasians selected "unusual bleeding or discharge." The mean number of warning signs correctly identified by African Americans was 1.64 compared to a mean score of 2.59

identified by Caucasians. Although the overall knowledge score revealed a low knowledge level in both groups, results were statistically significant ($r = 0.19$, $p \leq .05$) and the study hypothesis that African Americans would have a lower level of knowledge than Caucasians was accepted. Final analysis of the study revealed that education ($\beta = 0.448$), race ($\beta = 0.283$), and sex ($\beta = 0.247$) explained approximately 30% of the total variation in cancer knowledge. A conclusion of the study was that increased knowledge along with motivation to act on that knowledge could possibly contribute to slowing and eventually reducing the ethnic disparity.

Weinrich and Weinrich (1990) conducted a study of cancer knowledge among elderly individuals and assessed cancer knowledge using three different questionnaires: a myth scale, the ACS Warning Signs scale, and knowledge of symptoms scale. Subjects ($N = 198$) believed in the majority of cancer myths--being hit in the breast can cause a woman to get cancer, operating on a person can spread the cancer, the chances of getting cancer do not differ because of a person's age, and the treatment for cancer is worse than the cancer. The mean score on the ACS Warning Sign questionnaire was 1.9, which reflected that most subjects lacked knowledge regarding the seven warning signs. The

mean score on the knowledge of symptoms questionnaire was 4.3 which reflected a higher level of knowledge in this area. Findings revealed that race, education, and income influenced cancer knowledge; Caucasian subjects had more knowledge about cancer than African Americans; and subjects with increased educational levels had more knowledge regarding cancer than those with lower educational levels (Weinrich & Weinrich, 1990).

In their study of knowledge of colorectal cancer among older persons, Weinrich, Weinrich, Boyd, Johnson, and Frank-Stromborg (1992) found that 48% of their subjects ($n = 166$) had not heard anything about colorectal cancer during the year prior to the study. They found that Caucasians had more knowledge of colorectal cancer than African Americans ($F(1, 78) = 7.92, p \leq .01$) and persons with higher income had more knowledge than those with less income ($F(2, 76) = 3.01, p \leq .05$). Subjects showed significant increases in colorectal cancer knowledge 6 days after a colorectal cancer information session ($t(79) = 2.59, p = .01$) and the increase was a predictor of participation in free fecal occult blood screening ($X^2(1, n = 164) = 5.34, p = .02$).

Health Practices

Health practices are defined as intentional behaviors undertaken by the client to minimize the risk or protect the

client against colorectal cancer for the remainder of the life cycle. The Interactive Model of Client Health Behavior (IMCHB) has identified adherence to recommended health practices and utilization of health services as factors representing health outcomes. These two variables represent the two outcome variables which exemplify health practices in this study. In this section, studies identifying factors which affect adherence to recommended health practices and utilization of health services are presented. Studies related to compliance are interpreted to address adherence.

Adherence To Recommended Health Practices

Adherence to recommended health practices is the act of discovering that subjects stuck fast or faithfully to recommended health practices (American Heritage, 1993). Some studies have resulted in significant correlations between protective activities and health practices (Dickerson et al., 1986; Jacob, Penn, & Brown, 1981). Jacob et al., in a study using African American females ($N = 180$) as subjects and comparing performers with nonperformers of breast self-examination (BSE) found that when non-breast self-examination performers were asked why they did not perform the examination, 33% indicated not being able to remember to perform the examination and 22% indicated not trusting their ability to perform it. They found that

subjects ($n = 180$) who performed BSE tended to be older and have a higher yearly income. The BSE performers more often believed in the benefits of performing BSE ($X^2(1, n = 114) = 13.98, p \leq .01$) and perceived social approval for BSE practice ($X^2(1, n = 87) = 12.91, p \leq .01$), had more often been taught to perform the self-examination ($X^2(2, n = 127) = 19.52, p \leq .01$), and were more likely to have had a Pap Smear, a clinical breast exam ($X^2(1, n = 110) = 17.45, p \leq .001$), and a general physical examination ($X^2(1, n = 88) = 22.61, p \leq .001$) within 1 year. In terms of demographic factors, age and income were positively correlated with performers of BSE. An interpretation from these findings was that persons who had more personal interaction with a specific health care provider are the ones more carefully taught and encouraged to practice BSE. Further, health education was considered to be more effective if it was focused on benefits of BSE rather than susceptibility to breast cancer (Jacob et al., 1981). Having obtained the knowledge and skill (usually taught by a physician or nurse) necessary to perform the self-examination was significantly associated with BSE frequency (β for BSE frequency = 0.33, $R^2 = 0.1$; β for BSE competency = 0.30, $R^2 = 0.09$).

Fletcher, Morgan, O'Malley, Earp, and Degnan (1989) reported findings similar to those of Jacob et al. (1981) in

that frequency of performing BSE was related to knowing how to perform BSE ($r = .38$, $n = 100$) and intention to perform BSE ($r = .37$, $n = 100$). Gray (1990) also found a significant positive relationship between BSE knowledge and BSE practice ($r = .1216$, $p = .02$).

Millon-Underwood and Sanders (1990) directed a study of factors which contributed to health promotion behaviors among African-American men. Data analyses revealed that 78% ($n = 138$) of the subjects were unable to identify any of the seven warning signs of cancer. The most commonly identified symptom was a thickening or lump. Of the subjects, 55% ($n = 98$) felt that the health care system places too little emphasis on risk reduction and cancer prevention; 85% ($n = 150$) felt that routine screening procedures should be included as standard tests during physical examination; 69% ($n = 125$) expressed the attitude that the typical American diet, tobacco, and alcohol consumption should be considered major contributing factors in developing some cancers, and 90% ($n = 160$) expressed an attitude that it was health care providers' responsibility to inform patients about their individual risk of cancer. Further analysis showed 46% ($n = 81$) of subjects perceived cancer to be very serious; 37% ($n = 66$) perceived it as serious; and 6% ($n = 10$) responded not serious. When analyzing general health

practices, 56% ($n = 100$) of the subjects stated that they paid close attention to the physical changes occurring in their bodies and 42% ($n = 75$) indicated that they made conscious attempts to "nurture" themselves. Overall results of Millon-Underwood and Sanders' study revealed that attitudes related to the efficacy of screening was the variable most predictive of health promoting behaviors (34% of the variance of health promoting behaviors was explained by this component of attitude). The amount of risk perceived and the incentive to engage in protective health practices may also be related to how much one knows about the disease.

Box, Nichols, Hallemand, Pearson, and Vakil (1984) conducted a study to investigate compliance rates of hemocult testing and reasons for noncompliance. Patients from two general practice physicians were invited by a letter from the physician to use a hemocult test. Accompanying the letter in physician A's letter was a discussion of "bowel disease" and its increase. Physician B's letter talked of "bowel disease" and "especially cancer." Each physician sent second letters to noncompliers. If subjects had not returned the hemocult test after 4 weeks of reminders, they were considered noncompliers. Differences in compliance rates of the two

practices were not statistically significant. Compliance rates were 44% for Practice A ($n = 3,361$) and 37% for Practice B ($n = 1,000$). Twelve months after letters and hemoccult kits were sent to patients in Practice A, 64 noncompliers were interviewed. Reasons for noncompliance were embarrassment or revulsion at dealing with feces and excuses related to shortage of time.

Myers et al. (1990) studied 443 subjects to determine adherence to colorectal cancer screening. They reported that among 322 subjects with past fecal occult blood testing (FOBT), adherence to FOBT was positively associated with physician recommendation ($X^2(1, n = 322) = 19.0, p \leq .0001$), age ($X^2(1, n = 322) = 15.3, p \leq .0001$), belief in curability of colorectal cancer ($X^2(1, n = 322) = 7.2, p \leq .007$), perceived effectiveness of the test and intent to adhere to testing ($X^2(1, n = 322) = -7.4, p \leq .0001$).

Among 121 non-past FOBT testers, Myers et al. (1990) found that prospective adherence was associated with one or more risk factors for colorectal cancer ($X^2(n = 121) = 5.6, p \leq .018$), belief in the curability of colorectal cancer ($X^2(1, n = 121) = 4.3, p \leq .038$), and an expressed commitment to FOB testing ($X^2(1, n = 121) = 0, p \leq .001$). To increase screening participation for colorectal cancer, Myers et al. suggested that health professionals disseminate educational

information that increases awareness of risk factors for colorectal cancer along with curability of the disease and elicit from individuals interested in being screened a commitment to engage in recommended preventive behaviors.

Utilization of Health Services

Cox (1982) identified utilization of health services as a concept in her IMCHB model. She defined the phrase as the client having total control of determining personal health state and taking measures to improve the health state. In the study, this variable was operationally measured based on the number of subjects who sent in stool specimens for FOBT. Presented in this section is research that identifies factors affecting subjects' utilization of health services including the benefits and drawbacks of screening.

Robie (1989) indicated that a major purpose of cancer screening is to identify premalignant lesions or to identify malignant lesions in their earliest stages. The ACS (1994a) has recommended three tests--digital rectal examination (DRE), fecal occult blood testing (FOBT), and proctosigmoidoscopy--as appropriate examinations for prevention and early detection of colorectal cancer. The FOBT meets recommended criteria for a screening test--entirely safe, easy to use, high specificity, simplicity and economical (Diehl, 1981; St. John et al., 1993). The FOBT

was first used by Greegor (1967, 1971) who found that all patients with colorectal neoplasms had occult blood in one of three stools.

Hemoccult has remained the most popular of the various guaiac tests and was modified in 1977 to what is currently described as Hemoccult II slides developed by Smith-Kline Diagnostics of Sunnyvale, California (Simon, 1985). In spite of Hemoccult's popularity, controversy exists within the medical community regarding the true effectiveness of hemoccult testing (Chuong, 1983; Frank, 1985; Simon, 1985). A major advantage of FOBT is the propensity toward uncovering subclinical bowel cancer as well as the discovery of tumors at a relatively early and prognostically early stage (Simon, 1987). An opposing view is the concern that research studies have failed to show a difference in lead time bias and length bias in subjects who underwent screening and were diagnosed with colorectal cancer when compared to subjects who were not screened and later were diagnosed with colorectal cancer due to symptoms (Chuong, 1983).

Although screening tests have been available for a number of years, many individuals fail to use them. Schwoon and Hans-Joachim-Schmall (1979) identified fear of diagnosis, embarrassment, and lack of insight into the need

as some of the reasons given for subjects' failure to participate in screening programs. A finding in this study was that subjects were motivated to participate in screening based on a high subjective belief of developing cancer. Mitchell-Beren, Dobbs, Choi, and Waskerwitz (1989) reported 58% of their subjects ($n = 73$) indicated that dietary restrictions, difficulty of the test and time consuming were reasons for not returning the coloscreen III occult blood stool kit. Of the 17.5% ($n = 161$) who returned their stool samples for testing, compliance was explained based on the subject's perception of the disease, symptoms, and body sites. Major reasons for returning the kits were personal health concerns (52%), a feeling that the test was valuable and readily available (25%), and the influence of others, including the nurse, church, and family (23%).

Weinrich and Weinrich (1990) found gender, activities of daily living (ADL), and previous occult stool testing as predictors of FOB examination. Men were less likely to return samples than women, and subjects able to effectively carry out ADLs were more likely to utilize testing services than those unable to independently carry out ADL. Weinrich et al. (1992) found that FOB screening was comparatively lower in their sample (34%) compared to a 1982 national survey (44%) and that a subject's knowledge of colorectal

cancer was a predictor in subject participation in FOBT ($\chi^2(1, n = 164) = 5.34, p = .02$).

Mandel et al. (1993) conducted a study of reducing mortality from colorectal cancer by screening for fecal occult blood and found that annual fecal occult blood testing with rehydration of the samples decreased the 13-year cumulative mortality from colorectal cancer by 33%. A total of 46,551 subjects were randomly assigned (age range = 50 to 80 years) to screening for colorectal cancer once a year, every 2 years, or to a control group. The cumulative mortality rate from colorectal cancer per 1,000 was 5.88 in the annually screened group (95% confidence interval, 4.61 to 7.15), 8.33 in the biennially screened group (95% confidence interval, 6.82 to 9.84), and 8.83 in the control group (95% confidence interval, 7.26 to 10.40). These rates reflected no significant difference between the biennially screened group and the control group. However, the rate of the annually screened group was significantly lower than the biennially screened group and the control group. The finding was that annual fecal occult blood testing with rehydration of the samples decreased the mortality rate of colorectal cancer by 33% (Mandel et al., 1993).

Health Information Interventions

Health information is represented in the IMCHB as client-professional interaction and relates to assisting the client to move toward positive health behaviors (Cox, 1982). Providing the client with information regarding specific health problems and characteristics of high risk groups as well as promoting realistic perceptions regarding personal vulnerability is a major responsibility of the nurse (Pender, 1975). The term health information intervention was used in this study to reflect the methods identified to provide information to African American adults regarding the risk factors, signs and symptoms, and preventive/protective measures of colorectal cancer. Presented in this section is a review of the literature regarding the significance and outcomes of health information dissemination by the registered professional nurse. Health information dissemination is used interchangeably with health teaching.

According to Brody (1986), nurses can provide invaluable information to individuals regarding health protective behaviors, especially when the client has a family member or friend diagnosed with cancer. Frank-Stromborg (1986) stated that the nurse has a responsibility to increase through education programs the elderly's

African Americans. Further, they recommended that health information be in the areas of the seven warning signs of cancer and risk factors. Millon-Underwood and Sanders' (1990) conclusion was consistent with Weinrich and Weinrich in that deliberate efforts to address the health concerns and needs of the African American community should be initiated. Fraternal institutions, community groups, and churches were cited as possible sources to elicit participation (Millon-Underwood & Sanders, 1990).

Pugh (1992), in a review of the literature of program development for blue collar workers, found that individuals will consider changing health behaviors only if they can see the relevance to themselves and their families. Materials used in educational sessions should be varied in communication styles, should be at seventh grade reading level, and should be presented in manners where client relevance can be perceived (Pugh, 1992).

Summary

Colorectal cancer is associated with a high incidence and mortality rate in both sexes of African American adults. The literature has reflected the disparity in the rates of African Americans when compared to Caucasians. Knowledge and health practices regarding colorectal cancer have been researched as variables that may impact the incidence,

survival, and mortality rates of colorectal cancer. The literature has supported the development of health programs directed toward high-risk groups. Churches have been identified as a source for obtaining participants for health programs directed toward promoting knowledge regarding cancer's warning signs, risk factors, screening, and other preventive health practices.

CHAPTER 3

PROCEDURE FOR COLLECTION AND TREATMENT OF DATA

The purpose of this research was to investigate the effect of health information interventions on knowledge and health practices regarding colorectal cancer in African American adults. An experimental pretest-posttest control group design was the research approach used to test the research hypotheses. Although this design utilized a convenience sample, subjects were randomly assigned to one of two groups, a control group and an experimental group, which met the parameters for an experimental design because a treatment (nursing intervention) was applied to the experimental group (Campbell & Stanley, 1963; Polit & Hungler, 1991). The fact that subjects were randomly assigned to one of the two groups was assumed to be adequate to rule out bias and to provide the basis for causal inference that the treatment created, or did not create, significant differences between the two groups (LiBiondo-Wood & Haber, 1986).

Relevant extraneous variables pertinent to this research were subjects who were employed in a setting which provided exposure to information concerning colorectal

cancer and persons who had exposure to family, friends, and/or close associates who have had colorectal cancer. Information was collected on each of these variables on the Demographic Data Sheet and Medical Data Form, and this information is reported in chapter four of this study.

Setting

The setting for this research included four Baptist churches located in predominantly African American communities in a large metropolitan area. Churches were chosen as a setting for this research because of their long-standing position as the preserver and perpetuator of values and norms in African American communities (Levin, 1984). Levin (1984) stated that the church can be a significant site for housing health promotion and disease prevention programs.

Although membership of the four churches varied from 50 to 3,000 people, active members constituted lesser numbers. The smallest church, located in the northwest part of the city, had an active membership of 20 (40%), while the largest church of 3,000 people, located in the south part of the city, had an active membership of 1,000 (30%). Two churches similar in size with memberships of 300 and 400 respectively were located in the north section of the city and had active memberships of 40% and 50%. All of the

churches were at least 10 miles apart with the churches located in north and south areas 20 miles apart. The greatest distance between the churches was 27 miles. The ethnic composition contained at least 90% African Americans.

The specific location for the two sessions varied from use of the sanctuary after morning worship to classrooms and the church cafeteria. All areas used were adequate for comfortably seating approximately 20 to 25 individuals. A table and free-standing chairs were available when needed.

Population and Sample

The target population was African Americans 45 years and older from several accessible community churches. The African American ethnic group was selected for the study because of its high incidence and mortality rates for colorectal cancer (National Cancer Institute, NCI, 1988).

The criteria for subject participation in this research were as follows:

1. African Americans 45 years and older
2. English speaking
3. No current or previous diagnosis of colorectal cancer.
4. Able to attend sessions.

The age limitations were imposed based on the age-specific cancer incidence rates for African Americans with colon and rectal cancer. The incidence begins to rise at age 45 with

approximately 94% of all cases occurring past the age of 50 (Redfield & Reilly, 1991). The subjects needed to speak and understand English to understand and respond appropriately to the questionnaires and the presentation. Subjects had to be physically and mentally able to attend the sessions and be responsible on a routine basis for personal decision making regarding their health care practices. To avoid bias, subject selection was limited to those persons who had no previous history of colorectal cancer.

The proposed minimum size was 92 subjects for the total sample, as determined using a table from Cohen (1988). This sample size was selected based on the anticipated effect size, significance level, and desired power. The significance level was .05, and the power was set at .80. Based on the nature of the study and literary review, the researcher expected a medium effect of the independent variable on the dependent variables, therefore the effect size was set at .4 (Cohen, 1988). Subjects were randomly assigned to either the experimental or control group by having each subject draw a number from a box containing an equal number of 1s and 2s. Out of a total of 138 prospective subjects from the four churches who received data collection instruments, the final total sample size was 97, which met the proposed minimum size based on Cohen's

table. Of the 97 subjects, 50 were in the experimental group and 47 were in the control group.

Protection of Human Subjects

Permission from the Texas Woman's University (TWU) Human Subjects Review Committee was obtained (Appendix A). The purpose and method of the study was explained to the senior pastors at the four church sites after which each was asked to sign the agency permission form providing the researcher written permission to conduct the study in the respective facility (Appendix A). The TWU guidelines for the protection of human subjects were followed. All prospective subjects were approached by the researcher at each of the four churches and informed of the following:

1. The purpose of the study.
2. Participation is voluntary and they have the right to withdraw from the study at any time without intimidation or prejudice.
3. Participation includes completing four questionnaires dealing with personal data (i.e., age, income, educational status, etc.), medical data, knowledge regarding cancer, and health practices.
4. Participation offers the opportunity to participate in colorectal screening (fecal occult blood testing via

stool collection kits) by a credible laboratory at no cost to themselves.

5. Confidentiality will be protected at all times and no name identification will appear in the study. All questionnaires will be coded with the code numbers known only to the researcher who will keep them in a secure, locked place and destroy the list at the end of data collection. Data will be reported only in the aggregate. Although names are necessary on the mailed hemoccult laboratory form, only authorized laboratory personnel and the researcher will have access to this information.
6. A possible risk of participation might be some anxiety experienced in completing questionnaires and using educational materials or if screening results are positive for occult blood.
7. To alleviate possible anxiety, if screening results are positive, the researcher will telephone them, recommend they see a physician, and if requested, provide two or three physicians' names from which they can select one to consult. However, neither the researcher nor TWU will be financially responsible for costs of consulting the physician.

8. A possible benefit from participation will be receiving current information regarding cancer, risks, and preventive health practices and free screening test for colorectal cancer.
9. Signing the consent form indicates the desire to participate, and they will be given a copy to keep.
10. The consent form contains the researcher's name and daytime telephone number if there are any questions.

The researcher answered prospective subjects' questions, and those individuals who verbally acknowledged their desire to participate were randomly assigned to the experimental group or the control group.

Two different consent forms were used, one for the experimental group and one for the control group (Appendixes B & C). Although basically the same, the description of the intervention differed for the experimental group. Subjects randomly assigned to the experimental group were informed they would be asked to listen to a 20-minute health information program regarding risk factors, warning signs, screening, and preventive health practices as they relate to colorectal cancer. Subjects randomly assigned to the control group were informed they would be given five health information handouts about cancer, including prevention and detection strategies, the seven warning signs of cancer, and

epidemiology of five cancer sites with the highest incidence and mortality rates (Appendix D).

Instruments

Four instruments were used to collect data for the study: the Demographic Data Sheet, the Medical Data Form, the researcher-designed Colorectal Cancer Knowledge and Health Practice (CCKHP) instrument (Appendix E), and Denyes' (1990) Self-Care Practice Instrument (DSCPI-90). Permission to use the DSCPI-90 was obtained from Denyes (Appendix F).

Demographic data collected on the Demographic Data Sheet were used to elicit the following information: age, sex, employment status, occupation, yearly family income and number of persons supported on the stated income, education, and marital status. The Medical Data Form was used to collect data regarding the subject's previous health care experiences and environmental resources which included the subjects' financial resources and the accessibility of health care facilities. Information requested included questions regarding the subjects' recent need for health care, if they received the recommended care, reason(s) for not receiving care if that were the case, and insurance status.

The researcher-designed 44-item Colorectal Cancer Knowledge and Health Practices (CCKHP) instrument was a

revision of the earlier, researcher-designed Colorectal Cancer Knowledge and Dietary Practices tool used in a pilot study. The CCKHP was based on an outline of the domains of knowledge and health practices relevant to colorectal cancer. Cox's (1982) Interaction Model of Client Health Behavior and the literature on knowledge and health practices were used to guide the development of the instrument. The entire CCKHP instrument (I. Knowledge subscale and II. Health Practices subscale) was administered as a pretest (Appendix E) and the Knowledge scale (part I) was administered as a posttest (Appendix G).

The DSCPI-90 (Denyes, 1990) was administered to collect data regarding the subjects' self-care practices. Subjects gave self-responses by indicating the percentage of time they engage in self-care practices such as eating a balanced diet, achieving a balance between rest and activity, and keeping safe.

All of the instruments required the self-administered paper and pencil format. Collectively, completion of the instruments required an average of 20 minutes.

The instrument used in the pilot study was the Colorectal Cancer Knowledge and Dietary Practices form designed by the researcher. This 49-item summated rating scale contained closed-ended questions, with the subscales

of knowledge and dietary practices. Thirty-two items constituted the subscale of knowledge regarding cancer in general as well as specific knowledge regarding colorectal cancer. This part of the Colorectal Cancer Knowledge and Dietary Practices instrument contained questions regarding foods leading to good health, general knowledge of cancer, warning signs of cancer in general and colorectal cancer in particular, as well as screening and risk factors for colorectal cancer. The items measuring knowledge were categorical and required a "true," "false," or "don't know" response. Seventeen items made up the subscale of dietary practices. Fifteen of these items were in a Likert-type format and elicited information on foods included in the diet; two of the items generated information regarding the subjects' intent to adhere to recommended dietary practices. Responses from the Colorectal Cancer Knowledge and Dietary Practices instrument generated nominal and ordinal level data.

The Colorectal Cancer Knowledge and Dietary Practices instrument used in the pilot study was revised in an effort to increase the reliability coefficient. Revisions were also warranted based on difficulties expressed by subjects in responding to some of the items on the instrument. The revised version, the Colorectal Cancer Knowledge and Health

Practices (CCKHP) tool, is now a 44-item summated rating scale containing closed-ended questions, with knowledge and health practices as variables. Forty-one items constitute the variable of knowledge with the subscales of food which included parts of a healthy diet, general facts about diet, warning signs of cancer, screening, risk factors, warning signs of colorectal cancer, and treatment. The maximum score attainable on this variable is 123. The items measuring knowledge are categorical and require a "true," "false," or "don't know" response. Three items make up the subscale of health practices.

A panel of experts in the field of general nursing and oncology nursing, as well as graduate teaching faculty and doctoral students in nursing, determined that the items on the CCKHP instrument had content validity. A review of the literature revealed the use of similar statements in previous studies with acceptable validity and reliability scores (Evaxx Inc., 1981; Price, Desmond, Wallace, Smith, & Stewart, 1988).

Efforts to establish reliability of the Colorectal Cancer Knowledge and Health Practices (CCKHP) instrument during pretesting (pilot study) were made using internal consistency procedures. The instrument was administered to a sample of 14 subjects. Two weeks later the instrument was

again administered to the same sample with a drop-out rate of 50% ($n = 7$). The alpha coefficient for the Knowledge subscale was $\alpha = .7464$. A coefficient of $\geq .70$ for a new scale is considered evidence of internal consistency (Woods & Catanzaro, 1988). The preventive health practices subscale did not show evidence of internal consistency. Item-total correlations were used to determine the degree of interrelatedness of all items on the preventive health practice scale. No item, if eliminated, would raise the alpha to an acceptable level. Reasons for the low alpha may be related to poor wording of the items and the limited number of choices for the subjects to select. The revised instrument was piloted on 103 subjects obtained through a convenience sample at a major university in a large metropolitan area. An alpha coefficient of .75 was obtained.

The final version of the CCKHP questionnaire was used for the first time with this study. Cronbach's alpha was used to determine the reliability for the CCKHP in this study. Reliability for the CCKHP pretest was $\alpha = .89$, and for the posttest, the reliability was $\alpha = .80$.

The DSCPI-90 is an 18-item instrument with a 0%-100% response scale which requires subjects to write what percentage of the time they engage in various health care

activities (Denyes, 1990). Scoring was accomplished by summing the positive format items and subtracting the negative format items yielding a total score (Denyes, 1980). Data collected provides information regarding the subjects' past health care practices which is compared with their intent (or lack of intent) to adhere to recommended health care practices. Items include measured general self-care actions as well as specific actions such as eating a balanced diet and taking actions to keep safe (Denyes, 1988). The DSCPI-90 was reported to have construct validity and alpha coefficient ranges of $\alpha = .84$ to $\alpha = .92$ (Denyes, 1988).

Data Collection Procedure

The senior pastors at the selected churches were contacted to obtain copies of the church membership rosters and set up meeting dates. Only one pastor consented to provide the researcher with access to the membership roster. The remaining three pastors stated they supported the research, however, they wanted to notify the membership via church activities rather than having them called on a random basis. As a result, convenience samples were used for three of the four churches, however, those subjects who participated were randomly assigned to one of two groups.

The dates and times of the sessions were announced via church meetings, worship service, and church newsletters.

A nurse was identified either by the senior pastor or by knowledge of the researcher and was asked to assist with publicizing the times and dates of the sessions and encouraging participation in the study. Individuals selected as research assistants were registered nurses currently practicing, known to the membership, who agreed to assist the senior pastor in encouraging participation. These research assistants would be available to assist the researcher on the date the sessions were held.

Special 1-hour sessions were set up for the subjects in the experimental group, and 30-minute sessions were held for subjects in the control group. One session immediately followed the other. Two separate rooms were used, each having the same structural layout with desk and chairs arranged in the same manner. The subjects were assigned to one of the groups via random assignment when they showed up for the session. Each subject was asked to select a number from a hat and was then directed by the researcher or research assistant to the place where the appropriate group was meeting.

At two of the churches the sessions were held on Sunday afternoon immediately after worship service; 15 and 10

subjects were obtained respectively. Sessions for one church were held on a Tuesday evening 2 hours before mid-week Bible study; 35 subjects were obtained. Sessions for the fourth church were held on Sunday morning prior to 9:30 a.m. Sunday school; 37 subjects were obtained. These times were selected because church activities were either ending or about to begin and the pastors and nurse assistants felt that church members would be more favorable toward attendance if an activity of interest was to follow or was just ending.

Subjects assigned to the experimental group were asked to attend a 1-hour meeting with the researcher to sign their consent forms, complete the pretest research instruments, receive a 20-minute select health information program regarding colorectal cancer, and receive the ACS brochures and written health information handout addressing general information regarding cancer, risk factors, and signs and symptoms. The control group subjects were asked to meet with the researcher for 30 minutes to sign their consent forms, complete the pretest research instruments, and receive the ACS brochures and the written health information handout.

At the end of each meeting, subjects from both groups were offered stool collection kits for hemoccult testing.

Subjects were then given verbal and written instructions regarding dietary restrictions and stool collection technique. The subjects also were informed that they would be asked to complete a posttest in 2 weeks.

The sessions began at the designated time with a discussion of the purpose of the study by the researcher and a request for all subjects willing to participate to sign their consent form and then pass the signed form to the research assistants who were present. The informed consent form was read aloud to accommodate subjects who could not read. Subjects who refused to sign the consent form or chose not to participate were allowed to remain in the session.

Once written informed consent was obtained, subjects in the control group were asked to complete the four paper/pencil self-response research tools which consisted of the Demographic Data Sheet, the Medical Data Form, the CCKHP, and the DSCPI-90. Upon completion of these instruments, each subject was given five printed brochures--four of the brochures were developed for public information by the American Cancer Society (ACS, 1983, 1992, 1993b, 1994b) and a fifth research-developed handout related to cancer in general (Appendix D). The handouts addressed basic information regarding cancer, information specific for

females, information specific for males, and one handout which included information regarding colorectal cancer. No verbal information was given regarding colorectal cancer.

A stool collection kit, written instructions for stool collection (Appendix H), and a stamped addressed envelope were given to subjects who indicated interest in the hemoccult screening. Questions were answered regarding stool collection only. Subjects were asked to write their name and telephone numbers on the laboratory form prior to leaving this session. The subjects were then informed that in 2 weeks they would receive via mail a posttest in which they were to respond and return via the prestamped envelope mailed to them at the same time. All control group subjects were thanked individually for their participation in the study.

One research assistant and the researcher were available to assist the subjects who needed help. Efforts were made to complete the session within 30 minutes.

The researcher then moved to the experimental group session. The above procedural process was followed regarding informed consent and completion of the pretest instruments.

A change in the health information presentation was made for the experimental group. The printed handouts as

given to the control group also were passed out to the experimental group. The first 5 minutes consisted of a discussion of what colorectal cancer is, its incidence and mortality rate among African Americans. A 5-minute discussion of risk factors and recommended screening for early detection followed, and at this time the subjects were informed of the opportunity for them to be tested. Ten minutes were devoted to dietary practices which are considered protective against colorectal cancer. An opportunity for questions followed.

At the end of both sessions, subjects were informed of the purpose of the hemoccult test and that the kits were available to be taken for stool screening at no charge to the participants. The subjects were informed of the dietary restrictions and the technique for collecting the specimens at home. As with the control group, experimental group subjects were asked to write their name and telephone numbers on the laboratory form before leaving this session. Subjects in the experimental group were also informed that in 2 weeks they would receive via mail a posttest in which they were to respond and return via the prestamped envelope mailed to them at the same time. All experimental group subjects were thanked individually for their participation in the study.

Pilot Study

The pilot study was designed to determine the relationship between knowledge and dietary practices as they relate to colorectal cancer. The population studied was African Americans.

A quasi-experimental one-group pretest/posttest research design was used for the pilot study. A convenience sample of 14 subjects between the ages of 35 to 66 completed the first version of the Colorectal Cancer Knowledge and Dietary Practice pretest instrument and remained for a 20-minute health intervention presentation on the risk factors, signs and symptoms, screening, and preventive health practices as they relate to colorectal cancer. At the completion of the session, subjects were given stool collection kits for hemoccult testing, and they were asked to send in a stool sample for analysis. Seven of the 14 subjects completed the Colorectal Cancer Knowledge and Dietary Practices posttest one week later. Eight subjects sent in stool samples for analysis; 5 (2 males and 3 females) of the 7 subjects completing the posttest submitted a stool specimen and 3 specimens were submitted by subjects who did not complete the posttest.

Pearson product-moment coefficient correlations were used to examine the association of the variables and to test

the null hypothesis that there is no linear relationship between the knowledge and dietary practice variables regarding colorectal cancer. Pretest and posttest scores were correlated with the subscale scores. Total health practice was significantly correlated with total dietary practices ($r = .94$, $p = .00$, $n = 7$) and with total health practice knowledge ($r = .58$, $p = .03$, $n = 7$). The pretest knowledge score was significantly correlated with total pretest score ($r = .93$, $p = .00$). The pretest health habit score was not significantly correlated with the total pretest score ($r = .52$, $p = .06$).

Coefficients for the total posttest scores were likewise compared with the subscales for both variables. No significant correlations were found between total scores of health practice knowledge and total score ($r = .59$, $p = .16$); health habits scores and health practice general knowledge posttest scores ($r = .50$, $p = .3$); nor posttest health habits and knowledge ($r = .50$, $p = .26$). Significant correlations were found between total scores and three subscales--health habits ($r = .89$, $p = .01$), warning signs ($r = .80$, $p = .03$), and screening and risk factors ($r = .86$, $p = .01$). Health habits scores were significantly correlated with warning signs ($r = .92$, $p = .00$) and screening and risk factors ($r = .89$, $p = .01$). Warning

signs and screening and risk factors were also correlated ($r = .75$, $p = .05$).

The t test for paired samples was used to compare the pretest and posttest scores. The calculated t of 1.07 with $df = 6$ was not significant at the .05 level, and the null hypothesis of no significant difference between the pretest and posttest scores was retained.

The ANOVA was used to determine if there was a significant difference in the mean scores between men and women in the sample (6 males and 8 females). The null hypothesis was that the group means were equal. The calculated F did not fall within the rejection regions, therefore the null hypothesis was accepted and it was concluded that there was no difference in the scores after the treatment at the .05 level of significance.

Because of the low coefficients, the study has undergone some major revisions. The methodology has been changed to that of a pretest-posttest control group design with random selection as the sampling technique. The research questions have been changed to hypotheses to better reflect the intent of the study to identify the effect of a health information intervention on knowledge and preventive health practices in the African American population as they relate to colorectal cancer. The Colorectal Cancer

Knowledge and Dietary Practices instrument was revised into the Colorectal Cancer Knowledge and Health Practices (CCKHP) instrument. The CCKHP was pilot tested on 103 subjects using a convenience sample of adults enrolled in a baccalaureate nursing program at a major university in a large metropolitan area. The DSCPI-90 instrument was added to collect data regarding subjects' self-care practices and was correlated with the subjects' commitment to adhere to recommended health practices.

Treatment of Data

Descriptive statistics were used to analyze the demographic and medical data. Frequencies and percentages were used to describe the gender, employment status, yearly family income, education, and marital status of the subjects. Measures of central tendency were used to analyze age and number of family dependents the income supports. Frequencies and percentages described the subjects' responses to questions regarding previous health care experiences.

Testing of the research hypotheses was done by using parametric and nonparametric statistical procedures to analyze data. Hypothesis 1 was analyzed using chi square to determine differences in health practices of the subjects in the experimental group after the health information. Chi

square was also used to analyze H2 to identify differences between the two groups' utilization of health care services and their intent to adhere to recommended health practices. A t test for independent samples was used to analyze H3 to determine if a greater difference occurred in pretest and posttest knowledge scores of the experimental group after attending a health intervention program than occurred in pretest and posttest knowledge scores of the control group. The Mann-Whitney U test was used to analyze H4 to determine the difference between the subjects' utilization of health care services and their self-care practices. A t test for independent samples was used to analyze H5 to determine if there was a significant difference between the two groups in self-care practices and utilization of health services.

Summary

A pretest-posttest control group design was used to test the five hypotheses of this study. The study population was African Americans 45 years and older. Members of four churches located in predominantly African American communities in a large metropolitan area were the target population. The 97 subjects were randomly assigned to either an experimental group (n = 50) or a control group (n = 47). Each subject was asked to sign a written consent form prior to participation. The intervention for the

experimental group was a 20-minute discussion-type presentation. The control group received five preprinted handouts which included a general overview of cancer with risk factors, the seven warning signs, general recommendations for preventive health practices, specific information regarding colorectal cancer, as well as one brochure addressing malignancies specific for women and one brochure addressing malignancies specific for men. Subjects in each group were offered stool collection kits for hemoccult testing.

A Demographic Data Sheet, the Medical Data Form, the CCKHP, and the DSCPI-90 were used to collect data. These instruments were administered to both groups immediately after collection of the signed consent forms. The Knowledge subscale of the CCKHP instrument was readministered to both groups as a posttest 2 weeks after the health information intervention.

Data were analyzed using descriptive, parametric, and nonparametric statistics. The chi square, t test for independent samples, and Mann-Whitney U test were used in testing the five hypotheses to determine mean differences and relationships between the two groups.

CHAPTER 4

ANALYSIS OF DATA

An experimental pretest-posttest control group design was used to examine the effect of a health information intervention program on knowledge and health practices regarding colorectal cancer in African American adults. Subjects in the experimental group were given a 20-minute health information program which was focused on the meaning of colorectal cancer, risk factors, signs and symptoms, and screening as preventive health practices in addition to receiving five printed brochures. The control group received only the five brochures. Two of the brochures were colorful and culturally sensitive. The handouts addressed basic information regarding cancer, information specific for females, information specific for males, and two handouts included information regarding colorectal cancer. Stool kits were available for subjects in both groups for hemoccult testing.

Descriptive statistics were used to describe the sample for this study. Inferential statistics were used to determine variances between groups. The five hypotheses of this study are discussed with findings. Ancillary findings

are presented to further clarify the major variables. The Statistical Package for Social Sciences (SPSS-X) was used for computer analysis of data (Norusis, 1988).

Description of the Sample

A total of 138 data collection instruments were distributed to African American men and women at four churches located in predominantly African American neighborhoods. Subjects were randomly assigned to either an experimental group or a control group with 69 subjects in each group. Forty-one of the 138 subjects were eliminated: 4 were under the 45 years age limit, 7 reported a previous diagnosis of colorectal cancer, and 30 subjects refused to complete either the pretest or posttest. The elimination of these subjects resulted in uneven groups of 50 subjects in the experimental group and 47 subjects in the control group. The final total sample size of 97 subjects reflected a questionnaire return rate of 70%.

All subjects were African American and all except one were citizens of the United States. There were 18 (36%) males and 32 (64%) females in the experimental group and 15 (32%) males and 32 (68%) females in the control group. Ages of experimental group subjects varied from 45 to 94 years ($M = 63$ years, $SD = 11.16$ years). The ages of the control group varied from 45 to 87 years, with a lower mean age

(57.74 years, $SD = 9.34$) than the experimental group. Most subjects in the experimental group were retired (21, 44.7%), while the majority of the subjects in the control group were employed full time (30, 63.8%).

Data collected on family income revealed that the experimental group had almost equal numbers of subjects reporting yearly incomes between the ranges of less than \$10,000 ($n = 12$, 27.2%) to \$20,001-\$30,000 ($n = 11$, 25%). The control group had the largest number of subjects reporting yearly incomes of \$20,001-\$30,000 ($n = 12$, 28.6%) and the next largest number at less than \$10,000 ($n = 10$, 23.8%). The number of family dependents the income supported varied from 1 to 6, while for the control group, it varied from 1 to 4. A mean of 2 dependents was consistent for both the experimental and control groups.

The experimental group had the largest number of subjects reporting less than high school education ($n = 14$, 28.6%) when compared to the subjects in the control group ($n = 7$ (15.2%). Both groups had almost equal numbers of subjects reporting some college education. Twenty-two (44.8%) subjects in the experimental group reported from one year of college to holding a master's degree, while 21 (45.6%) subjects in the control group reported from one year of college to holding a doctoral degree.

Twenty-one (43.8%) subjects in the experimental group reported being married, and 27 (56.2%) reported being single due to divorce, separation, or death of a spouse. Subjects in the control group were largely married (\underline{n} = 26, 55.3%), while the remaining were single (\underline{n} = 21, 42.7%) because of never having been married or they were divorced, separated, or had death of a spouse. Demographic data for each group are summarized in Table 1.

Data collected on the Medical Data Form revealed information regarding the subjects' medical practices. When asked if they received medical care within the past year, 44 (88%) subjects in the experimental group reported yes, while 34 (72.3%) subjects in the control group reported yes.

The majority of the subjects in both groups reported having insurance. Most subjects in both groups reported the physician's office as the place most often visited to obtain medical care. See Table 2 for a summary of data from the Medical Record Form.

Nine (18.4%) subjects in the experimental group reported having known someone with colorectal cancer, and 11 (23.4%) subjects in the control group reported yes to the above questions. The subjects who reported having known someone identified the known persons as family members such as mother, father, aunt, uncle, brother, or sister.

Table 1

Distribution of Sample According to Age, Employment Status, Yearly Family Income, Family Dependents, Education, and Marital Status (N = 97)

Characteristic	Experimental Group (n = 50)		Control Group (n = 47)	
	<u>n</u>	<u>%</u>	<u>n</u>	<u>%</u>
<u>Age (years)</u>				
45-49	8	16.3	8	17.4
50-59	10	20.8	20	43.5
60-69	16	32.7	14	30.4
70-77	11	22.5	3	6.5
80-89	3	6.0	1	2.2
90-99	<u>1</u>	<u>2.0</u>	<u>0</u>	<u>0.0</u>
Total	49	100.0	46	100.0
<u>Employment Status</u>				
Employed full-time	15	16.3	30	17.4
Employed part-time	4	8.5	4	8.5
Retired	21	44.7	11	23.4
Disabled	3	6.4	0	0.0
Other	<u>4</u>	<u>8.5</u>	<u>2</u>	<u>4.3</u>
Total	47	100.0	47	100.0
<u>Yearly Family Income</u>				
Less than \$10,000	12	27.2	10	23.8
\$10,000 to \$20,000	13	29.5	5	11.9
\$20,001 to \$30,000	11	25.0	12	28.6
\$30,001 to \$40,000	5	11.4	4	9.5
\$40,001 to \$50,000	1	2.3	2	4.8
\$50,001 to \$60,000	1	2.3	5	11.9
Above \$60,000	<u>1</u>	<u>2.3</u>	<u>4</u>	<u>9.5</u>
Total	44	100.0	42	100.0
<u>Number of Family Dependents</u>				
One	19	44.2	14	37.8
Two	15	34.9	12	32.4
Three	4	9.3	4	10.8
Four	3	7.0	2	19.0
Five	1	2.3	0	0.0
Six	<u>1</u>	<u>2.3</u>	<u>0</u>	<u>0.0</u>
Total	43	100.0	37	100.0

Table 1 (continued)

Characteristic	Experimental Group (n = 50)		Control Group (n = 47)	
	<u>n</u>	<u>%</u>	<u>n</u>	<u>%</u>
<u>Education</u>				
Less than High School	14	28.6	7	15.2
High School Graduate	11	22.5	18	39.2
GED	2	4.1	0	0.0
College (1, 2, 3 or more years)	13	26.5	3	6.5
Baccalaureate Degree	5	10.2	7	15.2
Masters Degree	4	8.1	7	15.2
Doctoral Degree	<u>0</u>	<u>0.0</u>	<u>4</u>	<u>8.7</u>
Total	49	100.0	46	100.0
<u>Marital Status</u>				
Married	21	43.8	26	55.3
Divorced	8	16.7	6	12.8
Single	0	0.0	8	17.0
Widowed	15	31.2	6	12.8
Separated	<u>4</u>	<u>8.3</u>	<u>1</u>	<u>2.1</u>
Total	48	100.0	47	100.0

Note: Not all subjects responded to all questions. Numbers of missing responses varied from 2 to 17.

Five (10.6%) subjects in the experimental group reported having access to information regarding colorectal cancer at their place of employment. Over twice as many subjects (n = 12, 25.5%) in the control group reported having access to colorectal cancer information at their place of employment.

Table 2

Medical Data--Specific Place for Receiving Medical Care
(N = 97)

Characteristic	Experimental Group (n = 50)		Control Group (n = 47)	
	<u>n</u>	<u>%</u>	<u>n</u>	<u>%</u>
Doctor's Office	24	57.2	24	58.5
Hospital Emergency Room	5	11.9	3	7.3
Hospital Outpatient Clinic	3	7.1	2	4.9
Health Clinic at Work	3	7.1	1	2.5
Health Maintenance Organization	4	9.6	8	19.5
Other	<u>3</u>	<u>7.1</u>	<u>3</u>	<u>7.3</u>
Total	42	100.0	41	100.0

Note: Not all subjects responded to this question. Numbers of missing responses varied from 6 to 8.

Reliability of Instruments

A Cronbach coefficient alpha was computed to determine the reliability of the Colorectal Cancer Knowledge and Health Practices (CCKHP) instrument and Denyes' Self-Care Practices Instrument (DSCPI-90). The CCKHP questionnaire was developed by the researcher and was used for the first time with this study. The reliability for the CCKHP pretest was $\alpha = .89$, and for the posttest, the reliability was $\alpha = .80$. The DSCPI-90 has been used a number of times in

the past with repeated stable reliability. The reliability of the DSCPI-90 for this study was $\alpha = .91$. The alpha coefficient for each of the instruments was within acceptable range for reliability.

Findings

The purpose of this study was to test the effect of a health information intervention on knowledge and health practices regarding colorectal cancer using the Colorectal Cancer Knowledge and Health Practices (CCKHP) questionnaire and Denyes Self-Care Practices Instrument (DSCPI-90). Five hypotheses were established for the purpose of analysis of data. For each hypothesis, the statistical test used as well as the results of the findings are discussed.

Hypothesis 1

Hypothesis 1 stated: There will be a difference between the experimental and control groups in terms of health practices after attending a health information intervention presented by a registered professional nurse. The items used to analyze this hypothesis were Item 42 and Item 44 on the CCKHP questionnaire. Responses to Item 42 were used to determine if current eating habits follow recommended dietary eating habits for protection/prevention of colorectal cancer. The experimental group did not show

an increase from the pretest to the posttest, while the control group showed a slight increase from the pretest to the posttest in the percentage of subjects who admitted to eating protectively against colorectal cancer. See Table 3 for summary of data.

Table 3

Colorectal Cancer Knowledge and Health Practices
Questionnaire Item 42: Do Current Eating Habits Follow
Recommended Dietary Eating Habits for Protection Against
Colorectal Cancer? (N = 97)

Eating Habits Protect Against Colorectal Cancer	Experimental Group (n = 50)		Control Group (n = 47)	
	n	%	n	%
<u>Pretest</u>				
Yes	33	66	23	49
No	14	28	22	47
No Response	3	6	2	4
<u>Posttest</u>				
Yes	32	64	26	55
No	15	30	21	45
No Response	3	6	0	0

Interpretation of these findings indicated that subjects in the pretest control group were equally divided in believing that they did\did not eat according to

recommended dietary practices for protection against colorectal cancer. A larger percentage of subjects in the experimental group believed that they already ate protectively prior to being exposed to the health intervention treatment of this study. Two weeks after the treatment, both groups remained basically unchanged in their responses.

A chi square statistic was computed to test the hypothesis of a significant difference between the experimental and control groups after a health information intervention. The Pearson chi square value ($X^2(1, N = 97) = 1.622, p = .203$) showed no difference between the groups in terms of health practices.

Posttest responses to Item 44 were used to determine the subjects' intent to obtain an annual stool examination for blood and/or a colon examination for early detection of colorectal cancer. Almost all ($n = 48, 96\%$) of the experimental group ($n = 50$) as well as almost all ($n = 45, 95.7\%$) of the control group ($n = 47$) indicated their intent to have annual stool and/or colon examinations for early detection of colorectal cancer. Only 2 (4%) experimental group subjects and 2 (4.3%) control group subjects did not intend to pursue early detection of colorectal cancer

through annual stool and/or colon examinations. See Table 4 for summary of data.

Table 4

Colorectal Cancer Knowledge and Health Practices
Questionnaire Item 44: Do You Intend to Obtain an Annual
Examination of Your Stool for Blood and/or a Colon Exam for
Early Detection of Colorectal Cancer? (N = 97)

Intent to Obtain Annual Stool Exam	Experimental Group (n = 50)		Control Group (n = 47)	
	<u>n</u>	<u>%</u>	<u>n</u>	<u>%</u>
<u>Pretest</u>				
Yes	38	76	40	85
No	8	16	4	9
No Response	4	8	3	6
<u>Posttest</u>				
Yes	48	96	45	96
No	2	4	2	4

A chi square statistic was computed to test the hypothesis of a significant difference between the experimental and control groups in their intent to obtain an annual hemoccult and/or colon examination. The Pearson chi square value was $X^2(1, N = 97) = .0040, p = .95$. Responses of the experimental group were not significantly greater than the control groups' responses in terms of subjects'

intent to obtain an annual stool examination and/or colon examination for early detection of colorectal cancer. No significant differences were found between groups relative to subjects' (a) beliefs that their eating habits followed dietary recommendations for protection against colorectal cancer and (b) intent to obtain an annual stool and/or colon examination to detect colorectal cancer. Hypothesis 1 was rejected.

Hypothesis 2

Hypothesis 2 stated: The experimental group will utilize health care services more than the control group after attending a health information intervention presented by a registered professional nurse. The use of the three hemoccult cards to collect three stool specimens for occult blood testing was the measurement for this hypothesis. Use of the tests was verified by laboratory reports returned to the researcher. A comparison of the numbers of subjects returning hemoccult kits is displayed in Table 5.

A chi square statistic was used to analyze the statistical significance of this hypothesis. The Pearson chi square value was $X^2(1, N = 97) = .5632, p = .453$ which indicated no difference between the experimental and control groups in their utilization of health care services as

evidenced by the return of the hemocult kits. Hypothesis 2 was rejected.

Table 5

Subjects Who Mailed in Stool Sample Kits for Hemocult Testing by Groups (N = 97)

Mailed in Stool Sample Kits	Experimental Group (n = 50)		Control Group (n = 47)	
	<u>n</u>	<u>%</u>	<u>n</u>	<u>%</u>
Yes	24	48	19	40
No	26	52	28	60

Hypothesis 3

Hypothesis 3 stated: The experimental group will have a greater difference in pretest and posttest knowledge scores than the control group after attending a health information intervention presented by a registered professional nurse. This hypothesis was examined using a t test to determine the difference in pretest and posttest scores after attending a health information program. See Table 6 for a summary of comparative posttest knowledge scores.

The change in mean scores of the Knowledge subscale of the CCKHP questionnaire for each group was used to test this hypothesis. The change in the mean score was 21.84

(SD = 17.72) for the experimental group and 15.26

(SD = 18.66) for the control group. The two variances were

Table 6

Comparison of Experimental and Control Groups' Posttest Scores on the Knowledge Subscale of the Colorectal Cancer Knowledge and Health Practice (CCKHP) Questionnaire (N = 97)

CCKHP Knowledge Subscale (Maximum Score Possible)	Experimental Group (n = 50)		Control Group (n = 47)	
	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>
Total Knowledge (123)	92.2	14.8	85.7	18.6
A. Knowledge of Foods Making Up Healthy Diet (48)	38.6	5.5	35.9	7.6
B. General Cancer Information (15)	11.0	3.3	9.4	3.3
C. Cancer Warning Signs (30)	22.3	6.0	22.5	6.3
D. Cancer Risk Factors & Screening Tests (30)	20.2	5.1	17.9	6.8

assumed to be equal; thus, the pooled variance estimate was used. Statistical analysis indicated that no significant difference in pretest and posttest knowledge scores of the experimental and control groups existed. Therefore, Hypothesis 3 was not accepted ($t_{(95)} = -1.78$, $p = .078$).

Hypothesis 4

Hypothesis 4 stated: The experimental group will have more subjects than the control group committing to an intent to adhere to recommended health care regimen for prevention of colorectal cancer after attending a health information intervention presented by a registered professional nurse. Responses to Item 43 of the CCKHP questionnaire were used to determine the extent of intent to change eating habits to reduce risk for colorectal cancer. Five choices on a scale from 0 to 5 had the following points: 0 = no change, 1 = may limit fats and increase fiber occasionally, 2 = will decrease fats and increase fiber weekly, 3 = will limit fats and increase fiber in diet 2 or more times per week, 4 = will limit fats and increase fiber in diet daily. Frequencies and percentages for the experimental and control groups' pretest and posttest responses to this question were calculated. See Table 7 for a summary of responses.

A Mann-Whitney U test was used to determine if means for the two groups differed significantly. The mean rank for the experimental group was 46.28; for the control group, it was 43.69. The calculated $U = 932.5$ ($p = .6234$) indicated no significant difference between groups in relation to intent to change eating habits to reduce risk for colorectal cancer. Thus, Hypothesis 4 was rejected.

Table 7

Pretest and Posttest Responses of Both Groups to Health Practices Subscale of the CCKHP Questionnaire Item 43-- Changing Eating Habits (N = 97)

Changing Eating Habits	Experimental Group (n = 50)		Control Group (n = 47)	
	n	%	n	%
<u>Pretest</u>				
No Change	7	14	7	15
May Limit Fats and Increase Fiber Occasionally	16	32	21	45
Will Decrease Fats and Increase Fiber Weekly	7	14	3	6
Will Limit Fats and Increase Fiber 2 or More Times/Week	2	4	1	2
Will Limit Fats and Increase Fiber Daily	9	18	8	17
No Response	9	18	7	15
<u>Posttest</u>				
No Change	0	0	7	15
May Limit Fats and Increase Fiber Occasionally	21	42	19	40
Will Decrease Fats and Increase Fiber Weekly	7	14	5	11
Will Limit Fats and Increase Fiber 2 or More Times/Week	5	10	6	13
Will Limit Fats and Increase Fiber Daily	15	30	7	15
No Response	2	4	3	6

Hypothesis 5

Hypothesis 5 stated: There will be a positive relationship between subjects' utilization of health services and their self-care practices. To test this hypothesis, the number of subjects who mailed in their hemoccult samples were compared with subjects' scores on the DSCPI-90. The 43 subjects who mailed in their hemoccult samples had DSCPI-90 minimum score of 24.7 and maximum score of 93.6. The 51 subjects who did not mail in their hemoccult samples had DSCPI-90 minimum score of 6.11 and maximum score of 93.44. Three subjects did not respond. A t test for independent samples was used to determine if there was a significant difference between the two groups in self-care practices. The group mean score on the DSCPI for the 43 subjects who mailed in specimens for fecal occult blood testing was 65.1 ($SD = 16.15$) compared with a group mean score of 59.85 ($SD = 22.65$) for the 51 subjects who failed to mail in their specimens. The calculated t ($t(92) = 1.26, p = .21$) revealed no significant difference between the two groups of subjects who mailed hemoccult specimens and those who did not in terms of their scores on the DSCPI-90. Thus, Hypothesis 5 was rejected.

Ancillary Findings

Based on the conceptual framework and review of the literature, additional findings pertinent to this study were obtained. These findings were generated from inferential statistical procedures performed for selected variables.

A Pearson correlation coefficient was performed to determine if a relationship existed between knowledge and self-care practices on the DSCPI-90. An $r = .3899$, $p = .01$ reflected a significant correlation between these two variables. Higher knowledge scores were related to better health practices. A Spearman correlation coefficient was performed to determine if a relationship existed between knowledge and family income. The $\rho = .4630$, $n = 86$, $p = .000$ indicated a moderate correlation between knowledge and family income. The higher family income, the greater the knowledge regarding cancer information. Knowledge and education also were moderately correlated with $\rho = .4687$, $n = 95$, $p = .000$.

Summary of Findings

The findings of this study are summarized as follows:

1. After a health information intervention, there was no significant difference between the control and the experimental groups in reporting that their eating

habits followed recommended dietary requirements for protection against colorectal cancer.

2. No significant difference was found between subjects in the experimental and the control group regarding level of intent to adhere to recommended dietary practices for protection against colorectal cancer after a health information intervention.
3. There was no significant difference in the numbers of subjects in the experimental group and in the control group in terms of their intent to obtain an annual hemoccult test and/or a colon examination for early detection of colorectal cancer.
4. There was no significant difference between the experimental and control groups in their utilization of health care services.
5. There was no significant difference in the knowledge scores of subjects who attended a health information intervention as compared to the control group who received written handouts.
6. There was no significant difference in the self-care practices of subjects who mailed in specimens for fecal occult blood testing and those who did not mail in their specimens.

7. Health practices were positively correlated with knowledge.
8. Knowledge and family income were moderately correlated.

CHAPTER 5

SUMMARY OF THE STUDY

Included in this chapter is a summary of the research study which was conducted to determine if a health information intervention would be related to increased knowledge, better utilization of health care services, and heightened intent to adhere to recommended health practices identified as protective against colorectal cancer as well as screening which will facilitate early detection. The findings of the study are discussed, and conclusions based upon analysis of data are presented. Additionally, implications for program development utilizing nurses in the community are discussed. The chapter concludes with recommendations for future studies.

Summary

An experimental pretest-posttest control group design study was undertaken to investigate the following research problem: What is the effect of a health information intervention on knowledge and health practices regarding colorectal cancer in African American adults? Five hypotheses were stated:

- H1. There will be a difference between the experimental and control groups in terms of health practices after attending a health information intervention presented by a registered professional nurse.
- H2. The experimental group will utilize health care services more than the control group after attending a health information intervention presented by a registered professional nurse.
- H3. The experimental group will have a greater difference between pretest and posttest knowledge scores than the control group after attending a health information intervention presented by a registered professional nurse.
- H4. The experimental group will have more subjects than the control group committing to a higher level of intent to adhere to recommended health care regimens for prevention of colorectal cancer after attending a health information intervention presented a by registered professional nurse.
- H5. There will be a positive relationship between subjects' utilization of health services and their self-care practices.

A review of the literature provided a background by demonstrating a need to study the knowledge and health

practices of African Americans regarding colorectal cancer. Colorectal cancer is the third leading cause of cancer related deaths in African Americans. Cox's (1986) Interactive Model of Client Health Behavior (IMCHB) was the conceptual framework used to guide this research study. The major constructs from this model used in the study were client singularity, client-professional interaction, and health outcome behavior.

The setting for the study included four churches located in predominantly African American communities in a large metropolitan area in the Southwestern United States. A convenience sample of 97 African American Adults were randomly assigned to one of two groups, experimental or control. All were English speaking, able to read and write, and agreed to participate in the study.

Four instruments were used to collect the data. The Demographic Data Sheet, the Medical Data Form, and the Colorectal Cancer Knowledge and Health Practices (CCKHP), all developed by the researcher, and Denyes' (1990) Self-Care Practice Instrument (DSCPI-90). The Demographic Data Sheet was used to collect information on demographic variables. The Medical Data Form was used to collect data regarding the subjects' selection of places to receive health care and their knowledge of persons with colorectal

cancer or knowledge of symptoms or if they have worked in an area where information regarding colorectal cancer was readily available.

The CCKHP instrument was the major tool used to collect data on the variables for this study. Data were collected regarding subjects' knowledge of cancer warning signs, risk, screening, protective dietary practices, and health practices. The maximum score obtainable on the knowledge scale of the CCKHP instrument was 123. The posttest mean score for the experimental group was 92.2, and for the control group, it was 86.

The (DSCPI-90) and the Health Practices subscale of the CCKHP instrument were used to determine the subjects' self-care health practices. The maximum score obtainable on the DSCPI-90 was 100. The overall mean score on the DSCPI-90 was 62.2 which varied from 6.1 to 93.5. The mean is a moderately low average of reported self-care practices.

The experimental group was exposed to a health information intervention presented by the researcher in addition to receiving written handouts. Four of the handouts were printed by the American Cancer Society (ACS, 1983, 1992, 1993b, 1994b) and one was developed by the researcher. The control group was not exposed to the health information session but was given the same printed handouts

as the experimental group. Both groups were given the opportunity to take three hemoccult kits and submit three stool specimens for hemoccult testing at no cost.

The dependent variables of this study, knowledge and health practices, were determined by the subjects' responses to items on the instruments previously discussed. The independent variable was the health information intervention. Descriptive and inferential statistics were used to analyze the data obtained. No significance was found between groups and the five hypotheses were rejected.

Discussion of Findings

The findings discussed in this section include the subjects' performance on the CCKHP, the DSCPI-90, and the results of each of the hypotheses tested. Because subjects were obtained from four different churches located in different parts of the city, the researcher believes a lack of homogeneity may have been a factor which contributed to a lack of significant findings. This topic as well as ancillary findings are also discussed.

Hypothesis 1

The first hypothesis stated that there would be a difference between the experimental and control groups in terms of health practices after attending a health

information intervention presented by a registered professional nurse. Subjects' responses on the Health Practices subscale on the CCKHP questionnaire indicated 64% of the experimental group subjects' and 49% of the control group subjects' eating habits followed recommended dietary practices for protection against colorectal cancer. The same percentages of subjects for the experimental (96%) and control groups (96%) indicated they intended to have an annual screening test for early detection of colorectal cancer. However, results of hypothesis testing indicated that a health information intervention did not significantly affect the subjects' response regarding their eating habits ($X^2(1, N = 97) = 1.622, p = .203$), nor did the intervention significantly affect the subjects' response regarding their intent to obtain annual screening for colorectal cancer ($X^2(1, N = 97) = .0040, p = .95$).

The finding of the first hypothesis that a health information intervention was not related to health practices (eating according to recommended dietary practices for protection against colorectal cancer and intent to obtain annual screening) does support findings from similar studies (Gray, 1990; Millon-Underwood & Sanders, 1990). Findings from these studies have supported that predictors of health practices are more related to perceived benefits of reducing

the severity of the disease, health motivation behavior, and personal attitudes and perceptions than to a health information intervention.

One reason for the nonsignificant finding may be related to a high percentage of subjects from both the experimental and control groups reporting on the pretest that they were following recommended dietary practices for protection against colorectal cancer. This high reporting could be attributed to present day exposure (i.e., local and national media) to ACS information regarding those foods that are considered protective.

Hypothesis 2

The second hypothesis postulated that the experimental group would utilize health care services more than the control group after attending a health information intervention presented by a registered professional nurse. Results of the chi square analysis indicated that there were no significant differences in the numbers of subjects from each group who mailed hemoccult kits for stool analyses ($X^2(1, N = 97) = .5632, p = .453$). In other words, the health information intervention was not related to a significantly higher number of subjects in the experimental group mailing hemoccult kits. The experimental group had a 48% ($n = 24$) return of hemoccult kits compared to a 40%

($n = 19$) return from the control group. In comparison, the experimental group return percentage of 48% return in this study was higher than those reported in previous studies: Weinrich and Weinrich (1990) reported 47% ($n = 171$), Mitchell-Beren, Dobbs, Choi, and Waskerwitz (1989) reported 17.5%, and Box, Nichols, Hallemond, Pearson, and Vakil (1984) reported 44% and 37% returns. According to Weinrich and Weinrich, increased knowledge was determined to be a predictor of participation in free hemocult screening. However, a factor of note is that in the Weinrich and Weinrich study, all subjects received an educational intervention prior to being offered hemocult testing.

Hypothesis 3

The third hypothesis stated that the experimental group would have a greater difference between pretest and posttest knowledge scores than the control group after attending a health information intervention presented by a registered professional nurse. The mean score on the Knowledge component of the CCKHP instrument for the experimental group was 70.4 on the pretest and 92.2 on the posttest which reflected an overall increase of 21.8 points. The mean score for the control group was 70.5 on the pretest and 85.7 on the posttest which reflected an overall increase of 15.2 points. The reliability of the instrument was $\alpha = .80$ which

indicated the CCKHP to be a reliable instrument. The finding in the present study of no significant difference between the posttest knowledge scores of the experimental and control groups ($t(95) = -1.78$, $p = .078$) was not consistent with previous research findings by Weinrich, Weinrich, Boyd, Johnson, and Frank-Stromborg (1992) of $t(79) = 2.59$ ($p = .01$) which showed a significant improvement in knowledge after an educational session. Millon-Underwood and Saunders (1990) found that how much a subject knows about a disorder may be related to engagement in health practices.

One reason for no difference may be related to the fact that the research assistants at the church sites were well known by subjects which may have attributed to their interest in reading materials which, in turn, addressed some of the questions on the posttest. Willis, Davis, Cairns, and Janiszewski (1989) stated that educational programs are more effective if presented in conjunction with community leaders in community settings.

The findings also may be attributed to the emphasis by the national and local media on health promotion in the form of announcements sponsored by the ACS regarding cancer screening for colorectal cancer and providing a 1-800 number where individuals may call for both verbal and written

information. Additionally, the four ACS (1983, 1992, 1993b, 1994b) brochures given to both groups were colorful, easy to read, culturally sensitive, and two of the four brochures contained pictures of African Americans which might have contributed to subject's interest in the content.

Another factor which may have contributed to the finding of no significance in Hypothesis 3 may be attributed to the validity of the CCKHP instrument. This project is the first major study in which the instrument has been used. Although the reliability was acceptable, the validity needs to undergo rigorous review. Content validity was the major source of validity used in developing the instrument. Concurrent and construct validity along with factor analysis need to be done prior to subsequent use of the instrument.

Hypothesis 4

The fourth hypothesis stated that the experimental group would have more subjects than the control group committing to an intent to adhere to recommended health practices for protection against colorectal cancer after attending a health information intervention directed by a registered professional nurse. Findings revealed no significant differences between the two groups. These findings were not consistent with findings from previous studies which indicated that changes in health practices may

be associated with knowledge (Fletcher, Morgan, O'Malley, Earp, & Degnan, 1989; Gray, 1990; Millon-Underwood & Saunders, 1990; Weinrich et al., 1992). Gray's results ($r = .1216$, $p \leq .02$), Millon-Underwood and Sanders' results ($F(4, 172) = 26.5084$, $p = .0000$) and Weinrich et al.'s results ($t(79) = 2.59$, $p = .01$) indicated that increased knowledge brought about an increase in health practices. Fletcher et al. found that knowledge ($r = .38$, $n = 100$) and intention to perform breast self-examination (BSE) ($r = .37$, $n = 100$) were two variables which predicted how often but not how accurately BSE was performed.

The nonsupported findings of the present study may be attributed to a lack of homogeneity among subjects. Questionable sample homogeneity may be attributed to sampling methodology. Four churches of varying membership sizes as well as different times of the day and week were used to obtain subjects. The subjects who attended mid-week service may be different from those who remained after morning worship service or arrived one hour prior to Sunday morning Bible study.

To ensure homogeneity, consistency in sampling methods should be followed, such as the same day, prior to or following the same type of church activities. Church sites should be selected based on similarities of membership

characteristics and measures should be incorporated within the study design to control for confounding variables, such as intrinsic motivation.

Hypothesis 5

The fifth hypothesis stated that there would be a positive relationship between subjects' utilization of health services and their self-care practices. Results revealed no significant difference between the two groups. In other words, subjects who scored high on the DSCPI-90 were not more likely to mail in their hemoccult kits than those subjects who scored low on the DSCPI-90. This finding was not supported in the literature. Denyes (1988) found that subjects who scored high on the DSCPI-90 had higher levels of health than those who scored lower ($r = .72$, $p \leq .001$). The inference is that those who had higher levels of health engaged in recommended health practices.

Ancillary Findings

Data were further examined to determine if there were any significant differences among the variables of the study and demographic variables. These findings are discussed.

Knowledge and DSCPI-90

A Pearson correlation coefficient revealed that there was a positive correlation between the two variables of

knowledge and self-care practices ($r = .3899$, $p = .01$) as measured by scores on the DSCPI-90. Previous investigators found that knowledge is not always positively correlated with health practices (Box et al., 1984); however, other investigators presented findings indicating a significant correlation between knowledge and health practices (Jacob, Penn, & Brown, 1981; Weinrich et al., 1992).

Knowledge and Family Income

A Spearman rho correlation coefficient revealed a moderate correlation between knowledge and family income ($\rho = .4630$, $p = .000$, $n = 86$). This finding can be interpreted as knowledge tends to increase with income. This finding is consistent with Weinrich and Weinrich's (1990) finding ($r = .38$, $p \leq .001$) regarding increased knowledge with higher income.

Knowledge and Education

Knowledge regarding cancer in general and colorectal cancer specifically was found to be moderately correlated with educational level by using the Spearman rho correlation coefficient ($\rho = .4687$, $p = .000$, $n = 95$). This finding was consistent with Weinrich and Weinrich's (1990) finding ($r = .46$, $p \leq .001$) regarding increased knowledge and higher educational level.

Hemoccult Screening

Of the 43 subjects ($N = 97$) who mailed in their hemoccult kits, two subjects' (4.7%) analyses of all three hemoccult cards were positive for occult blood. The two subjects were 63- and 64-year-olds, one male and one female, who were encouraged to have follow up testing. One subject reported back to the researcher that her physician performed a colonoscopy and removed two bleeding polyps. The second subject did not report back to the researcher the status of his follow up. These findings give support to the value of hemoccult screening and are supported by findings in previous studies (Diehl, 1981; Mandel et al., 1993).

Conclusions and Implications

This section addresses the conclusions of the study based upon the findings. Also discussed are implications for nursing practice.

Conclusions

The following conclusions were made:

1. A health information intervention regarding colorectal cancer has no significant bearing on subjects' health practices.
2. A total of 48% of the subjects in the experimental group mailed their hemoccult cards for screening. Although

there was no significance between the two groups, the return in this study was somewhat higher than the average return rate.

3. A health information intervention presented by a registered professional nurse did not bring about an increase in knowledge compared to subjects who were given pamphlets to read on their own. Thus, direct teaching and interaction seem to have no significant bearing on subjects' knowledge attainment if relevant, culturally sensitive, informative material with a low reading level is used in handouts.
4. Although 80% of the subjects responded that they intended to limit fats and increase fiber in their diet, there was no significant difference between the two groups in level of intent.
5. No significant difference was found between subjects who scored high on self-care practices and their utilization of health services by mailing in their hemocult cards.
6. Knowledge is not a high indicator of performance of self-care practices.
7. Family income is associated with knowledge.

Implications

The implications for nurses are numerous. Health information provided to individuals, whether in discussion

or as a printed handout, can provide an avenue to increase knowledge regarding colorectal cancer. Since the printed handouts seemed to be equally as effective as the class, nurses need to realize that lack of time to do classes may not preclude offering incentives to influence health care behaviors. Providing opportunities for clients to participate in hemoccult screening also may assist in early detection of precancerous colon polyps. Subjects in this study seemed receptive to obtaining a recommended screening test at no cost. Additionally, involving nurses in the community who are well known and respected among the targeted population may be an avenue for obtaining cooperation and interest in health related matters.

Although personal interaction has been cited to be important and meaningful, it was found that culturally sensitive pamphlets provide an alternative method to assist a population at risk in increasing their knowledge level. The goal of this study was to attempt to determine the effect of direct communication with African Americans as a method of increasing their knowledge regarding colorectal cancer. The more insight nurses have regarding methods of assisting African Americans in increasing their knowledge level and improving protective health practices against colorectal cancer, the better able they will be to assist

this group in reducing the morbidity rates of this disease.

Recommendations for Future Research

Based upon the conclusions of the present study, the following recommendations are offered:

1. A replication of the study with a larger sample size should be undertaken in an attempt to increase generalizability.
2. Altering the sampling process to ensure homogeneity by using consistent day of week and time to meet with potential subjects should be incorporated into a replication of the study.
3. This study should be replicated with a sample from a rural area and findings compared to those of this study to determine if the metropolitan versus rural settings could be determinants in knowledge and health practices regarding colorectal cancer in African Americans.
4. Following the design and using the same instruments of this study, a sample of African Americans who regularly attend an organization's meetings and African Americans who seldom if ever attend any organization's meetings should be compared to determine if the social support gained from group affiliation may have a bearing on

knowledge and health practices regarding colorectal cancer.

5. The study should be repeated in a metropolitan area in a different geographic location in the United States to determine if locale has an effect on knowledge and health practices regarding colorectal cancer in African Americans.
6. A qualitative research study should be designed to more comprehensively identify factors that affect the change from negative to positive and protective health practices against colorectal cancer.
7. The effectiveness of different types of educational programs on increasing compliance with recommended health practices should be studied to determine the most effective type of program.
8. The CCKHP instrument needs to undergo rigorous scrutiny for concurrent and criterion validity, and a factor analysis should be incorporated as well.
9. A study designed to test the difference between subjects' responses to generic versus culturally sensitive health materials should be undertaken.
10. The study should be repeated testing all components of Cox's model.

11. A replication of the study should be done using a posttest only control group experimental design to avoid subject interaction before the posttest.

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APPENDIX A
AGENCY PERMISSIONS

TEXAS WOMAN'S UNIVERSITY
COLLEGE OF NURSING
1130 M.D. ANDERSON BLVD.
HOUSTON, TEXAS 77030-2897

AGENCY PERMISSION FOR CONDUCTING STUDY*

THE Creston Missionary Baptist Church

GRANTS TO Joyce M. Adams, M.S., R.N.

a student enrolled in a program of nursing leading to a Ph.D. in nursing at Texas Woman's University, the privilege of its facilities in order to study the following problem:

The Effect of a Health Information Intervention on Knowledge and Health Practices regarding Colorectal Cancer in African American Adults.

The conditions mutually agreed upon are as follows:

1. The agency (may) (may not) be identified in the final report.
2. The names of consultative or administrative personnel in the agency (may) (may not) be identified in the final report.
3. The agency (wants) (does not want) a conference with the student when the report is completed.
4. The agency is (willing) (unwilling) to allow the completed report to be circulated through interlibrary loan.
5. Other _____

Date: June, 1995

Joyce M. Adams
Signature of Student

Rev. Leroy P. Davis, Pastor
Signature of Agency Personnel

Deanne Kern, R.N., Ph.D.
Signature of Faculty Advisor

*Fill out and sign three copies to be distributed as follows: Original-Student; First copy - agency; Second copy - TWU College of Nursing.

DR:lt
1/13/92

TEXAS WOMAN'S UNIVERSITY
COLLEGE OF NURSING
1130 M.D. ANDERSON BLVD.
HOUSTON, TEXAS 77030-2897

AGENCY PERMISSION FOR CONDUCTING STUDY*

THE New Bethel Baptist Church

GRANTSTO Joyce M. Adams, M.S., R.N.
a student enrolled in a program of nursing leading to a Ph.D. in nursing at Texas Woman's University, the privilege of its facilities in order to study the following problem:

The Effect of a Health Information Intervention on Knowledge and Health Practices regarding colorectal Cancer in African American Adults.

The conditions mutually agreed upon are as follows:

1. The agency (may) (may not) be identified in the final report.
2. The names of consultative or administrative personnel in the agency (may) (may not) be identified in the final report.
3. The agency (wants) (does not want) a conference with the student when the report is completed.
4. The agency is (willing) (unwilling) to allow the completed report to be circulated through interlibrary loan.
5. Other _____

Date: June, 1995

Joyce M. Adams
Signature of Student

Caleb B. Anderson (Pastor)
Signature of Agency Personnel

Deanna Kermek R.N. Ph.D.
Signature of Faculty Advisor

*Fill out and sign three copies to be distributed as follows: Original-Student; First copy - agency; Second copy - TWU College of Nursing.

DR:lt
1/13/92

TEXAS WOMAN'S UNIVERSITY
COLLEGE OF NURSING
1130 M.D. ANDERSON BLVD.
HOUSTON, TEXAS 77030-2897

AGENCY PERMISSION FOR CONDUCTING STUDY*

THE _____

GRANTS TO Joyce M. Adams, M.S., R.N.

a student enrolled in a program of nursing leading to a Ph.D. in nursing at Texas Woman's University, the privilege of its facilities in order to study the following problem:

The Effect of a Health Information Intervention on Knowledge and Health Practices regarding Colorectal Cancer in African American Adults.

The conditions mutually agreed upon are as follows:

1. The agency (may) (may not) be identified in the final report.
2. The names of consultative or administrative personnel in the agency (may) (may not) be identified in the final report.
3. The agency (wants) (does not want) a conference with the student ~~when~~ the report is completed.
4. The agency is (willing) (unwilling) to allow the completed report to be circulated through interlibrary loan.
5. Other _____

Date: May, 1995

Joyce M. Adams
Signature of Student

Signature of Agency Personnel

Sandra Krumholz RN, Ph.D.
Signature of Faculty Advisor

*Fill out and sign three copies to be distributed as follows: Original-Student; First copy - agency; Second copy - TWU College of Nursing.

DR:lt
1/13/92

TEXAS WOMAN'S UNIVERSITY
COLLEGE OF NURSING
1130 M.D. ANDERSON BLVD.
HOUSTON, TEXAS 77030-2897

AGENCY PERMISSION FOR CONDUCTING STUDY*

THE St. Agnes Missionary Baptist Church

GRANTS TO Joyce M. Adams, M.S., R.N.

a student enrolled in a program of nursing leading to a Ph.D. in nursing at Texas Woman's University, the privilege of its facilities in order to study the following problem:

The effect of a health information intervention on knowledge and health practices regarding colorectal cancer in African Americans.

The conditions mutually agreed upon are as follows:

1. The agency (may) (may not) be identified in the final report. *Jan*
2. The names of consultative or administrative personnel in the agency (may) (may not) be identified in the final report. *Jan*
3. The agency (wants) (does not want) a conference with the student when the report is completed. *Phm*
4. The agency is (willing) (unwilling) to allow the completed report to be circulated through interlibrary loan. *Phm*
5. Other _____

Date: May 24, 1992

Joyce M. Adams
Signature of Student

Rev. Kenneth Moore
Signature of Agency Personnel
Janette Kennedy R.N., Ph.D.
Signature of Faculty Advisor

*Fill out and sign three copies to be distributed as follows: Original-Student; First copy - agency; Second copy - TWU College of Nursing.

DR:lt
1/13/92

TEXAS WOMAN'S UNIVERSITY

DENTON · DALLAS · HOUSTON

HUMAN SUBJECTS REVIEW COMMITTEE

1130 M. D. Anderson Blvd., Houston, Texas 77030 713/794-2114

MEMORANDUM

TO: Joyce Adams
FROM: HSRC
DATE: August 30, 1994
SUBJECT: HSRC Application

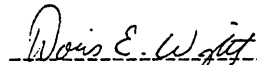
Proposal Title: The effect of a health information intervention on knowledge and health practices regarding colorectal cancer in African Americans

Your application to the HSRC has been reviewed and approved.

This approval lasts for 1 year. If your study extends beyond that time you must notify the Human Subjects Review Committee.

REMEMBER TO PROVIDE COPIES OF THE SIGNED INFORMED CONSENT TO ME WHEN THE STUDY HAS BEEN COMPLETED. GRADUATION MAY BE BLOCKED UNLESS CONSENTS ARE RETURNED.

Thank you for your patience in awaiting the committee's decision. The committee extends its best wishes for a productive and very successful project. Should you have any further questions about your application, please contact me at 794-2114.



Doris E. Wright, Ph.D.
Chairperson

APPENDIX B
EXPERIMENTAL SUBJECTS' CONSENT FORM



TEXAS WOMAN'S UNIVERSITY

DENTON/DALLAS/HOUSTON

COLLEGE OF NURSING
Houston Center
1130 M.D. Anderson Blvd.
Houston, TX 77030-2897
Phone: 713/794-2100

The Effect of a Health Information Intervention on Knowledge and Health Practices Regarding Colorectal Cancer in African Americans

Consent to Participate As a Research Subject

I am being asked to participate in a study conducted by Joyce Adams, M.S., R.N. from the College of Nursing at Texas Woman's University. The purpose of this study is to determine the effect of a health information intervention on knowledge and preventive health practices regarding colorectal cancer in African Americans.

I understand that I will be asked to complete four questionnaires about me which will take approximately 20 minutes. I will also be asked to listen to an educational program on cancer. This educational session will take no longer than 20 minutes and the entire session will not be longer than 1 hour. Following this educational session, I will also have an opportunity to take 3 hemoccult kits home and collect three (3) samples of my stool and mail the sample cards to a specified laboratory where it will be tested for blood. This test will be free of financial charge to me. Two weeks after this session I will be sent a second questionnaire in which I will complete and return in the envelope provided.

I hereby agree to participate in this study. The procedures listed in the previous paragraph have been explained to me by Joyce Adams, M.S., R.N. and the educational session will be conducted by her.

A possible risk is that I may experience some anxiety if I am experiencing any of the symptoms discussed in the educational session or if my stool test results are positive for blood. To alleviate my anxiety, the researcher will call me if my results are positive and recommend that I see a physician. If I find it necessary, the researcher will provide me with a list of two to three physicians' names who I may select to consult regarding my test results. Neither the researcher, nor Texas Woman's University, will be financially responsible for the cost of consulting the physician.

2 of 2

Adequate time will be allowed for me to ask questions or to discuss any concerns during the educational session. A second risk is the potential loss of confidentiality. To minimize this risk, the questionnaire will be coded with a number only. My name will be necessary on the mailed hemoccult laboratory form, however, only the authorized laboratory personnel and the researcher will have access to this information.

The benefit from participating in this study is that I will receive current information regarding cancer, risks, and preventive health practices and I will have an opportunity to receive one of the screening tests recommended for detection of colorectal cancer at no cost to me. I will also receive a copy of my results as reported by a medical laboratory. If the laboratory reports my stool to be positive for blood, the researcher will notify me by telephone prior to mailing my results to me.

I understand that I may withdraw from the study at any time without penalty. All demographic information, questionnaires and laboratory data will be destroyed no later than 2 years after the completion of the study. Findings from this study may be published but only group data will be used, and I will not be identified.

No injury is anticipated as a result of my participation in this study. However, Texas Woman's University is not able to offer financial compensation not to absorb the costs of medical treatment.

An offer has been made to answer all of my questions. If I have any questions, I may call Joyce Adams at 922-3468 during daytime hours. She has indicated that will be happy to answer my questions.

Subject's signature

Date

Witness

Date

APPENDIX C
CONTROL SUBJECTS' CONSENT FORM

TEXAS WOMAN'S
UNIVERSITY

DENTON/DALLAS/HOUSTON

COLLEGE OF NURSING
Houston Center
1130 M.D. Anderson Blvd.
Houston, TX 77030-2897
Phone: 713/794-2100

**The Effect of a Health Information Intervention
on Knowledge and Health Practices Regarding
Colorectal Cancer in African Americans**

Consent to Participate As a Research Subject

I am being asked to participate in a study conducted by Joyce Adams, M.S., R.N. from the College of Nursing at Texas Woman's University. The purpose of this study is to determine the effect of a health information intervention on knowledge and preventive health practices regarding colorectal cancer in African Americans.

I understand that I will be asked to complete four questionnaires about me which will take approximately 20 minutes and the entire session will not be longer than 1 hour. During this session, I will receive several printed handouts of information pertaining to cancer and I will have an opportunity to take 3 hemoccult kits home and collect three (3) samples of my stool and mail the sample cards to a specified laboratory where it will be tested for blood. This test will be free of financial charge to me. Two weeks after this session I will be sent a second questionnaire in which I will complete and return in the envelope provided.

I hereby agree to participate in this study. The procedures listed in the previous paragraph have been explained to me by Joyce Adams, M.S., R.N. and the educational session will be conducted by her.

A possible risk is that I may experience some anxiety if I am experiencing any of the symptoms discussed in the educational session or if my stool test results are positive for blood. To alleviate my anxiety, the researcher will call me if my results are positive and recommend that I see a physician. If I find it necessary, the researcher will provide me with a list of two to three physicians' names who I may select to consult regarding my test results. Neither the researcher, nor Texas Woman's University, will be financially responsible for the cost of consulting the physician.

2 of 2

Adequate time will be allowed for me to ask questions or to discuss any concerns regarding the collection of the stool sample. A second risk is the potential loss of confidentiality. To minimize this risk, the questionnaire will be coded with a number only. My name will be necessary on the mailed hemoccult laboratory form, however, only the authorized laboratory personnel and the researcher will have access to this information.

The benefit from participating in this study is that I will receive current information regarding cancer, risks, and preventive health practices and I will have an opportunity to receive one of the screening tests recommended for detection of colorectal cancer at no cost to me. I will also receive a copy of my results as reported by a medical laboratory. If the laboratory reports my stool to be positive for blood, the researcher will notify me by telephone prior to mailing my results to me.

I understand that I may withdraw from the study at any time without penalty. All demographic information, questionnaires and laboratory data will be destroyed no later than 2 years after the completion of the study. Findings from this study may be published but only group data will be used, and I will not be identified.

No injury is anticipated as a result of my participation in this study. However, Texas Woman's University is not able to offer financial compensation not to absorb the costs of medical treatment.

An offer has been made to answer all of my questions. If I have any questions, I may call Joyce Adams at 922-3468 during daytime hours. She has indicated that will be happy to answer my questions.

Subject's signature

Date

Witness

Date

APPENDIX D
HANDOUTS FOR SUBJECTS

AMERICAN CANCER SOCIETY BROCHURES

The following brochures which were given to each subject are available upon request from the American Cancer Society. For information about obtaining copies, you may call The American Cancer Society, Toll Free: 1-800-ACS-2345.

Cancer facts for women: What you can do to protect yourself against cancer. 90-1.5 mm - Rev. 1/94 - No. 2007.

Cancer facts for men: What you can do to protect yourself against cancer. 90-1.5 mm - Rev. 2/93 - 2008.

Colorectal cancer, go for early detection. 82-2 mm - Rev. 8/94 - No. 2051-LE.

Don't miss out on your sunset years. . . together. 81-3000 M - Rev. 8/92. No. 2666.

What is Cancer?

Cancer is a group of diseases. There are more than 100 different types of cancer, but they all are a disease of some of the body's cells.

Healthy cells that make up the body's tissues grow, divide, and replace themselves in an orderly way. This process keeps the body in good repair. Sometimes, however, normal cells lose their ability to limit and direct their growth. They divide too rapidly and grow without any order. Too much tissue is produced and tumors begin to form. Tumors can be benign or malignant.

*Benign tumors are not cancer. They do not spread to other parts of the body and they are seldom a threat to life. Often, benign tumors can be removed by surgery, and they are not likely to return.

* Malignant tumors are cancer. They can invade and destroy nearby tissues and organs. Also, by entering the blood stream or the lymph system, cancer cells can spread (metastasize) to other parts of the body, and form new tumors.

Because cancer can spread, it is important for the doctor to find out as early as possible if a tumor is present and if it is cancer. As soon as a diagnosis is made, the doctor can begin treatment.

Cancer Risk Factors

Although the absolute cause of cancer is unknown, several risk factors have been identified. It has also been stated by the medical community, that many cancers can be prevented with changes in behavior and lifestyle. Some known risk factors are:

- *Heavy smoking & drinking
- *Use of chewing tobacco
- *Eating high fat diets
- *Excessive exposure to sun
- *Family history of certain cancers
- *Heavy drinking of alcohol
- *Occupational exposure to tar, pitch, Creosote, arsenic compounds and radium
- *Combination of diabetes, high blood pressure, obesity
- *Early age at first intercourse, multiple sex partners

Cancer Prevention

Diet and Nutrition

About one-third of all cancer deaths may be related to what we eat. Making positive choices in your diet every day promotes good nutrition and good health and may reduce your risk of some types of cancer. Listed below are seven simple guidelines for a health diet.

1. Eat a variety of foods such as: fruits, vegetables, whole cereals, lean meats, poultry without skin, fish, dry peas and beans, and low-fat dairy products.
2. Maintain desirable weight.
3. Avoid too much fat, saturated fat, and cholesterol. A diet low in fat may reduce the risk of cancers of the breast, prostate, colon, and rectum.
4. Eat food with adequate starch and fiber. This includes fruits, vegetables, potatoes, whole grain breads and cereals, and dry peas and beans. A high-fiber diet may reduce the risk of colon and rectal cancer.

5. Avoid too much sugar.
6. Avoid too much sodium.
7. If you drink alcoholic beverages, do so in moderation. Cancer risk is especially high for heavy drinkers who smoke.

You don't have to give up the foods you like to help protect yourself from cancer. Instead, choose **more often** the foods that may reduce your risks of cancer; choose **less often** the foods that might increase your risks of cancer.

Do not make all the changes overnight. Add fruits and vegetables to your diet gradually over a period of several weeks. Each time you shop, choose one more low-fat dairy product in place of a product made with whole milk. Replace a product made with refined flours or processed grains, such as white bread, with one made with 100 percent whole wheat or rye bread.

Read product labels to help choose foods high in fiber and vitamins A and C, and low in fat.

Choose cooking methods that add no fats to your foods: bake, steam poach, roast, or use a microwave oven.

If you broil, grill, or barbecue, protect foods from contact with smoke, flame, and extremely high temperatures. They can produce possible cancer-causing substances. Move racks of grills away from heat sources, cook more slowly, and wrap food in foil or put it in a pan before grilling or barbecuing.

General Prevention Tips

In addition to a healthy diet, it is important to exercise each day, maintain desirable weight, get regular physical checkups, and remember these cancer prevention tips.

avoid unnecessary exposure to x-rays
health and safety rules at your workplace should be known and followed.

Avoid too much sunlight; wear protective clothing; use effective sunscreens.

Take estrogens only as long as necessary.

Above all, **don't smoke.**

Tobacco smoke causes about one-third of all cancer deaths—more than all the other reliably known cancer-causing agents added together.

Supplemental handouts included with this program are:

Cancer Facts for Men

Cancer Facts for Women

Don't Miss Out On Your Sunset Years...

Together.

Colorectal Cancer: Go For Early Detection

These pamphlets were published by the American Cancer Society and are available to the public.

Information presented in this printed handout was taken from Materials published by the American Cancer Society and the National Cancer Institute.

APPENDIX E
INSTRUMENT PACKAGE

CODE # _____

Demographic Data Sheet

Please fill in the blanks or circle the following information as it applies to you:

Age _____

Sex: Male _____ Female _____

Race: African
American _____ Caucasian _____

Other (Write in) _____

U.S. Citizen : Yes _____ No _____ Other (Write in) _____

Have you lived most of your adult life (after age 18) in Texas?

Yes _____ NO _____ If no, Where?

EMPLOYMENT STATUS

- | | |
|-----------------------|----------------|
| 1. Employed full-time | 4. Retired |
| 2. Employed part-time | 5. Disabled |
| 3. Full-time student | 6. Other _____ |

OCCUPATION (Write in) _____

FAMILY INCOME (YEARLY). Circle the one that applies.

1. Less than \$10,000.00
2. \$10,000.00 to \$20,000.00
3. \$20,001.00 to \$30,000.00
4. \$30,001.00 to \$40,000.00
5. \$40,001.00 to \$50,000.00
6. \$50,001.00 to \$60,000.00
7. Above \$60,000.00

How many persons does this income support? _____

2 of 10

CIRCLE THE ONE THAT APPLIES TO YOU.

EDUCATION

1. Less than High School
2. High School Graduate
3. GED
4. College
 - (a) 1 year: (b) 2 years; (c) 3 or more years
5. Baccalaureate Degree
6. Masters Degree
7. Doctoral Degree

MARITAL STATUS. Circle the one that applies to you.

1. Married
2. Divorced
3. Single
4. Widowed
5. Separated

CODE # _____

Medical Data Form

Please circle the appropriate number or fill in the space provided.

1. Medical Care

- A. During the past 12 months (May 1994 - May 1995) have you received any medical care or advice?

Yes____ No____

- B. If you were advised to seek medical care and did not, please circle the ONE best response for not seeking medical care.

1. Care was not available when needed
2. Cost too much
3. Didn't know what kind of doctor to see
4. Fear of being treated rudely or unkindly
5. I put it off
6. Lack of health insurance
7. Other (Specify)

- C. Do you have insurance?

Yes____ No____

- D. Is there a particular doctor's office, clinic, health center, or other place you go if you are sick or need advice about your health?

Yes____ No____

4 of 10

- E. If yes, where would that be? Circle the ONE BEST place listed below.
1. Doctor's office
 2. Hospital emergency room
 3. Hospital outpatient clinic
 4. Health clinic at work
 5. HMO (such as PruCare)
 6. Other (Specify)
- F. Have you been diagnosed as having cancer of the colon or rectum?
- Yes____ No____ Don't Know____
- G. Have you or anyone you've known (including family members) been diagnosed with cancer of the colon or rectum?
- Yes____ No____ Don't Know____
- H. If yes, specify the relationship.
- _____
- _____
- I. Have you been (or are you currently) employed in a setting which provides access to information concerning colorectal cancer?
- Yes____ No__
- J. If yes specify place and/or type of setting.
- _____

CODE # _____

Colorectal Cancer Knowledge and Health Practices (CCKHP)Pretest

I. Knowledge

- A. Indicate whether the following statements are true or false. Circle your response.

3 = True

2 = False

1 = Don't Know

Foods that are part of a healthy diet are:

- | | | | |
|---|---|---|---|
| 1. Fruits and Vegetables | 3 | 2 | 1 |
| 2. Fried Chicken | 3 | 2 | 1 |
| 3. Broiled fish | 3 | 2 | 1 |
| 4. Cold cuts or
lunch meat | 3 | 2 | 1 |
| 5. Barbecue(charbroiled) | 3 | 2 | 1 |
| 6. Ham hocks | 3 | 2 | 1 |
| 7. Wheat Bread | 3 | 2 | 1 |
| 8. Fried pork chops | 3 | 2 | 1 |
| 9. Baked corn bread | 3 | 2 | 1 |
| 10. Candied sweet potatoes | 3 | 2 | 1 |
| 11. Greens cooked with ham
hocks or fat bacon. | 3 | 2 | 1 |
| 12. Macaroni/cheese | 3 | 2 | 1 |
| 13. Boiled/baked/mashed
white potatoes | 3 | 2 | 1 |
| 14. Baked lean pork chops | 3 | 2 | 1 |
| 15. Peanut Butter | 3 | 2 | 1 |
| 16. Boiled rice | 3 | 2 | 1 |

6 of 10

B. Indicate whether the following statements are true or false. Circle your response.

3 = True

2 = False

1 = Don't Know

1. Fiber in food is essential
for protection from
developing cancer of
the colon or rectum. 3 2 1
2. Regular exercise can
decrease a person's
chances for developing
cancer of the colon or
rectum. 3 2 1
3. The mortality rate of
cancer is higher in African
Americans (Blacks) than
Caucasians (white). 3 2 1
4. What I eat & drink does
not affect my chance of
developing cancer of
the colon and/or rectum. 3 2 1
5. It does not matter how
much oil/shortening I add
to food for seasoning. 3 2 1

7 of 10

C. Circle any of the following statements which you believe are warning signs of cancer.

3 = True

2 = False

1 = Don't Know

- | | | | |
|---|---|---|---|
| 1. A lump or thickening
in the breast or
elsewhere. | 3 | 2 | 1 |
| 2. A sore that does not
heal. | 3 | 2 | 1 |
| 3. Swelling in feet
and legs. | 3 | 2 | 1 |
| 4. A change in a wart
or mole. | 3 | 2 | 1 |
| 5. Unusual pain in chest. | 3 | 2 | 1 |
| 6. Persistent cough or
continuing hoarseness. | 3 | 2 | 1 |
| 7. Unusual bleeding
or discharge. | 3 | 2 | 1 |
| 8. Persistent indigestion
or difficulty in
swallowing | 3 | 2 | 1 |
| 9. Unexpected weight loss. | 3 | 2 | 1 |
| 10. Persistent pain in
limbs & joints. | 3 | 2 | 1 |

8 of 10

- D. Indicate whether the following statements are true or false. Circle your response.

Screening/risk factors/treatment/warning signs of
colorectal cancer:

3 = True
2 = False
1 = Don't Know

1. A rectal exam is not used
to detect cancer of the
colon or rectum. 3 2 1
2. A blood stool test is
one of the tests used
to detect cancer of the
colon or rectum. 3 2 1
3. A proctoscopic exam is
one of the tests used
to detect cancer of the
colon or rectum. 3 2 1
4. A change in bowel/bladder
habits may be a sign of
colorectal cancer. 3 2 1
5. A proctoscopic exam is
recommended for persons
over fifty years old. 3 2 1
6. Early treatment of
cancer increases the
chances of survival. 3 2 1
7. A family history of
cancer of the colon or
rectum increases the
chance for developing
this cancer. 3 2 1

9 of 10

- 8. Diets high in fiber
and low in fat is a
risk for developing
colorectal cancer. 3 2 1
- 9. Constipation or diarrhea
or both alternately can
be a warning sign of
colorectal cancer. 3 2 1
- 10. Nausea and/or vomiting
is a sign of colorectal
cancer. 3 2 1

10 of 10

II. Adherence to recommended health practices:

- A. Do your current eating habits follow recommended dietary eating habits for protection/prevention of colorectal cancer? Yes_____ No_____

If no, indicate what eating habits you have which are in conflict with recommended practices.

- B. On a scale from 0-5, to what extent do you intend to change your eating habits to reduce risk for colorectal cancer?

0 = no change
1 = may limit fats & increase fiber occasionally
2 = will increase fiber & decrease fats weekly
3 = will increase fiber & limit fats 2 or more times/week
4 = will increase fiber & limit fats in diet daily

If you indicated that you plan to change your eating habits, what has caused you to make this change?

- C. Do you intend to obtain an annual examination of your stool for Blood and/or a colon exam for early detection of colorectal cancer?

Yes_____ No_____

APPENDIX F
PERMISSION TO USE DENYES' SELF-CARE PRACTICE
INSTRUMENT (DSCPI-90)



5557 Cass Avenue
Detroit, Michigan 48202

May 24, 1994

Joyce M. Adams, MS, RN, CNS
5434 Botany Lane
Houston, TX 77048

Dear Ms. Adams:

I was pleased to receive your recent inquiry about the potential of using the self-care practice instrument I have developed in your study at Texas Woman's University entitled "Effect of a Health Intervention on Knowledge and Preventive Health Practices regarding Colorectal Cancer in African Americans". I have enclosed a copy of that instrument, the Denyes Self-Care Practice Instrument (DSCPI-90), and copies of scoring instructions and a summary of reliability and validity data.

As I believe you are aware, I also have developed and tested two companion instruments to measure self-care agency and health status. Both of these instruments, like the self-care practice measure, are self-report in nature. If you are interested in either of these measures, please feel free to contact me about them.

As I hold the copyright for the instrument you are requesting to use, and am continuing with the development and use of it, I will make several requests of you in return for sharing the instrument with you. First, I would ask that prior to using it beyond this current study or sharing it with others, that you discuss with me any plans you have for its use. I would appreciate an update on your current study plans in a brief note--or copy of research questions, title of study, or proposal materials--anything you feel comfortable sharing as you go along. Secondly, I would ask that you be attentive to including the copyright information on any instrument copies you use. Finally, I would ask that you share with me data that you obtain from use of the instrument. I am in the continuing process of compiling aggregate data files that will enable me to further strengthen the reliability and validity support for the instrument, and would appreciate your assistance with this. I would not use those data without clearly crediting your work, and would request only those data from my instrument and any accompanying demographics that may assist in comparing them with other sample data. I would, of course, be very interested and pleased to receive copies of any reports/papers you prepare in which your work with the instrument is described. However, the major piece that I am requesting is that the actual raw data from the instruments (and accompanying demographics) be made available

to me. I am less concerned about the form in which I receive them than that I get the actual item scores and demographics, not just total scores. I am both eager to be supportive of your work, and cognizant of concerns people may have about "sharing" data, thus, if you have any concerns or questions about the instrument or about my requests, I would be happy to discuss them further with you.

It was a real pleasure to talk with you recently by phone and learn more of your work. I will be eager to learn how your work progresses--how the instrument works out with your population, and how your own instrument development moves along. I was also pleased with your interest in continuing to have contact relative to a possible postdoctoral fellowship at Wayne State. Both Dr. Mood and I will be interested in ongoing contact about this. I am enclosing a very brief flyer on the program for your information. If you wish to contact me I can be reached at 313-577-4076 by telephone or at 313-577-5777 by fax. Good luck as you move forward with your work.

Sincerely yours,



Mary J. Denyes, PhD, RN, FAAN
Associate Professor
Family, Community, and Mental Health Nursing

enc.

APPENDIX G
CCKHP KNOWLEDGE SCALE--POSTTEST

CODE# _____

Colorectal Cancer Knowledge and Health Practices (CCKHP)
Posttest

I. Knowledge

A. Indicate whether the following statements are true or false. Circle your response.

3 = True

2 = False

1 = Don't Know

Foods that are part of a healthy diet are:

- | | | | |
|---|---|---|---|
| 1. Fruits and Vegetables | 3 | 2 | 1 |
| 2. Fried Chicken | 3 | 2 | 1 |
| 3. Broiled fish | 3 | 2 | 1 |
| 4. Cold cuts or
lunch meat | 3 | 2 | 1 |
| 5. Barbecue(charbroiled) | 3 | 2 | 1 |
| 6. Ham hocks | 3 | 2 | 1 |
| 7. Wheat Bread | 3 | 2 | 1 |
| 8. Fried pork chops | 3 | 2 | 1 |
| 9. Baked corn bread | 3 | 2 | 1 |
| 10. Candied sweet potatoes | 3 | 2 | 1 |
| 11. Greens cooked with ham
hocks or fat bacon. | 3 | 2 | 1 |
| 12. Macaroni/cheese | 3 | 2 | 1 |
| 13. Boiled/baked/mashed
white potatoes | 3 | 2 | 1 |
| 14. Baked lean pork chops | 3 | 2 | 1 |
| 15. Peanut Butter | 3 | 2 | 1 |
| 16. Boiled rice | 3 | 2 | 1 |

2 of 6

B. Indicate whether the following statements are true or false. Circle your response.

3 = True
2 = False
1 = Don't Know

1. Fiber in food is essential for protection from developing cancer of the colon or rectum. 3 2 1
2. Regular exercise can decrease a person's chances for developing cancer of the colon or rectum. 3 2 1
3. The mortality rate of cancer is higher in African Americans (Blacks) than Caucasians (white). 3 2 1
4. What I eat & drink does not affect my chance of developing cancer of the colon and/or rectum. 3 2 1
5. It does not matter how much oil/shortening I add to food for seasoning. 3 2 1

3 of 6

C. Circle any of the following statements which you believe are warning signs of cancer.

3 = True
2 = False
1 = Don't Know

- | | | | |
|---|---|---|---|
| 1. A lump or thickening
in the breast or
elsewhere. | 3 | 2 | 1 |
| 2. A sore that does not
heal. | 3 | 2 | 1 |
| 3. Swelling in feet
and legs. | 3 | 2 | 1 |
| 4. A change in a wart
or mole. | 3 | 2 | 1 |
| 5. Unusual pain in chest. | 3 | 2 | 1 |
| 6. Persistent cough or
continuing hoarseness. | 3 | 2 | 1 |
| 7. Unusual bleeding
or discharge. | 3 | 2 | 1 |
| 8. Persistent indigestion
or difficulty in
swallowing | 3 | 2 | 1 |
| 9. Unexpected weight loss. | 3 | 2 | 1 |
| 10. Persistent pain in
limbs & joints. | 3 | 2 | 1 |

4 of 6

- D. Indicate whether the following statements are true or false. Circle your response.

Screening/risk factors/treatment/warning signs of
colorectal cancer:

3 = True
2 = False
1 = Don't Know

1. A rectal exam is not used to detect cancer of the colon or rectum. 3 2 1
2. A blood stool test is one of the tests used to detect cancer of the colon or rectum. 3 2 1
3. A proctoscopic exam is one of the tests used to detect cancer of the colon or rectum. 3 2 1
4. A change in bowel/bladder habits may be a sign of colorectal cancer. 3 2 1
5. A proctoscopic exam is recommended for persons over fifty years old. 3 2 1
6. Early treatment of cancer increases the chances of survival. 3 2 1
7. A family history of cancer of the colon or rectum increases the chance for developing this cancer. 3 2 1

5 of 6

8. Diets high in fiber
and low in fat is a
risk for developing
colorectal cancer. 3 2 1
9. Constipation or diarrhea
or both alternately can
be a warning sign of
colorectal cancer. 3 2 1
10. Nausea and/or vomiting
is a sign of colorectal
cancer. 3 2 1

6 of 6

II. Adherence to recommended health practices:

- A. Do your current eating habits follow recommended dietary eating habits for protection/prevention of colorectal cancer? Yes _____ No _____

If no, indicate what eating habits you have which are in conflict with recommended practices.

- B. On a scale from 0-5, to what extent do you intend to change your eating habits to reduce risk for colorectal cancer?

0 = no change

1 = may limit fats & increase fiber occasionally

2 = will increase fiber & decrease fats weekly

3 = will increase fiber & limit fats 2 or more times/week

4 = will increase fiber & limit fats in diet daily

If you indicated that you plan to change your eating habits, what has caused you to make this change?

- C. Do you intend to obtain an annual examination of your stool for Blood and/or a colon exam for early detection of colorectal cancer?
- Yes _____ No _____

APPENDIX H
WRITTEN INSTRUCTIONS FOR USING
STOOL COLLECTION KIT

November 1, 1994
Colorectal Screening Project

Instructions For Stool Collection

1. *Fill in your name and address on the front of the laboratory form. No other information is necessary on the form.*
2. *Use the stool cup to collect a small amount of stool.*
3. *With the wooden "stick" in the packet, take a small stool sample.*
4. *Spread a very thin smear on box A of the first slide. Repeat from a different part of the stool for box B. Place the slide in the envelope provided.*
5. *Repeat these steps for the other two slides after your next two bowel movements.*
6. *Seal the envelope with the slides, and drop in the mailbox.*
7. *Your results will be mailed to you.*
8. *Samples may be mailed anytime within 30 days of the instructional session.*

over

Dietary/ & Drug Restrictions Before and During Stool Sample Collection

1. *Avoid rare meats. The blood in the meat can cause the test to react positive for blood in the stool.*
2. *Avoid the following foods: Turnips, horseradish, cauliflower, broccoli and cantaloupe. (The peroxidase in these foods causes a positive reaction in the test. The stool specimens will be read as "positive for blood" when in fact, the test is negative for blood.*
3. *Include high fiber foods in your diet.*
4. **Avoid aspirin or medications containing aspirin for 2 days prior and during the test as it may also cause blood in the stool.*

Avoid: Aspirin, Bufferin, Excedrin, Anacin

May Take: Tylenol, Extra-Strength Tylenol, or any medication which does not contain aspirin.

**If any of these medications have been prescribed by your physician please consult with him/her before discontinuing.*