To the Graduate Council:

I am submitting herewith a dissertation written by Patrick B. O. Williams entitled "The Development and Administration of an Instrument to Assess the Awareness of Coronary Heart Disease Risk Factors among Blacks." I recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy, with a major in Health Education.

Robert H. Kirk, Major Professor

We have read this dissertation
and recommend its acceptance:

Accepted for the Council:

Vice Chancellor
Graduate Studies and Research

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THE DEVELOPMENT AND ADMINISTRATION OF AN INSTRUMENT TO ASSESS THE AWARENESS OF CORONARY HEART DISEASE RISK FACTORS AMONG BLACKS

A Dissertation

Presented for the

Doctor of Philosophy

Degree

The University of Tennessee, Knoxville

Patrick B. O. Williams

August 1978

1066233

ACKNOWLEDGMENTS

The author wishes to express his sincere appreciation to those who generously gave their time and professional knowledge in directing this research.

Special indebtedness goes to Dr. Robert H. Kirk who served as the author's advisor, for his encouragement, guidance and assistance during the progress of this dissertation. Grateful acknowledgment is also made for the helpful suggestions and encouragement given by the committee members: Dr. Bill C. Wallace, Dr. Warren J. Huffman, Dr. Andrew J. Brown, Dr. Irshad Ahmad, and Dr. George W. Harris.

Appreciation is extended to members of the jury who assisted me in the validation of the research inventory.

Finally, the author wishes to express his deepest gratitude to his wife, Ursula for her understanding and ready assistance and to his parents for the sacrifices they have made during the past years.

P.B.O.W.

ABSTRACT

The primary purpose of this study was to develop an instrument to measure the level of awareness of coronary heart disease (CHD) risk factors in a selected Black population. Another purpose concerned the assessment of the level of awareness of coronary heart disease risk factors among the selected Black population. The sample population comprised 300 Black adults between the ages of 18 and 65 years, and were drawn randomly from the three predominantly Black neighborhoods in the City of Knoxville, Tennessee.

The instrument which revealed its suitability for the study was developed by the investigator and validated by a jury of experts in the fields of Medicine, Health Education, Nutrition, Psychology, and Anthropology. It comprised a thirty-three multiple choice items inventory, divided into two broad areas—"General Knowledge of CHD/Risk Factors" and "Knowledge of Specific Risk Factors." The instrument was administered to the subjects through the questionnaire-personal-interview technique.

Four null hypotheses were formulated and tested to determine if significant differences existed among subjects with varied ages, educational levels, sex and socioeconomic levels, and their knowledge regarding CHD risk factors. Hypotheses were analyzed using a one-way Analysis of Variance (ANOVA). The .05 level of significance was the criterion for the acceptance or rejection of the hypotheses.

Based on the data analysis of the study, the following conclusions were drawn:

1. The instrument was valid, reliable, and objective for the purpose of measuring coronary heart disease (CHD) risk factors awareness.

2. The instrument was suitable for use among predominantly Black, nonmedical oriented groups for the determination of CHD risk factors awareness.

3. The overall level of awareness of the sample population regard-CHD risk factors was relatively low.

4. Coronary heart disease (CHD) risk factors awareness was closely related to age, level of education, and socioeconomic level.

5. The demographic factor of sex did not make a difference in the overall awareness of CHD risk factors among the sample population.

6. There was a significant difference in the level of awareness among various age groups of the sample population regarding CHD risk factors.

7. The older the individual in any given group, the more knowledgeable he/she is regarding CHD risk factors.

8. There was a significant difference in the level of awareness among different educational groups of the sample population regarding CHD risk factors.

9. The higher the level of education attained by a group, the greater that group's level of awareness of CHD risk factors.

10. There was a significant difference in awareness level among various economic groups of the sample population regarding CHD risk factors.

11. The higher the level of annual income maintained by a group, the higher the group's level of awareness of CHD risk factors.

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CHAPTER I

INTRODUCTION

In order to promote and maintain maximum health, it is important that everyone should be aware of some of the impediments that can stand in the way to healthy living. These impediments could be communicable, chronic or malignant diseases, socio-economic factors, organizational malfunctions or any other factor that could be prejudicial to the health and well-being of the community.

Heart disease, currently, the most common cause of death, (12) continues to be the primary health problem in the United States. This disease which is due, in part, to the blockage of a coronary artery by blood clots, also occurs when there is necrosis of the heart muscle as the result of inadequate supply of blood to the heart (12, 44). When this type of situation occurs, we would have what is generally known as coronary heart disease or heart attack.

Coronary heart disease (CHD) attacks individuals irrespective of age, sex, national origin or ethnic grouping. It is estimated that about 4,120,000 Americans suffer from coronary heart disease, and each year, approximately 642,719 individuals below the age of 65 die of it (32).

While coronary heart disease affects all races of mankind, nevertheless, there are important differences regarding the extent to which each population distribution is involved. For example, the

incidence and mortality of coronary heart disease among the Japanese is believed to be one-sixth of that found among Americans. The Danish, Norwegian, and the Swedish males under 55 years of age, have a coronary heart disease mortality rate less than one half that of the Americans. But in Finland which is known to have been settled by persons of central Asiatic origin, the coronary heart disease death rate is higher than in the United States (4, 40). Furthermore, the Bantu tribe in South Africa is believed to have much lower coronary heart disease incidence than their white counterparts within the same country (2) while Haitian Blacks have a higher incidence than American Blacks (20).

What are the risk factors linked with coronary heart disease? Multiple studies of population groups both within the United States and elsewhere have identified dietary intake of fat, elevated plasma lipids, hypertension, obesity, heavy cigarette smoking, and physical inactivity as risk factors closely associated with coronary heart disease (12, 37). For this reason, the American Public Health Association has recommended nationwide research and public education programs not only to determine the quantitative effects of primary dietary intervention on coronary heart disease incidence but also for the greater awareness, understanding, and acceptance of the disease on the part of the public.

I. PURPOSE OF THE STUDY

The primary purpose of this study was to develop an instrument to measure the level of awareness of coronary heart disease (CHD) risk factors in a selected Black population. Another purpose was to assess

the level of awareness of coronary heart disease risk factors among the selected Black population.

II. STATEMENT OF THE PROBLEM

The problem of this investigation was the development of a valid, reliable and objective instrument for the evaluation of awareness of coronary heart disease risk factors in a selected Black population. The instrument so developed might further be utilized by various heart and health organizations in appraising the levels of knowledge of coronary heart disease risk factors in their respective Black communities. The questions which the research was designed to answer concerned the appropriateness of information and scientific accuracy of the instrument, the validity, reliability and objectivity of the instrument, and the CHD risk factors awareness levels of the chosen population.

III. HYPOTHESES

It was hypothesized that there would be significant differences in the levels of awareness among the sample population regarding coronary heart disease risk factors. These differences would not only exist for the entire sample but would also occur when the population was subdivided into groups reflecting different age levels, different academic levels, different economic levels as well as among the different sexes.

The following null hypotheses were developed for this study:

1. There was no significant difference in the level of awareness among different age groups of the sample population regarding coronary heart disease risk factors.

2. There was no significant difference among different sexes of the sample population regarding CHD risk factors.
3. There was no significant difference in the level of awareness among the uneducated, the minimally educated, and the highly educated members of the sample population regarding the CHD risk factors.
4. There was no significant difference in the level of awareness among different economic levels (annual income) regarding CHD risk factors.

IV. NEED FOR THE STUDY

Coronary heart disease or heart attack is the United States' number one killer (32). In recent years, the American Heart Association, its affiliates and subdivisions have poured millions of dollars into research programs in search of ways to prevent heart attacks. Numerous studies have been conducted in this field, with reliable and valid conclusions. Hard facts about coronary heart disease, its risk factors, mortality and morbidity among different ethnic populations have also been established.

Current statistics have shown that an estimated 4,120,000 Americans suffer some form of coronary heart disease and each year, about 642,719 persons below the age of 65 would die from this disease (19). Studies have also indicated that individuals who have had heart attacks, often had one or several of the following conditions or living habits: (1) Hypertension—high blood pressure, (2) high cholesterol level,

(3) obesity, (4) diabetes, (5) lack of exercise, (6) heavy cigarette smoking, and (7) a family history of heart attacks in middle age (33). It would appear then that any of these habits or conditions, known as risk factors increases the chances of heart attack; and a combination of two or more factors could probably multiply the risk.

A search of the related literature revealed that some studies on coronary heart disease risk factors have been conducted but little evidence has been found to suggest that investigation as to the level of awareness of coronary heart disease risk factors among the Black population has ever been carried out.

A recent report by the American Heart Association, based on numerous studies, has indicated that of the 24,080,000 Americans with high blood pressure, only one half of them actually knew that they had the disease. The report further went on to say that high blood pressure, a risk factor for coronary heart disease is nearly twice as prevalent among Black Americans as Whites (32). Therefore, since the majority of patients are unaware of the hypertensive disease, and Blacks suffer more from high blood pressure than other ethnic groups, it could be argued out that the incidence, mortality and degree of unawareness of coronary heart disease/risk factors might be most prevalent among Blacks.

There has been in recent years many organized efforts to rid the American society of the high incidence of coronary heart disease. Such endeavor has come from the American Public Health Association. In the 1974 resolution and position papers issued by the governing council, the American Public Health Association states:

> Whereas, coronary heart disease is the major public health problem in the United States, and Whereas elevated plasma lipids, hypertension, heavy cigarette smoking, obesity and physical inactivity have been identified as risk factors associated with coronary heart disease and Whereas the modification of these risk factors may reduce the conditions contributing to the incidence of coronary heart disease, be it Resolved that the American Public Health Association supports the joint statement of the Food and Nutrition Board, National Academy of Sciences-National Research Council and the Council on Foods and Nutrition, American Medical Association and recommends that:
>
> 1. Measurements of plasma lipids becomes a routine part of all health maintenance examinations for children and adults.
> 2. Persons in high-risk categories, on the basis of their plasma lipids levels and their families, receive appropriate dietary advice including the need to maintain a desirable weight by a combination of physical activity and caloric intake. . . .
> 3. Ordinary foods modified in saturated fat and cholesterol contents be readily available, reasonably priced and appropriately labeled.
> 4. Scientific research be supported to determine the quantitative effects of primary dietary intervention on the incidence of coronary heart disease (37).

Furthermore, with regard to high incidence of coronary heart disease among Blacks, Richard Allen Williams had the following to say:

> In a very important yet unpublished study being conducted by Dr. Allen Weisse of the College of Medicine and Dentistry of New Jersey and the Martland Hospital in Newark, preliminary data indicate that the prevalence of subendocardial and transmural myocardial infarction is greater in Blacks than in Whites in every age-sex-race group over the age of 40. . . .
>
> Clearly, teaching of the dictum that coronary heart disease in Blacks is not a problem is fallacious and must be discontinued. In addition, better efforts to accumulate more data on the epidemiology of this disorder must be made (54).

Also obesity, a major risk factor in the development of coronary heart disease, is regarded as a general health problem within the American society. It has been estimated that 20% to 50% of our population is overweight (54) and Black women in particular are believed to be

severely affected by obesity (48). Therefore, because of the connection between this factor and coronary heart disease, it is expedient that overweight Blacks, should be made aware of the risk, complication and association of obesity with coronary heart disease.

In the 1959 to 1962 National Health Survey, Gordon (17) carried out health examinations on a probability sample of 6,672 individuals, aged 18-79 years. The purpose of his study was to determine the incidence and distribution of coronary heart disease in adult Americans.

Each sampled individual was subjected to a two hour medical examination. The cardiovascular evaluations which included (a) a medical history, (b) a cardiovascular examination by a fellow or first year resident in internal medicine, (c) an EKG test, and (d) chest X-ray, yielded the following results:

(i) That one in every 100 persons between the ages 18-79 had a definite heart disease and heart disease was more common among men than among women.

(ii) There was relatively higher heart disease rates among Blacks, 24.4 per 100 adults as contrasted with 12.0 per 100 White adults.

And the racial difference as evidenced by both Black men and women is reflective of greater prevalence of hypertension - a common cardiac risk factor among Blacks. The investigator, therefore, concluded that heart disease was more prevalent in Blacks than in Whites.

In order to effectively control coronary heart disease among Blacks, adequate information concerning the disease must be well disseminated to

all sections of the Black community. This cannot, however, be accomplished without prior and continuous research in the area of cardiology as well as health education. It is hoped that with this in mind and within a few years, the prevailing high incidence of coronary heart disease among Blacks would be brought to a minimum.

V. DELIMITATIONS

The following were the major delimitations of this study:

1. The research was restricted to a sample population of 300 Black adults, aged 18 to 65 years and who were residents of the city of Knoxville, Tennessee.
2. The research instrument was devised for specific use among Blacks.
3. The research instrument was administered to a random sample of a Knoxville-Knox County Black adult population.

VI. LIMITATIONS

The limitation for the study was:

1. The investigation was specifically conducted for the appraisal of awareness of coronary heart disease risk factors among a selected Black population.

VII. BASIC ASSUMPTIONS

On the basis of the delimitations and limitations, the following assumptions were made regarding this study:

1. It was assumed that the instrument used for the appraisal of coronary heart disease risk factors awareness was valid and reliable when administered to the selected Black population.
2. It was assumed that questionnaire-personal-interview technique was the most appropriate and acceptable means of collecting data for the study.

VIII. DEFINITION OF TERMS

The following terms were defined as they specifically applied to the study:

Coronary Heart Disease (CHD). A chronic and degenerative disease due to obstruction in a branch of one of the coronary arteries hindering the flow of blood to some part of the heart muscle. This part of the muscle then fails to function properly because of lack of blood supply. Myocardial infarction, coronary occlusion, heart attack, coronary, and coronary thrombosis are other names for this disease (12, 23).

Risk Factors. For the purpose of this research, risk factors were the conditions, environmental factors, living habits or lifestyles that could contribute to the development of coronary heart diseases (32, 37).

Awareness. In this study, awareness implied a certain acute sensitiveness to or knowledge of the existence of coronary heart disease risk factors, without actual observation of definite facts regarding the risk factors themselves (7).

Hypertension (High Blood Pressure). An unsuitable or persistent elevation of blood pressure above the normal range. This is usually the result of a narrowing of small arteries so that force is required to push the blood through them (15, 27).

Cholesterol. A fat-like substance found in animal tissue. In blood tests, the normal level for Americans is between 180 and 230 milligrams per 100 c.c. A higher level is often associated with a high risk of heart attack and stroke (15).

IX. ORGANIZATION OF THE STUDY

The entire investigation is divided into six chapters. Chapter I comprises, an introduction, purpose of the study, statement of the problem, hypotheses, delimitations, limitations, assumptions, and a definition of terms. Chapter II consists of the review of related literature - studies related in content and studies related in method. Chapter III is concerned with methodology. Chapter IV embraces a presentation of an analysis and interpretation of data. Chapters V and VI include the findings, conclusions, recommendations, summary, and the study in retrospect.

CHAPTER II

REVIEW OF RELATED LITERATURE

Cardiovascular diseases (heart, blood and circulatory diseases), currently the most common cause of deaths, continue to be the primary health problem in the United States (12, 39). These diseases attack individuals irrespective of age, sex, national origin or ethnic grouping.

Coronary heart disease, which will be the main theme of discussion, is due to the blockage of a coronary artery by blood clots, thus depriving a portion of heart muscle of normally oxygenated blood, and resulting in the death of part of the heart muscle. And when this type of situation occurs we would have what is generally known as coronary heart disease, myocardial infarction, a coronary, coronary thrombosis, cardiac disease or simply heart attack (12). It is estimated that about 4,120,000 Americans suffer from coronary heart disease and each year, approximately 642,719 individuals below the age of 65 would die of it (32).

Coronary heart disease like any other cardiovascular disease affects all races of mankind, but there are important ethnic differences with regard to the extent to which each population distribution is involved. For example, the incidence and mortality of coronary heart disease among the Japanese is one-sixth of that found in the United States. The Danish, Norwegian, and Swedish males under 55 years of age have a CHD (Coronary heart disease) mortality rate less than one half of

that in America but in Finland known to have been settled by persons of Central Asiatic origin, the death rate is higher than in the United States (4, 40). The Bantu tribe in South Africa is believed to have much lower CHD incidence than their white counterparts within the country (2) while the Haitian Blacks have a higher incidence than American Blacks (20).

A review of the literature has revealed that some studies related to coronary heart disease risk factors have been conducted but no evidence has been found to suggest that a valid, reliable, and objective instrument to determine the degree of risk factors awareness among Black population is available. Most of the literature on coronary heart disease as well as their risk factors were written in technical language and could best be understood only by individuals in the areas of cardiology, medicine, and public health. Related literature on heart disease (hypertensive) was initiated by Sir William Harvey, described in De Motu Cordis and published in 1628 (13).

The review of this literature will therefore, embrace analysis of studies pertinent not only to coronary heart risk factors awareness but also general concepts on coronary heart disease. It will also be divided into the following subcategories:

1. Studies related in method and content: This category will include studies which emphasize both research methods and information relative to coronary heart disease, data comparisons between Blacks and Whites as well as risk factors awareness.

2. Studies related in method. This category will include studies which present systematic procedure of awareness evaluations.

I. STUDIES RELATED IN CONTENT AND METHOD

There were very few studies found in this area of literature review. This might have been caused by a lack of awareness among the Black population that coronary heart disease risk factors exist. If this group of people are unaware of their existence, it is therefore, obvious that little will be known of the incidence, the degree of mortality, and morbidity of the disease itself.

Health experts, physicians, and educators have continuously expressed great need for health educational program in coronary heart disease risk factors awareness. And to this end, in 1973, Kellner et al. (29) express this great need with the following statement:

> The success of new programs to control heart, lung and blood disease and to provide blood resources will depend in large measure upon greater awareness, understanding and acceptance on the part of the public. If the health profession expects the public to change its eating or smoking habits or to participate more enthusiastically in voluntary blood donations, improved methods must be developed for communicating with the public and for gaining its confidence. It will be necessary to make better use of the voluntary health agencies and existing communication media and to begin the educational process early in life. In addition it will be desirable to develop new and more effective techniques for improving public awareness.

In 1970, Grollman (19) writing in monographs on hypertension, said that the Framingham study had demonstrated that obesity along with hypertension and hypercholesterolemia is in close association with susceptibility to coronary heart disease. He also indicated that excessive intake of carbohydrates and calories may lead to endogenous lipogenesis, i.e., in the arteries, liver, and adipose tissue and this is believed to be due, primarily, to the induction of hyperisulinism.

Hypertension a primary risk factor in the development of coronary heart disease, and since it is more prevalent among Blacks than any other ethnic group (54), Thompson (50), writing on the hypertension related problems and emphasizing on the risk factors awareness, said:

> Professional, educational programs have resulted in increased awareness. (A recent survey conducted by us in Central Harlem showed that 85% of those surveyed had their blood pressure measured within the preceeding 12 months.) Health education and motivation are at least as important as other educational goals. Along with commitments to teach reading and writing, health education for health awareness and maintenance should begin early in grade school.

In 1946, Hunter (26) being confounded, apparently, by his inability to find related literature on the clinical picture of coronary heart disease among Blacks, carried out a successive review of 1,000 autopsies on Blacks and Whites. And from this number, he chose those that were of particular relevance to the study - that is those in which coronary occlusion was immediate cause of death which included 16 Blacks and 18 White cases - with ages under 70 years. After careful examination, analysis and evaluation of the cases, the investigator concluded that coronary heart disease in all cases resulted from occlusion of arteriosclerotic coronary arteries. He also revealed that coronary occlusion is rarely diagnosed before death in Blacks and below ages of 70 coronary heart disease is as common in the indigent Black as in the indigent White.

In 1955, McVay and Keil (35) conducted a study to determine the disparity, degree of occurrence, and awareness of coronary heart disease among Blacks. The study which consisted of questionnaire and physical

examinations revealed that myocardial infarction occurs earlier in Black women than any other age-sex-race groups. They pointed out that at the time of myocardial infarction, the average ages of the sampled individuals were as follows: Black women, 55 years; White women, 65 years; Black men, 61.7 years; and White men, 62.7 years. The authors, however, failed to agree on the circumstances that surrounded the early manifestation of myocardial infarction in Black women.

Goodman (16) conducted a study of race awareness in young children in a Northeastern town of the United States. The data were collected through visits, observation, test, and interviews. A total of 103 children were studied and permission to interview them was obtained from parents and school directors.

Goodman and his two associates' data concerned: (1) each child's awareness of his own physical attributes and attitudes toward others, (2) his feelings about these attributes, (3) his concepts concerning social situations involving people differing what the adult would call "racial" features, and (4) his readiness to classify people in terms of color or in terms of what adults would call "race." These data were analyzed and evaluated under two component headings. (A) criteria for description and definition of awareness—attitudes "level" and (B) probable causes and correlates of awareness—attitude level. Forms for the students were developed which Goodman and his associates completed with: (a) personality ratings, (b) data collected about each child's neighborhood, and (c) conclusions regarding levels of race awareness among the group studied.

Each subject's data was analyzed and then subdivided into high, medium as well as low levels of awareness. And from these data Goodman concluded that the high degree of race awareness found in the majority of the children was very impressive, and that more intellectual awareness of the physical signs of race was a great food for thought.

In 1972, Brown (7) developed an instrument to determine the level of sickle cell anemia awareness in a selected Black population. He reviewed several literature and constructed a sixty item preliminary instrument which was rated and accepted by twenty-nine jurors. The instrument was then administered to the City of Knoxville, Tennessee, residents through personal interviews. The data gathered from this process were used to compute and test the reliability of the instrument which was later administered to a random sampled Black population. The result revealed that the level of awareness for the sample population was low and this varied from age group to age group—that is the younger the age group and the higher the level of education, the higher the level of awareness.

One of the most recent information relative to cardiac disease among Blacks is contained in the 1971 Survey by Oalman and associates (41). The study which was to determine cardiac disease causes in relationship to specific death rates among races was conducted in New Orleans, Louisiana. A method for investigating terminal illnesses as to the causes of deaths in adult males with major emphasis on cardio-vascular diseases was adopted, programmed, and validated by a panel of five medical references. Analysis and classification methods were

applied to a 100% sample of deaths occurring between February 13, 1964 through June 12, 1964 with 514 cases of White and Negro male residents of New Orleans, aged between 30-64 years. The survey also included: (a) an analysis of all deaths in a population group during a specified time, (b) information from hospital records, physicians, and coroners' reports, (c) clinical and laboratory findings as to specific causes of death, and (d) diagnosis based on programmed criteria as compared with analysis by a panel of five physicians.

The findings of the study revealed that there were higher death rates for all cardio-vascular diseases for Black men between the ages of 30 and 44 than for White men of identical ages. But in contrast, death rates from coronary heart disease were higher for White males between the ages of 45 to 64 years than their Black counterparts in the same age range.

In 1964, McDonough et al. (34) conducted a survey based on population census to determine the incidence distribution of coronary heart disease (CHD) among Black and White populations in Evans County, Georgia, to examine the association between blood pressure, serum cholesterol risk factors, and coronary heart disease among different racial, social as well as occupational groups and to appraise the cohesiveness with which the results support or fail to support contemporary hypotheses regarding the risk factors and natural history of coronary heart disease.

After careful study of the related literature, the authors performed examinations, consisting of a history probing for chest pains,

physical examination, urinalysis, serum cholesterol determination, EKG, and posterior chest X-ray on 3,102 individuals of which 50% were random samples aged 15-39 and 40-70 years respectively. They also utilized questionnaire in the determination of the caloric intake, height, and weight in relation to the body surface of each sampled individual.

The data gathered revealed that there was a significant difference in the heart disease prevalence between Black and White males. That is, the incidence and mortality of the disease were much lower among Blacks. Social class was indicated as an adequate explanation for the Black-White difference since low social class White males had a similar CHD prevalence ratio to those of the Black males. The prevalence ratio level was, therefore, seen to be higher among the high social White class. The results also showed differences in caloric balance and fat intake between these ethnic groupings. The low coronary heart disease in Black males was determined by the fact that Blacks being poor have significantly more calories, less fat and protein in diet, and weighed less. Cigarette smoking was found to be one of the risk factors relative to coronary heart disease prevalence but the study could not account for the excess CHD incidence among high social class White males.

In 1964 Shapiro et al. (46) conducted a health insurance plan study on incidence and prognosis of coronary heart disease with the main objective to expanding coronary heart disease (CHD) awareness following diagnosis or new manifestations of the disease. The study also explored the relationship of certain physiological, demographic or social parameters of patients to the prevailing risk factors of the disease; and

sought to determine incidence of new manifestation in relation to such variables as sex, age, ethnic group, occupation, physical activity, and smoking.

Of the 110,000 persons, aged 25-64 years and representing a 4% random sample, there was a response rate of 83%. Methods of evaluation and analysis included mailed questionnaires, personal interviews with patient, and medical examinations. After intensive review of the literature and computation of relevant data Shapiro and his colleagues arrived at the following findings:

1. The rates of myocardial infarctions increase with advancing age for all sexes, and between the ages 45-54 and 55-64 the incidence is greater for females than males.
2. A well documented risk of coronary heart disease associated with cigarette smoking was established in the study. The risk is greater in moderate and heavy smokers than non-smokers.
3. Data strongly indicated that men who are least active have a higher risk of coronary heart disease than active persons and at the same time men with "heavy" physical activities seem to have a comparatively high risk for angina or possibly myocardial infarction. The group studied had very little risk factors awareness.

In 1977 DeBecker et al. wrote regarding the relationship between coronary risk factors and socio-economic status. In a letter to "Lancet" he said:

> The article of Holme et al. was of great interest to us. Over approximately the same period (September 1972 to May 1974), comparable data were collected in the Belgian heart-disease prevention project. As part of this study, all men aged 40-59 years employed by fifteen Belgian factories were invited to attend a cardiovascular screening. The participation rate was 87%. Educational level and occupational class were found highly correlated. . . .
>
> Between our data and those of the Oslo study, there were both resemblances and differences. The trend with regard to cigarette smoking were similar in both studies: percentage of cigarette smokers decreased and of ex-smokers increased with occupational class. . . . With regard to cholesterol, the two sets of results are completely opposite. We have an important positive relation between class and serum cholesterol. . . . (8)

In a study of cardiopulmonary health and coronary risk factors in a selected military population, Denniston et al. (9) found significant differences in the level of cardiopulmonary health between the NCOs and officers. The incidence of abnormality was higher among smokers than nonsmokers. Available evidence also revealed a gradient of risk for developing coronary heart disease with increasing levels of serum cholesterol. The significant difference in the distribution of cholesterol values among officers and NCOs was that cholesterol had been shown as an important risk factor for ischemic heart disease among some of the subjects. Of additional significance was the fact that hypertension was more prevalent among smokers than nonsmokers.

According to the National Heart and Lung Institutes' survey on the "Public Awareness of Hypertension" (38), only 24% of the population knew that hypertension is the same as high blood pressure, a proportion that rose only slightly for college graduates (38%) and hypertensives (33%). On the meaning of "high blood pressure," most respondents indicated

minimal understanding while 23% said they did not know. Public awareness of hypertension as the cause of coronary heart disease was reported to be extremely low, according to the survey. Less than half of the sample or 42% actually knew that hypertension was a major risk factor in the manifestation of coronary heart disease or heart attack.

In 1977, Segers and Mertens (45) studied the effects of preventive health behavior and awareness of myocardial infarction in a selected male population.

A forty item evaluation inventory was administered to three samples of 30 males each, whose ages and socio-economic levels had been controlled. The first group of samples was composed of outpatients, drawn from private physician and have exhibited clinical symptoms of myocardial infarction. The second sample consisted of coronary heart disease (CHD) symptom-free subjects selected randomly from the 7,500 employees who volunteered for an atherosclerosis detection campaign. The third sample, a controlled group, comprised healthy employees who had never consulted for their heart conditions.

Each group was subjected to inter-items correlation matrices. A principal factor solution with highest correlations as communality values was stopped after 10 factors. The extent of agreement among factors was evaluated by coefficient of congruence for a fixed set of variables from different samples.

The factorial solution of the three groups revealed that awareness of myocardial infarction and preventive health behavior are differently associated with distinctive patterns of anxiety and with specific

defense mechanisms. This finding contributed to consider anxiety not only as a coronary heart disease risk factor but also as a motivational factor that could impel individuals to prevent or deal early with the disease.

An association of coronary artery occlusion, as determined by coronary arteriography with age, prevalence of risk factors, and alcohol intake was studied in 1,635 male and 371 female heart patients by Anderson and his associates (3). The degree of coronary artery occlusion was positively related to elevated cholesterol, elevated triglycerides, diabetes, age, and history of smoking for both male and female patients. Hypertension was related to the degree of occlusion only for female patients. Male and female patients who had higher alcohol intake tended to have extensive occlusion. No positive association was found between obesity and the degree of occlusion. When the subjects were divided on the basis of age, the findings did not differ. The lack of finding a relation between obesity and occlusion or between hypertension and occlusion for males differs from the general findings of epidemiologic studies on the relation between these risk factors and coronary heart disease. The authors believed that this discrepancy may either be explained by the way they selected subjects or that obesity and hypertension are not directly related to coronary occlusion but influence occlusive disease through some secondary mechanism.

II. STUDIES RELATED IN METHOD

In 1960, Greenstein (18) carried out a study to evaluate the level of political awareness and choice of political parties among public and

private school students in New Haven, Connecticut. He constructed a questionnaire which was administered to a group of students in the fourth and eighth grades. To measure the validity and reliability of each item in the questionnaire, each student was interviewed initially and the findings were accordingly tabulated. The questionnaire was later revised and administered to a random student sample of 659, the subject matter ranging from nonpartisan politics to personal ideals.

The result of the study which was analyzed according to sex, age, and socio-economic levels revealed that a large percentage of the children were aware of different political parties and had at the same time identified with one of the major political parties.

In 1974, Desai and Serjeant (10) surveyed the level of sickle cell disease awareness among high school students in Kingston, Jamaica, to assess the extent as well as sources of the knowledge and role of some educational and socio-economic factors in the level of knowledge. The survey questionnaire consisted of nine questions: (1) Have you ever heard of sickle cell anemia? The second question was then dependent on the answer of the first; if the answer was positive, the respondent would be asked the second question: (2) How did you learn about the disease - through radio, television, newspaper, a friend or relative or both? The third question was: Do you know anybody with the disease? The fourth question was: Do you have sickle cell anemia? The fifth question was: How do people get the disease? And the sixth, seventh, eighth, and ninth questions respectively were: What races does it affect? How common is it in Jamaica? What troubles does the disease

cause? Can it be treated? After the required number of questionnaires were obtained, the ages, sex, level of education, and parental occupational statuses of the respondents were tabulated and evaluated.

Knowledge of the disease was assessed by a point system as follows: Awareness of hereditary characteristics (+2 points), racial involvement (-1 to +2 points), correct frequency of occurrence (+2 points), correct symptoms (-2 to +3 points for each major symptom) and the possibility of treatment (+1 to +3 points). With this evaluation system educational level received high grading, the mean of which rose from a mean of 1.7 for the 7th grades to 8.3 among teacher's trainees. Other factors closely related to increased awareness included having relatives or parent members of medical profession which made minimal scores of 0.3 and 0.1 respectively. Medial sources of information also received low ratings—information by newspapers or magazines had 1.5 points higher than through friends (0.5) or T.V. (0.2 points).

Finally, the investigators concluded that educational level was the most important factor influencing the awareness and knowledge about sickle cell disease.

Ulibari (51) in 1960 constructed a questionnaire to measure teachers' awareness of sociocultural factors that impinged on the education of minority groups children. He reviewed the literature and formulated the questionnaire which was evaluated by his dissertation committee. The author further interviewed a stratified sample of 100 teachers who were then teaching Anglo, Spanish-Americans, and Indian children. The questionnaire included such items as: (1) the

psychological needs of the children, (2) cultural orientation as they affected the children's classroom behavior, (3) social conditions prevailing among the groups, and (4) educational problems relative to the three ethnic groups.

Individual item which was analyzed statistically had three five-point scales for each group while the mean for each scale gave rank to each group. The standard deviation showed the extent to which teachers agreed in assigning such ranks to each group. The coefficient of concordance indicated the degree of agreement or disagreement among teachers in assigning similar ranks to the three groups. A high coefficient of concordance indicated a high degree of agreement in assigning similar ranks to the groups as well as the level of teachers' awareness.

Hess (25) in 1974 conducted an investigation to evaluate public awareness of public information programs in a community mental health center. Two separate measurements of levels of awareness were taken and included; (a) prior to the public information efforts and (b) after the public information efforts had been in effect for a year. Three different public information efforts were evaluated in terms of lectures, newsletters, and a series of newspaper articles.

Awareness level was determined through the use of mail questionnaires. Each subject received a cover letter briefly explaining the study, a one-page questionnaire containing five questions, and a preaddressed and stamped return envelope.

In the first measurement, a sample size of 1,507 individuals was selected. One thousand five hundred and fifteen individuals represented

the second sample size with 849 repeated for control purposes. The subjects were subdivided into geographical locations and special interest or occupational groups which was believed would reflect different levels of awareness regarding the center.

Two different types of comparisons were made with the results: comparisons between the first and second measurements, and comparisons of different groups within the second measurement. Results were then cast into 2 x 2 contingency tables and tested for statistical significance at the .05 level using chi-square for two independent samples and the Fisher's exact test.

The study revealed little significant change between the two measurements—which suggested that the public information efforts did not increase level of awareness as measured by the study. Only the newsletters were effective in increasing the awareness level.

In 1973, Ohsako (42) conducted a study to test race awareness among white and black children, its cross-sectional stability at age 8, 10, and 12 in different school settings. The study also sought to control for the children's racial attitudes in order to analyze factors of race awareness apart from racial prejudice.

The sample comprised a total of 72 elementary school boys from a predominatly black school, predominatly white schools, and mixed group schools. First, each child was individually interviewed by the researcher by means of an instrument consisting of three sets of white pictures, one set of oriental pictures, and a set of black pictures. In the second instance, each child was given a racial attitude test

modified from Bogardus's Social Distance Scale with response choices similar to a Likert scale in that there were five response choices ranging from very positive to very negative. Correlation between the race awareness and racial attitude scores was significantly low so the researcher utilized an univariate analyses of variance to determine race awareness. The study revealed that Black children showed greater race awareness than White children; race awareness increases with age; both oriental and black children's pictures produced greater race awareness than white children's pictures.

Brown (6) in 1976, carried out a study to evaluate the level of awareness and use of Cervical Cancer tests (Pap Smear test) among women in Southern Appalachia. A randomized proportional sample of 105 women was selected for the study according to two criteria—age and the financial basis of membership in the Mountain Trails Health Plan, a Health Maintenance Organization affiliate that has headquarters in Southern Appalachia.

The survey instrument used in the study consisted of selected questions developed by Dr. Stephen Kegeles of the University of Connecticut School of Dental Medicine. The instrument covered such items as demographic factors, knowledge of potential Cervical Cancer control through early detection, factors affecting use of detection services, relationship between age and susceptibility, educational level, marital status, and the respondent's perception of her personal potential for experiencing Cervical Cancer.

Of the 105 members of the plan studied, 81 indicated that they had experienced one or more pap smear tests. This percentage (71%) was

greater than might have been expected on the basis of the review of previous research.

Factor contributing to this higher percentage were the subjects' membership in the prepaid health care plan and the increasing tendency of physicians to perform cervical cancer screening tests on patients who visit them for reasons unrelated to cancer detection. The later phenomenon coupled with inadequate patient education was viewed as a major cause of the discrepancy found between the women pap test experience and their pap test awareness. Furthermore, of the 81 women, only 49 were able to identify specific test for detecting cervical cancer.

The result suggested that the nationwide cervical cancer educational efforts of a multitude of agencies and individuals have met with considerable success.

III. SUMMARY

The literature review sought to examine past studies relative to knowledge levels of different communities regarding coronary heart disease risk factors. Literature related in content gave little or no information as to the instruments and processes involved in the evaluation of awareness of coronary heart disease risk factors. McVay and Keil (34) conducted the most comprehensive study related to content, but they neither validated their instruments nor established their statistical reliability. They also failed to arrive at definite conclusions regarding their findings.

The literature, however, revealed a limited number of studies used in appraising awareness levels, but there appeared to be some questions relative to procedures used in selecting items to be included in the instruments.

The literature review pointed to the following conclusions: (a) There are very few researches in existence on coronary heart disease/ risk factors related to Black communities. (b) Items on the instruments used in such studies were not validated. And (c) No attempts were made to establish reliability of the instruments.

CHAPTER III

METHODOLOGY

The research design, instrument construction, and sampling procedures are presented in this chapter. The methods employed to solve the problems under study were as follows: (a) Overview, (b) Procedures for constructing the instrument, (c) Selection of the sample to be studied, (d) Data analysis design, and (e) Summary.

I. OVERVIEW

The primary objective of this study was to develop an instrument to appraise the levels of awareness of coronary heart disease risk factors among Black adults between the ages of 18 and 65 years. Another purpose concerned the assessment of the level of awareness of coronary heart disease risk factors among the selected Black population. Subjects selected randomly were Black adult residents of the City of Knoxville, Tennessee. The basic research method of this investigation was the utilization of a comprehensive evaluative questionnaire and interview technique. This method of data collection was deemed feasible because it was possible to obtain pertinent information conveniently from the sample population.

II. DEVELOPMENT OF THE PRELIMINARY INSTRUMENT

In order to determine the types of information to be included in the preliminary instrument, an exhaustive search of the literature was

conducted. Several resource materials, including textbooks, pamphlets, fact sheets, research studies, medical and public health journals were thoroughly reviewed (Appendix A). Opinions and advice were obtained from experts in the field (mainly physicians—General Practitioners, and Cardiologists) regarding scientific facts and the suitability of each item to be included in the preliminary instrument. Experts in the field of cardiology from the National Institutes of Health (Heart and Lung Institute) in Bethesda, Maryland, were consulted for appropriateness and scientific accuracy of the items. A reader or an expert in the field of reading was also consulted to determine at what level each item in the preliminary instrument should be worded to be clearly understood by a lay Black person in the street. All the information obtained was carefully reviewed, analyzed, and included in the preliminary instrument. In order to avoid taking too much time of the rating jurors, the interviewees and the interviewers, a questionnaire requiring approximately 14 to 20 minutes to respond to was considered practical. Therefore, based on the advice of experts from the National Institutes of Health, the number of items required for the final instrument was estimated at between 25 to 30. While there was no firm rule to determine the overall number of questions, the common practice of doubling the number of items for the final form, was utilized (7). Hence, a fifty-item preliminary instrument was constructed based on the literature review and opinions of experts in the field.

The Rating Scale

In order to eliminate ambiguity in the preliminary items, and to establish a general point of reference to quantify the contents to be rated by the jury, the designing of a rating scale was deemed necessary. To this end, a rating scale with five points on a continuum was constructed for the evaluation of all items within the preliminary instrument. The five points were, thus, spread out evenly and concentrated in two main areas—(a) Scientific accuracy and (b) Appropriateness of the instrument items. The point values of one through five were assigned, respectively, to ratings—"not desirable," "not required but accepted," "desirable," "essential," and "indispensable." The investigator did utilize the expertise and experience of his doctoral committee chairperson in the development of evaluative instruments, to construct his rating scale.

The following mean rating scale values were utilized for the selection and acceptance of each item into the preliminary instrument:

1. Three points = desirable
2. Four points = essential
3. Five points = indispensable

Therefore, all items that received point values of one and two were subject to rejection.

Selection of the Rating Committee

The selection of the rating committee involved determining what persons could best qualify to rate the preliminary instrument. The criteria utilized for the selection of the committee members included:

(a) geographical location, (b) current involvement in the research, treatment, and care of coronary heart disease/risk factors, (c) willingness to serve, (d) patients (current or past) of coronary heart disease, and (e) expertise in awareness and health curriculum development. Therefore, the following category of experts were selected to represent the rating jury and these were: three Physicians, one Medical Anthropologist, two Psychologists, a Nutritionist, two Nursing Educators, five School and Community Health Education Specialists, and a former patient of coronary heart disease.

A letter explaining the purpose of the study and a preliminary instrument checkform, requesting the individual to indicate his/her willingness or refusal to serve as a juror, was forwarded to each of the prospective committee persons (Appendix C). All persons who indicated willingness to serve as jurors were mailed copies of the preliminary instrument with definite instructions for processing it and statement of appreciation for assisting in the study. Each juror was requested to return the preliminary instrument within three weeks. A follow-up letter was sent at the end of this period to any juror who had failed to return it. After waiting for another week, the investigator communicated by phone with the jurors. As the instruments were being received, each was checked for completeness and usability. Rated preliminary instruments were received from 15 of the 16 jury members.

III. REVISION OF THE PRELIMINARY INSTRUMENT AND CONSTRUCTION OF THE FINAL INSTRUMENT

The committee members' ratings on the preliminary instrument were collected on master score cards for easy identification and computation. Each item was rated for scientific accuracy and appropriateness relative to appraising the awareness of coronary heart disease (CHD) risk factors. Each opinion, comment, or recommendation was placed on separate sheet. In order to indicate the level of agreement by the jurors, the investigator did compute the mean or average rating of each item. This was carried out by adding up the scores on each item and dividing the sums by the number of experts who rated the items. It was on the basis of this computation that the appropriate items were selected for inclusion in the final instrument. Other criteria used in the selection of the final inventory included:

1. The ratings of the jurors.
2. The length of the instrument (the need for the shortest number of items that would cover major aspects relating to Black awareness of CHD risk factors).
3. Investigator's personal judgement (his ability to eliminate duplication and ambiguity in the instrument items.

After a careful breakdown of the ratings of members of the jury, the final instrument was constructed. Any item that received a mean rating below 3.5 was subject to a rejection and therefore was not utilized in the construction of the final instrument. On the basis of the above,

a final instrument, comprising thirty items was then developed together with a score sheet, upon which responses made by the subjects could be recorded. Copies of the completed final instrument and the score sheets were distributed to the interviewers for administration.

Instrument Validity

The level of agreement among the jurors was the basis for validity reached, since it is often believed that a high level of agreement among qualified experts is prerequisite for developing curricular validity for any instrument (14). But to verify the content validity of this instrument, and to indicate the level of agreement reached, it was necessary to compute the mean rating of each item.

Furthermore, to determine external curricular validity of the instrument, the ratings were subjected to the undermentioned Peters and Van Voorhis formula (43).

$$\frac{r}{a^{oo}} = \frac{ar_{ii}}{\sqrt{ar_{ii} + (a^2 - a)\, r_{ii}^{\,2}}}$$

where

a = the number of participating experts

r_{ii} = the amount of agreement among the participants

$\frac{r}{a^{oo}}$ = the predicted correlation between the average ratings of the fifteen participating experts and the average of a predicted infinite number of similar experts participating under similar conditions.

The coefficient of reliability resulting from this computation was .911 and was regarded as being very high according to Bookwalter's (5) scale of reliability coefficient.

IV. THE PILOT STUDY

A pilot study for this research was conducted at the East Knoxville Young Men Christian Association Center (YMCA). The primary purpose of this procedure was to ascertain the usability of the instrument in an actual interview situation with a sample group. Since the instrument was developed to be used specifically within a Black population, it was deemed expedient that the sample connected with this phase of the investigation should be Blacks. The interviewers, too, were Black adults who have actually understood the language of the community or have had some form of work experience with the community. These interviewers were given a one-day basic training in instrument administration involving the use of person-to-person interview technique.

A total of thirty Black adults, between the ages of 18-65 years were selected to participate in the pilot study. The criteria for selection were on the basis of how long each participating individual had lived in Knoxville and his/her willingness to participate. Therefore, only those individuals who have lived in Knoxville for, at least, one year prior to the pilot study were permitted to participate.

The instrument was administered to the sample group via the questionnaire-personal-interview technique. It took approximately 20 minutes for the respondents to supply the requested information—read

the directions, and respond to the questions. Recommended changes were made and these were reviewed by the investigator and the interviewers. They included changes in terminology that would not alter the actual meaning of the items, but simple enough to be understood by the interviewees.

The pilot study was deemed beneficial since it did expose the investigator to the instrument administration procedure and also helped in the refining of the instrument.

Reliability of the Instrument

A number of steps were utilized in the determination of the internal reliability of the instrument. Reliability is the extent to which a test or an instrument is consistent or yields the same results on repeated trials (14). To establish reliability of the instrument, the split-half procedure was used whereby the instrument was divided into two equal parts—scoring keys for odd and even numbered items, and then computing a correlation coefficient between the scores of the two parts. The Pearson product moment formula was used to calculate the correlation coefficients of the split-half scores. The undermentioned formulae were utilized for the computation of a reliability coefficient of the entire instrument and the standard error of the difference (14), respectively.

$$\text{(i)} \quad R = \frac{2r}{1 + r}$$

$$\text{(ii)} \quad SE = St\sqrt{1 - rtt}$$

Objectivity of the Instrument

Objectivity is defined as the consistency with which a test or an instrument can be administered and scored by different testers to the same subjects. Therefore, to determine the objectivity of the instrument, it was necessary for the investigator to administer the instrument to members of the East Knoxville Young Men Christian Association Center and compute objectivity of the instrument between his scores and those administered by other interviewers. The Pearson product formula (14, 47) below was used in establishing the objectivity coefficient. The standard error of the difference was used as correction formula.

$$r = \frac{N\Sigma XY - (\Sigma X)(\Sigma Y)}{\sqrt{(N\Sigma X^2 - (\Sigma X)^2)(N\Sigma Y^2 - (\Sigma Y)^2)}}$$

Where

r = objectivity coefficient

N = the number of questions

X = the sum of the scores for one variable

Y = the sum of the scores for the other variables

XY = the sum of the cross products of the variables

X^2 = the sum of the squared scores for one variable

Y^2 = the sum of the squared scores for the other variable

V. SELECTION OF THE SAMPLE

The Black population utilized in this study was selected from the City of Knoxville, Tennessee. The investigator did contact the Knoxville-Knox County Metropolitan Planning Commission and obtained an accurate

number of Black adults resident in the area. According to the updated 1970 census report, there were 24,838 Blacks and 13,717 Black adults, between the ages of 18 and 65, living in Knoxville, Tennessee (30). The decision, therefore, to collect data on a sample of the overall population was based on the number of Black adults residing in Knoxville.

The National Education Association's Formula (22) was utilized for the determination of the required sample size for the study. The formula is shown as follows:

$$n = \frac{X^2 N \phi (1-\phi)}{d^2 (N-1) + X^2 \phi (1-\phi)}$$

Where

n = required sample size

X^2 = the table value of Chi-square for the degrees of freedom and the desired confidence level.

N = population size (aged 18 - 65)

ϕ = the proportion of the population which it is desired to estimate

d = the degrees of accuracy expressed as a proportion.

Following computation with the above National Education Association's Small Sample Formula, it was revealed that a sample size of 268 will meet a 90% confidence level needed for this study.

Once the number of subjects needed for the study was obtained, it was necessary to devise some method or procedure whereby a representative sample of subjects from each of the three predominantly

Black neighborhoods (Mechanicsville, Lonsdale, East Knoxville), would be ensured. For easy random selection, it was necessary to classify the three areas according to the recent census tract figures which represent the respective geographic regions.

In the Mechanicsville area, the Black population is predominant in the census tract zones 12 and 13. Lonsdale has a high proportion of Blacks in census tract number 28 while in East Knoxville, the Black population is concentrated in census tracts 4, 5, 6, 7, 19, 20 and 21. A map of Knoxville-Knox County showing these census tract areas is presented in Appendix G.

Upon the classification of the entire study region according to the respective census tract areas, three census tracts, one from each study or geographic zone was chosen for the study. These were: census tract 13, population 1785 or 64.4% for Mechanicsville, census tract 28, population 1930 or 65.1% for Lonsdale and census tract 7 with a population of 1680 or 98.5% representing East Knoxville (30). The three census tracts were chosen because they comprised an approximate equal number of subjects in either of the tracts and were regarded as true representatives of each of the three Black communities, according to the Knoxville-Knox County Metropolitan Commission.

Once the number of subjects in each census tract was identified, the next step was to formulate a method whereby the subjects to be interviewed could be selected randomly. The selection of the subjects was, therefore, based on the percentage of the required sample

population residing in the census tract and a random selection of street blocks located within that particular tract. There were 62 street blocks in census tract 13, 79 blocks in census tract 28 and 56 street blocks in census tract 7 (30). A table of random numbers was used to select 30 blocks within each census tract area. Below is the breakdown of the subjects for each sample community and the number of persons interviewed in each of the census tracts by blocks.

	Population	% Total Pop.	No. Interviewed	No. of Block	Avg. No. Interviewed/Block
Census Tract 13 -	1785	33.10	99	30	3
Census Tract 28 -	1930	35.80	107	30	4
Census Tract 7 -	1680	31.10	94	30	3
Total	5395	100.0	300		

In Mechanicsville (Census tract 13), subjects interviewed were selected from housing blocks bounded by Beaumont Avenue to the North, I-40 and I-75 to the South and East respectively and Booker/College Avenues in the West. Lonsdale sampling area (Census tract 28) was encompassed by I-640, Tennessee Avenue, Western Avenue and I-75. Accordingly, in the East Knoxville study region (Census tract 7), the sample was selected from the blocks bounded by Willow/McCalla Avenues, Preston Avenue, the Downtown Loop and Dandridge Avenue. On the whole, 300 subjects were selected and interviewed by the investigator and the three volunteers. The sample thus selected from the three predominantly Black neighborhoods of the city of Knoxville was representative of the total population of Black Knoxvillians.

VI. ADMINISTRATION OF THE INSTRUMENT TO THE SAMPLE POPULATION

Individuals who had received the basic training in the use of questionnaire-interview evaluative techniques were scheduled to administer the instrument to the sample population which comprised 300 persons. Each interviewer was assigned to a section of the city and was given a period of one week to complete the interviews. The interviews were conducted on all Black adults, between the ages of 18 to 65 years, irrespective of sex and who had agreed to participate in the study and had never been members of any health or medical professions. Upon complete execution of the instrument, the interviewers were requested to return the completed interview score sheets to the investigator within one week for computation. Those who failed to return the instrument, were sent reminders or informed that the investigator would stop by their respective homes to collect them. All returned scores were carefully computed and analyzed to reflect the levels of awareness of coronary heart disease risk factors within the selected Black population.

VII. DATA ANALYSIS DESIGN

The data gathered and analyzed were for the purpose of providing pertinent information regarding the Black population awareness of coronary heart disease risk factors. The cogency of the information obtained depended, largely, on the ability of the investigator to:

1. Develop an instrument to determine the levels of awareness of coronary heart disease risk factors among the sampled population.

2. Describe the sample population in such a way as to allow for comparisons with other past, current, as well as future research results.
3. Determine differences in the level of awareness among different age groups of the sampled population regarding coronary heart disease risk factors.
4. Determine differences in the level of awareness of coronary heart disease risk factors among the different sexes, the minimal as well as the highly educated members of the sample population.
5. Determine the level of awareness among different economic levels of the sample population regarding coronary heart disease risk factors.

VIII. DEMOGRAPHIC CHARACTERISTICS

The data collected were related to demographic characteristics, and included the following factors:

1. Age
2. Sex
3. Education level
4. Socioeconomic level—annual income

The questionnaire utilized in the collection of pertinent information resulted in nominal level data which required nonparametric statistics for analysis. Each factor was recorded for each respondent and tabulated in a frequency table. The frequency table was then used to determine percentages for each demographic characteristic.

IX. KNOWLEDGE OF CORONARY HEART DISEASE RISK FACTORS

The questions which related to the subjects' awareness of coronary heart disease risk factors were separately tabulated and reported in frequency tables and percentages. The responses for this category were tabulated and recorded for final appraisal of awareness levels. Factors considered in this area were:

1. Evaluation of the subjects' current knowledge of coronary heart disease (CHD).
2. Rating of the subjects' current knowledge of CHD risk factors.
3. Rating the subjects' ability to recognize the disease and the implication of the risk factors toward coronary heart disease.

In order to make inferences and draw conclusions regarding the above, it was necessary to utilize the following statistical procedures:

1. Means. That measure of central tendency, the average value of all values in a distribution of scores which was used to compare differences between each group of the sample population regarding coronary heart disease risk factors. Each mean score, modes, and standard deviations were computed.

2. Analysis of Variance. This statistical procedure was used to determine whether there were significant differences in the level of awareness among different group participants regarding coronary heart disease risk factors.

X. SUMMARY

It was the purpose of this chapter to give the reader a complete and detailed presentation of the procedures involved in the development of an instrument for appraising the awareness of coronary heart disease risk factors in a selected adult Black population. The chapter also presented the reader with the detailed description of the sample population so studied and the procedures for selecting the sample size. The instrument which revealed its suitability for the investigation was constructed as a result of an extensive search of the related literature, opinions and advice of experts in the field of cardiology, as well as those of specialists in research instrument construction.

To establish the reliability and internal consistency of the instrument, the split half procedure was utilized whereby the instrument was divided into two equal parts—scoring keys for odd and even numbered items, and then computing a correlation coefficient between the scores of the two parts. The Pearson product moment correlation formula was used to compute correlation coefficients of the split half scores. In order to determine the objectivity of the instrument, it was necessary for the investigator to administer the instrument to a pilot sample of Blacks who were members of the East Knoxville Young Men Christian Association Center. The objectivity coefficient was computed by comparing his scores with those of the interviewer, using the Pearson product formula. To establish the curricular validity of the instrument, all ratings were subjected to the Peters and Van Voorhis formula.

The questionnaire-interview technique was the most acceptable procedure used in the administration of the instrument. On the whole, 300 subjects were interviewed and this number was relatively more than that required to meet the 90% confidence level for the study. Statistical evaluation was executed by gathering data from the 300 respondents and then computing same relative to evaluation of awareness of coronary heart disease risk factors.

The cogency of the information obtained was dependent upon the investigator's ability to develop an instrument to determine the awareness levels of CHD risk factors among the sampled population; describe the sample population in such a way as to allow for comparisons with past, current, as well as future research results; and determine differences in the awareness levels among different age groups, sexes, socioeconomic as well as academic levels of the sample population, regarding coronary heart disease (CHD) risk factors.

Such information was regarded as a deciding factor for the overall Black population awareness level of coronary heart disease risk factors.

CHAPTER IV

ANALYSIS AND INTERPRETATION OF THE DATA

This chapter presents data analysis and major findings derived from the development and administration of the awareness instrument. It also describes the procedures involved in the determination of validity, reliability, and objectivity of the instrument.

The analysis and data treatment were based on the information gathered relative to (1) demographic characteristics of the sample population, (2) data, regarding the sample's knowledge of coronary heart disease (CHD) risk factors, and (3) findings from the data relative to the hypotheses.

I. INSTRUMENT VALIDITY

Gay (14) defines the validity of an instrument as the degree to which a test measures what it is supposed to measure. He also believes that content validity which he described as the degree to which a test measures an intended content area, is usually determined by expert judgement. Gay further indicates that there is no formula by which content validity can be computed or expressed quantitatively. Therefore, based on the above, the fifty-items preliminary instrument was rated by a jury of fifteen experts in the fields of medicine, health education, nutrition, psychology, and anthropology. Each item was rated for scientific accuracy and appropriateness relative to evaluating awareness of

coronary heart disease (CHD) risk factors among Blacks. The mean ratings of each item were analyzed. The content validity of the instrument was determined on the basis of the mean ratings and analysis. An unanimous opinion of the jurors was that the items in the instrument were clear and relatively simple enough to be understood by a majority of the sample population. Comments from all the jurors also indicated that the instrument was appropriate for the assessment of awareness of coronary heart disease risk factors among Blacks.

A total of thirty-three items or 66% of the original items were accepted for inclusion in the final instrument. All items accepted for the final instrument had mean ratings of 3.50 and above. All those below these ratings were rejected. The lowest rating for any acceptable item was 3.50 while the highest acceptable item received a mean rating of 4.41. The overall mean ratings of the jurors and the mean ratings of the thirty-three acceptable items are presented in Tables 1 and 2 respectively.

To further determine the external curricular validity of the instrument, Peters and Van Voorhis Formula (43) was applied to the mean ratings. The coefficient of correlation computed using this formula was .911. And according to Bookwalter's scale of degree of instrument correlation coefficient (5), the computed coefficient was regarded as being very high for this type of instrument. The Bookwalter's scale of reliability upon which curricular validation was determined is presented on page 51.

TABLE 1

JURORS' MEAN RATINGS

Number	Mean Rating	Number	Mean Rating
1	3.62	26	4.00
2	3.38	27	3.41
3	4.38	28	4.23
4	3.92	29	3.58
5	3.42	30	3.91
6	2.66	31	3.50
7	3.30	32	3.66
8	4.30	33	2.91
9	3.53	34	3.33
10	3.75	35	3.08
11	4.00	36	3.66
12	3.00	37	4.23
13	3.92	38	3.66
14	2.75	39	3.15
15	4.15	40	3.46
16	4.30	41	4.00
17	4.15	42	3.84
18	3.50	43	3.76
19	3.66	44	3.53
20	4.15	45	3.41
21	4.16	46	4.18
22	3.16	47	4.00
23	4.16	48	3.25
24	4.41	49	2.92
25	4.00	50	3.30

TABLE 2

MEAN RATINGS OF THE 33 ITEMS ACCEPTED FOR INCLUSION INTO THE FINAL INSTRUMENT

Number	Mean Ratings
24	4.41
3	4.38
8	4.30
16	4.30
28	4.23
37	4.23
46	4.18
21	4.16
23	4.16
15	4.15
17	4.15
20	4.15
11	4.00
25	4.00
26	4.00
41	4.00
47	4.00
4	3.92
13	3.92
30	3.91
42	3.84
43	3.76
10	3.75
19	3.66
32	3.66
36	3.66
38	3.66
1	3.62
29	3.58
9	3.53
44	3.53
18	3.50
31	3.50

.90 - 1.00 = Very High

.80 - .89 = High

.60 - .79 = Average

.40 - .59 = Considerable

.00 - .39 = Insignificant

Another major source of validation of the instrument was the utilization of item validity analysis. This procedure was carried out following the result of the administration of the instrument to a pilot sample. Level of difficulty was the basis for the items discrimination. It is often said that items which are either too difficult or too easy are more likely to have low discriminating power. Hence those items in the instrument with less than 10% or more than 90% difficulty ratings were rejected by the investigator. Details of the items analysis can be seen in Table 3. The table shows that of the thirty-three items administered to the sample, no item was rejected for being too difficult. Twenty-five items or 75.7% of the entire instrument met the required level of acceptable difficulty. Eight items were rejected for being too easy. The eight items were later reconstructed to meet the acceptable level of difficulty.

Summary of Item Analysis Chart

Difficulty	Number	Percentage
A. Items rejected, too easy	8	24.24%
B. Items rejected, too difficult	0	.0 %
C. Items with acceptable difficulty	25	75.7 %

TABLE 3

ITEM ANALYSIS CHART

Item Number	Success of Upper Group	Success of Lower Group	Index of Discrimination	Remarks, Discrimination	Index Average Difficulty	Remarks, Difficulty
1	8	7	.10	L	75%	A
2	9	4	.50	S	65%	A
3	5	2	.30	S	35%	A
4	7	6	.10	L	65%	A
5	6	5	.10	L	55%	A
6	9	5	.40	S	55%	A
7	6	5	.10	L	55%	A
8	10	10	.00	U	100%	Rejected, too easy
9	10	8	.20	S	90%	Rejected, too easy
10	9	9	.00	U	90%	Rejected, too easy
11	7	6	.10	L	65%	A
12	10	7	.30	S	85%	A
13	4	2	.20	S	30%	A
14	1	2	-.10	U	15%	A
15	8	4	.40	S	60%	A
16	10	7	.30	S	85%	A
17	9	7	.20	S	80%	A
18	10	8	.20	S	90%	Rejected, too easy
19	9	10	-.10	U	95%	Rejected, too easy
20	9	10	-.10	U	95%	Rejected, too easy
21	7	7	.00	U	70%	A
22	10	6	.40	S	80%	A
23	8	6	.20	S	70%	A
24	10	7	.30	S	85%	A
25	7	5	.20	S	65%	A
26	10	9	.10	L	95%	Rejected, too easy
27	10	4	.60	VG	60%	A
28	10	6	.40	S	80%	A
29	10	8	.20	S	90%	Rejected, too easy
30	10	5	.50	VG	75%	A
31	10	5	.50	VG	75%	A
32	9	5	.40	S	65%	A
33	10	6	.40	S	80%	A

Discrimination	Number	Percentage
D. Very good (.41 - 1.00)	3	9.09%
E. Satisfactory (.20 - .40)	18	54.50%
F. Low (.10 - .19)	6	18.18%
G. Unsatisfactory (-.01 - .09)	5	15.15%

II. INSTRUMENT RELIABILITY

Karmel (28) defines reliability of an instrument as the ability to repetitively measure whatever it purports to measure. Mouly (36) asserts that the "test-retest method is the only feasible approach to the establishment of reliability of the questionnaire." Therefore, using the above as a guideline, the instrument was administered twice, at approximately one week interval, between the first and the second test, to the pilot sample. The initial coefficient of reliability obtained was .884. But when the Spearman-Brown formula of conversion was applied to the coefficient, the Split-half reliability coefficient was calculated to be .938 with a Standard Error of 5.35.

According to Larson (31), the "acceptable reliability coefficient for data used in group description should not be lower than a .70 correlation." Brown (7) and Van Dalen (52) have also shown that when reliability coefficient for any questionnaire falls between limits of .80 - .89 and .70 - 1.00, respectively, such inventory would be regarded as being high enough for the achievement of its specific objective. Hence the reliability coefficient of the instrument was considered high

and appropriate for the evaluation of awareness levels of coronary heart disease (CHD) risk factors among Blacks.

The correlation coefficients, means, standard deviations for the split halves, and reliability coefficient for the entire instrument are presented in Table 4.

TABLE 4

CORRELATION COEFFICIENTS, MEANS, STANDARD DEVIATIONS FOR SPLIT HALVES AND RELIABILITY COEFFICIENT FOR THE INSTRUMENT

Correlation Coefficient for Split Halves	Reliability Coefficient	Means	Standard Deviations
.938	.884	A = 50.6	15.74
		B = 51.2	15.73

A = Even
B = Odd

III. INSTRUMENT OBJECTIVITY

Van Dalen (52) describes the objectivity of an instrument as the consistency with which a test or an instrument can be administered and scored by different testers to the same subjects. In other words, objectivity can be seen as an attribute of an instrument so constructed that very similar or identical scores are obtained by different testers when the test is administered to the same subjects. With this in mind,

the instrument was administered, both by the investigator and the interviewers to a pilot sample (members of the East Knoxville Young Men Christian Association). An interval of one week was allowed between the two administrations. The coefficient of objectivity was obtained by correlation of the scores obtained by the investiagtor and those of others administering the instrument. The Pearson Product Moment Correlation formula was used for the determination of the objectivity coefficient. The coefficient of objectivity obtained was .983 which was considered very high according to Bookwalter's Scale of Degree of Correlation Meeting Objectivity (5). The standard error of the mean was 2.82. Bookwalter's scale is as follows:

.95 - 1.00 = Very High

.85 - .94 = High

.70 - .84 = Average

.50 - .60 = Considerable

.00 - .49 = Insignificant

Larson (31) also considers the objectivity coefficient of .983 as being acceptable for an instrument used with groups. Therefore, based on the guidelines set by both Bookwalter and Larson, it may be stated with confidence that the objectivity of this instrument is more than acceptable.

IV. DEMOGRAPHIC CHARACTERISTICS

The data obtained from the administration of the coronary heart disease (CHD) risk factors awareness instrument were divided into different categories reflecting the demographic variables of age, sex, academic, and socioeconomic levels of the sample population. The results were reported for each section with reference to the four main hypotheses.

The distribution of age of the subjects interviewed varied between 18 and 65 years. This distribution was regrouped into six different age categories, reflecting the number of subjects interviewed in each age group. The data for different age categories can be seen in Table 5.

TABLE 5

AGE DISTRIBUTION OF PERSONS INTERVIEWED

Age Group	Number Interviewed	Percentage of Total
10-19	24	8.00
20-29	77	25.67
30-39	69	23.00
40-49	43	14.33
50-59	54	18.00
60-69	28	9.33
No Age Given	5	1.67
	300	100.00

The table indicates that more subjects in the 20 to 29 age category as against those in the 40 to 49 age groups were interviewed. Subjects in the 30 to 39 and in the 50 to 59 age groups were, respectively, second and third largest number interviewed. The fewest number went to subjects who had failed to give their ages.

Table 6 presents the mean values and standard deviation for each age category and for the total group. As indicated by the table, the mean score for the entire group was 12.73. The mean value for age group 20 to 29 was 11.45, for age group 30 to 39 was 11.01, for 40 to 49 was 13.32, and for the 50 to 59 age group, the mean was 16.33. The group that did not indicate its age, received a mean score of 14.20.

TABLE 6

MEAN SCORES FOR THE DIFFERENT AGE GROUPS OF THE SAMPLE POPULATION

Groups	Number	Mean	Standard Deviation
Total Interviewed	300	12.73	5.969
10-19	24	11.00	4.763
20-29	77	11.45	5.594
30-39	69	11.01	5.361
40-49	43	13.32	5.866
50-59	54	16.33	6.288
60-69	28	13.89	5.279
No Age Given	5	14.20	9.230

Table 7 shows the distribution of subjects by their educational or academic levels. This demographic data was categorized into five educational levels. This table, therefore, presents the number of subjects in each category, the percentage of persons interviewed in each level, and the mean scores of subjects in each category. The table indicates that the largest number of subjects interviewed were those who had completed their high school education. One hundred and seven subjects or 35.67% of the total sample were high school graduates. The second largest group of 84 subjects or 28% were high school drop-outs. Seventy-nine or 26.35% were those who have attended or are attending college. College graduates were 24 or 8% of the subjects while 6 or 2% did fail to indicate their educational levels. The mean scores, percentages, and standard deviations of each educational level are also presented in Table 7.

TABLE 7

DISTRIBUTION OF SUBJECTS AND MEAN SCORES BY EDUCATIONAL LEVELS

Highest Educational Level	Number	Percent of Total	Mean	Standard Deviation
Completed High School	107	35.67	11.35	5.123
Did Not Complete High School	84	28.00	10.70	5.222
Attended/Attending College	79	26.33	15.35	6.087
Completed College	24	8.00	18.04	5.512
No Educational Level Given	6	2.00	10.00	6.356

Result of the Awareness Test

The subjects' scores made during the investigation were arranged into a frequency distribution. The mean, mode, median, standard deviation, and the range for the sampled subjects were computed and recorded, accordingly. The test results can be seen in Table 8.

Results obtained from the administration of the instrument revealed that awareness of coronary heart disease (CHD) risk factors among the sample population was generally low. Awareness of the risk factors was partly related to age as reflected on the data analysis in Table 9. That is to say, the older the individual, the more aware he is about coronary heart disease risk factors.

The highest possible score was 33 points. Of the 300 subjects who were interviewed, none made a 100% score. The highest score was made by only 3 subjects and the score was 26. The next highest score of 25 was made by 7 subjects. Nine subjects had a score of 24. The overall mean score for the sample population was 12.73 and a standard deviation of 5.969. The median was 11.00 and the mode was 9.00. On the basis of the mean score for the entire instrument, it would be appropriate to say that the subjects responded correctly to approximately 38.5% of the questions.

When the subjects were categorized into six age groups, the mean score for each age group was higher than the overall mean except for the age groups 20 to 29 and 30 to 39 which received the mean scores of 11.45 and 11.01 respectively. The highest mean value was, therefore, made by the 50 to 59 age category while the below 19 age group made the lowest score.

TABLE 8

RESULTS OF CORONARY HEART DISEASE RISK FACTORS AWARENESS TEST

Score Value	Frequency	Percentage	Centile
00	1	0.3	0.3
03	2	0.6	1.0
04	10	3.3	4.3
05	10	3.3	7.6
06	11	3.6	11.3
07	19	6.3	17.6
08	28	9.3	27.0
09	33	11.0	38.0
10	26	8.6	46.6
11	11	3.6	50.3
12	22	7.3	56.6
13	20	6.6	64.3
14	12	4.0	68.3
15	9	3.0	71.3
16	5	1.6	73.3
17	7	2.3	75.3
18	8	2.6	78.0
19	14	4.6	82.6
20	7	2.3	85.0
21	6	2.0	87.0
22	7	2.3	89.3
23	13	4.3	93.6
24	9	3.0	96.6
25	7	2.3	99.0
26	3	1.0	100.0
Total	300		

*Possible Score = 33

Mean = 12.73 Median = 11.0 Mode = 9.00

Standard Deviation = 5.969

Range = 26 Minimum = 0 Maximum = 26

TABLE 9

MEAN DIFFERENCES OF CHD RISK FACTORS AWARENESS SCORES BY AGE GROUP

Age Group	Number	Mean	Standard Deviation
10-19	24	11.00	4.763
20-29	77	11.45	5.594
30-39	69	11.01	5.361
40-49	43	13.32	5.866
50-59	54	16.33	6.288
60-69	28	13.89	5.279
No Age Given	5	14.20	9.230

N = 300

Again when the subjects were divided into five educational levels, the mean scores for those that had "attended/attending college" and "completed college" were higher than the mean value for the sample population. Those that had "refused to indicate their educational levels" had the lowest mean score.

A breakdown of respondents by sex is shown in Table 10.

The distribution indicates that more females than males were interviewed. The number of females interviewed seemed to have been 1-1/3 times that of the males. There were 171 female respondents or 57% and 129 males or 43%. This is consistent with the rising increase of females within the population and availability of nonworking housewives during the interview periods (morning hours).

TABLE 10

DISTRIBUTION OF SUBJECTS BY SEX

Sex	Number Interviewed	Percentage of Population
Male	129	43.00
Female	171	57.00
Total	300	100.00

N = 300

The differences in the mean score between the males and the females of the sample population are presented in Table 11.

TABLE 11

MEAN DIFFERENCES OF CHD RISK FACTORS AWARENESS SCORES BY SEX

Sex	Number Interviewed	Mean	Standard Deviation
Male	129	12.27	5.898
Female	171	13.08	6.009

The mean score for the males was 12.27 while 13.08 was that for the females. Here again, the females' score was higher than that of the males.

Table 12 categorizes the subjects into three combined socioeconomic levels.

TABLE 12

DISTRIBUTION OF SUBJECTS BY SOCIOECONOMIC LEVEL

Income Groups	Number Interviewed	Percentage of Population
Below Poverty/Poverty ($0 - 5,999)	134	44.67
Low Income ($6,000 - 9,999)	112	37.33
Middle/Upper Income ($10,000 - 100,000+)	54	18.00
Total	300	100.00

The sample population was divided into groups representing individuals in the (a) Below poverty/poverty level, (b) Low income group, and (c) Middle/upper income level (49). The number of persons interviewed in the "Below poverty/poverty" level was 134 or 44.67%. One hundred and twelve or 37.33% of the respondents were in the "Low income group" while 54 or 18% of the subjects interviewed fell with the "Middle/upper income" bracket.

The mean differences of coronary heart disease (CHD) risk factors awareness by socioeconomic levels can be seen in Table 13.

TABLE 13

MEAN DIFFERENCES OF CHD RISK FACTORS AWARENESS BY SOCIOECONOMIC LEVEL

Income Groups	Number Interviewed	Mean	Standard Deviation
Below poverty/ poverty	134	13.22	6.114
Low income	112	11.50	5.540
Middle/upper income	54	14.07	6.108

As the table indicates, the mean score for the "middle/upper income" level was the highest among the three income groups, 14.07. The "below poverty/poverty" category had the second highest mean score, 13.22, while the "low income" group had the lowest mean score. The standard deviations for the three categories were 6.108, 6.114, and 5.540 respectively.

V. HYPOTHESES

Hypothesis 1

THERE WAS NO SIGNIFICANT DIFFERENCE IN THE LEVEL OF AWARENESS AMONG DIFFERENT AGE GROUPS OF THE SAMPLE POPULATION REGARDING CORONARY HEART DISEASE RISK FACTORS.

The results of the statistical analysis to determine the difference in the awareness level between the five age groups are reported in

Table 14. A one-way analysis of variance (ANOVA) with a confidence level at .05, was utilized to determine the level of awareness. The criterion F value of 2.41 with 5 and 294 degrees of freedom at .05 level of significance was exceeded by the computed F value of 7.29. The null hypothesis was rejected and it was concluded that there was a significant difference in the level of awareness among the six age groups regarding Coronary Heart Disease (CHD) risk factors.

TABLE 14

ANALYSIS OF VARIANCE FOR CHD RISK FACTORS AWARENESS SCORES AMONG SIX AGE GROUPS

Source of Variation	Sum of Square	DF	Mean of Squares	F
Between groups	1154.3116	5	230.8623	7.29
Within groups	9150.1968	294	31.661	
Total	10304.5084	299		

P .05 = 2.41 (with 4 and 295 degrees of freedom).

To determine where this significant difference lies, Kramer's Extension of Duncan's New Multiple Range Test (11) was used to make multiple comparisons among the means. Table 15 shows the computation necessary for obtaining the significant difference among the means of various age groups.

TABLE 15

KRAMER'S EXTENSION OF DUNCAN'S NEW MULTIPLE TEST FOR THE CASE OF UNEQUAL N^S APPLIED TO THE DIFFERENCES BETWEEN k = 6 TREATMENT MEANS—THE ANALYSIS OF VARIANCE OF CHD RISK FACTORS AWARENESS TEST SCORES BY AGE GROUPS

(a) Treatment Means Ranked in Order and Numbers of Replications:

	E	B	A	C	D
$\bar{x}$	11.01	11.34	13.32	14.20	15.50
N	69	101	43	5	82

(b) Analysis of Variance

Source	Sum of Squares	DF	Mean Squares	F
Between Groups	1154.3116	5	230.8623	7.29
Error	9150.1968	294	31.661	

(c) $S = \sqrt{32.5579} = 5.71$

(d) Significant Studentized Ranges for a 5% Duncan Multiple Range Test:

P:	2	3	4	5
$N_2 = 295$	2.772	2.918	3.017	3.089

(e) Appropriate Significant Range Factors ($R'_P = S_{zp,15}$)

P:	2	3	4	5
$R'_P =$	15.82	16.66	17.22	17.63

(f) In order for $(\bar{x}_D - \bar{x}_E)$ to be significant:

$$(\bar{x}_D - \bar{x}_E)\sqrt{\frac{2\,(N_D N_E)}{N_D + N_E}} \quad \text{must exceed } R'_5 = 17.63$$

$$(15.50 - 11.01)\sqrt{\frac{2\,(82)(69)}{82 + 69}} = 8.65 \times 4.49 = 38.867\ R'_5$$

Therefore $(\bar{x}_D - \bar{x}_E)$ is significant.

(g) The remainder of the mean differences are tested by this formula, compared with appropriate range factor and summarized in Table 16.

TABLE 16

SUMMARY OF THE COMPARISONS OF MEAN DIFFERENCES AMONG THE VARIOUS AGE GROUPS BY KRAMER'S EXTENSION OF DUNCAN'S NEW MULTIPLE RANGE TEST AS ILLUSTRATED IN TABLE 15

$(\bar{x}_1 - \bar{x}_2)$ $\quad \frac{2\,(N_1)(N_2)}{N_1 + N_2}$ $\quad R'_P = S_{zp,15}$

Significant Range Factors

Groups[a]	E	B	A	C	D	
E		2.98	16.81	9.74	38.86	$R'_2 = 15.82$
B			15.37	8.82	39.57	$R'_3 = 16.66$
A				2.63	16.37	$R'_4 = 17.22$
C					3.99	$R'_5 = 17.63$

	E	B	A	C	D
	E	B	A	C	D

Any two means not underscored by the same line are significantly different.

Any two means underscored by the same line are not significantly different.

[a]A - 40 to 49 Age Group; B - 20 to 29 Age Group; C - No age given; D - 50 to 59 Age Group; E - 30 to 39 Age Group.

As illustrated in Table 15, no significant differences existed among the means of age groups E and B, B and C, A and D. The significant difference of E was lower than A, C, and D. B was significantly lower than D while D was significantly higher than B and E.

Therefore, subjects in the 50 to 59 age group were more knowledgeable regarding CHD risk factors than those in age groups 20 to 29 and 30 to 39. But they were not significantly higher than those in the age group 40 to 49. However, the 40 to 49 age group was significantly higher than the younger age groups.

Hypothesis 2

THERE WAS NO SIGNIFICANT DIFFERENCE IN THE LEVEL OF AWARENESS AMONG DIFFERENT SEXES REGARDING CORONARY HEART DISEASE (CHD) RISK FACTORS.

Table 17 presents the results of an analysis of variance, using group means for the two sexes. The data in Table 17 presents a composite picture of the relationship between the two sex groups of the sample population. A test of hypothesis presented an analysis of variance F value of 1.33 which did not exceed the criterion F value of 3.89 with 1 and 298 degrees of freedom. Hence the hypothesis was not rejected at the .05 level of confidence. Thus, it was concluded that there was no significant difference in the level of awareness between the males and the females regarding coronary heart disease risk factors.

TABLE 17

ANALYSIS OF VARIANCE FOR CHD RISK FACTORS AWARENESS SCORES BY SEX

Source of Variation	Sum of Squares	DF	Mean of Squares	F
Between groups	47.3893	1	47.3893	1.33
Within groups	10608.8073	298	35.6000	
Total	10656.1966	299		

P .05 = 3.89 (with 1 and 298 degrees of freedom).

Hypothesis 3

THERE WAS NO SIGNIFICANT DIFFERENCE IN THE AWARENESS LEVEL AMONG THE DIFFERENT EDUCATIONAL CATEGORIES OF THE SAMPLE POPULATION REGARDING CORONARY HEART DISEASE (CHD) RISK FACTORS.

The subjects were divided into five educational levels (Table 6, page 57): (a) completed high school, (b) did not complete high school, (c) completed college, (d) attending or have attended college, and (e) no educational level given.

An analysis of variance was computed to test the null hypothesis for the research question. The results of the analysis are presented in Table 18.

The analysis showed that an F value of 15.18 was obtained and was significant at the .05 level. Hence the null hypothesis was rejected by the investigator. It was concluded that there was a significant

TABLE 18

ANALYSIS OF VARIANCE FOR CHD RISK FACTORS AWARENESS SCORES BY EDUCATIONAL LEVELS

Source of Variation	Sum of Squares	DF	Mean of Squares	F
Between groups	1818.8197	4	454.7049	15.18
Within groups	8837.3769	295	29.9572	
Total	10656.1966	299		

P .05 = 2.41 (with 4 and 295 degrees of freedom).

difference in the level of awareness among the different group participants regarding coronary heart disease risk factors. The awareness level was relative to higher level of education.

To determine where the significant difference lies, Kramers Extension of Duncan's New Multiple Range Test was applied to the mean scores of different educational categories. Table 19 indicates the procedures for obtaining the significant difference among the means.

As shown in Table 20, no significant differences were found to have existed among groups A, B, and E. Therefore, the significant difference lay between C and D and other groups. The level of awareness of CHD risk factors was higher in the groups that have attended or are attending college and among the college graduates.

TABLE 19

KRAMER'S EXTENSION OF DUNCAN'S NEW MULTIPLE RANGE TEST FOR THE CASE OF UNEQUAL N^S APPLIED TO THE DIFFERENCES BETWEEN k = 5 TREATMENT MEANS—THE ANALYSIS OF VARIANCE OF CORONARY DISEASE RISK FACTORS AWARENESS TEST SCORES BY EDUCATIONAL LEVEL

(a) Treatment Means Ranked in Order and Numbers of Replication:

	E	B	A	C	D
$\bar{x}$	10.00	10.70	11.35	15.36	18.04
N	6	84	107	79	24

(b) Analysis of Variance

Source	Sum of Squares	DF	Mean Squares	F
Between Groups	1818.8197	4	454.7049	15.18
Error	8837.3769	295	39.9572	

(c) $S = \sqrt{29.9572} = 5.47$

(d) Significant Studentized Ranges for a 5% Duncan Multiple Range Test:

	P:	2	3	4	5
N_2 = 295		2.772	2.918	3.017	3.089

(e) Appropriate Significant Range Factors ($R'_P = S_{zp,15}$)

P:	2	3	4	5
R'_P:	15.16	15.96	16.50	16.90

(f) In order for $(\bar{x}_D - \bar{x}_E)$ to be significant:

$$(\bar{x}_D - \bar{x}_E)\sqrt{\frac{2\,(N_D N_E)}{N_D + N_E}} \quad \text{must exceed } R'_5 = 16.90$$

$$(18.04 - 10.00)\sqrt{\frac{2\,(24)(6)}{24 + 6}} = 3.098 \times 8.04 = 24.91 > R'_5$$

Therefore $(\bar{x}_D - \bar{x}_E)$ is significant.

(g) The remainder of the mean differences are tested by this formula, compared with the appropriate range factor and summarized in Table 20.

TABLE 20

SUMMARY OF THE COMPARISONS OF MEAN DIFFERENCES AMONG THE EDUCATIONAL LEVEL GROUPS BY KRAMER'S EXTENSION OF DUNCAN'S NEW MULTIPLE RANGE TEST AS ILLUSTRATED IN TABLE 19

$(\bar{x}_1 - \bar{x}_2)\sqrt{\frac{2\,(N_1)(N_2)}{N_1 + N_2}}$ Factors			$R'_p = S_{zp,15}$ Significant Range Factors		
Groups[a]	E	B	A	C	D	
E		2.34	4.55	17.90	24.91	$R'_2 = 15.16$
B			6.30	36.18	44.85	$R'_3 = 15.96$
A				38.23	41.89	$R'_4 = 16.50$
C					16.26	$R'_5 = 16.90$
	E	B	A	C	D	

Any two means not underscored by the same line are significantly different.

Any two means underscored by the same line are not significantly different.

[a]A - Completed High School; B - Did Not Complete High School; C - Attended/Attending College; D - Completed College; E - No Educational Level Given.

Hypothesis 4

THERE WAS NO SIGNIFICANT DIFFERENCE IN THE LEVEL OF AWARENESS AMONG THE DIFFERENT ECONOMIC LEVELS OF THE SAMPLE POPULATION REGARDING CORONARY HEART DISEASE RISK FACTORS.

The results of the statistical analysis to determine the difference in the level of awareness among the three socioeconomic groups are presented in Table 21. A test of the hypothesis resulted in an F value of 4.26 with 2 and 297 degrees of freedom and was significant at the .05 level.

TABLE 21

ANALYSIS OF VARIANCE FOR CHD RISK FACTORS AWARENESS SCORES BY SOCIOECONOMIC LEVEL

Source of Variation	Sum of Squares	DF	Mean of Squares	F
Between groups	297.2183	2	148.6091	4.26
Within groups	10358.9783	297	34.8787	
Total	10656.1966	299		

P .05 = 3.04 (with 2 and 297 degrees of freedom).

The result of this test revealed that the awareness of CHD risk factors was closely related to the subjects' level of income. Those in the high income category were more knowledgeable about coronary heart

disease and its risk factors. The low income groups exhibited lower level of awareness.

To further determine where the significant difference lies, the data was subjected to Kramer's Extension of Duncan's New Multiple Range Test. The computation of this test which can be observed in Table 22, illustrates the procedures for obtaining the significant difference among the means of various socioeconomic groups.

As illustrated in Table 23, there were no significant differences between groups A and C. Therefore, the difference lay between B and other two groups. The higher level of awareness of CHD risk factors was closely associated with higher level of income.

VI. SUMMARY

This chapter presented data analysis and major findings derived from the development and administration of the awareness instrument. It also described detailed procedures involved in the determination of validity, reliability, and objectivity of the instrument.

Analysis and data treatment were based on the information gathered relative to (1) the sample's demographic characteristics of age, sex, educational, as well as socioeconomic levels, (2) data, regarding the sample's knowledge of coronary heart (CHD) risk factors, and (3) findings from the data relative to the hypotheses.

TABLE 22

KRAMER'S EXTENSION OF DUNCAN'S NEW MULTIPLE RANGE TEST FOR THE CASE OF UNEQUAL N's APPLIED TO DIFFERENCES BETWEEN k = 3 TREATMENT MEANS—THE ANALYSIS OF VARIANCE OF CORONARY HEART DISEASE RISK FACTORS AWARENESS TEST SCORES BY SOCIOECONOMIC LEVEL

(a) Treatment Means Ranked in Order and Number of Replication:

	C	A	B
$\bar{x}$	11.50	13.22	14.07
N	112	134	54

(b) Analysis of Variance:

Source	Sum of Squares	DF	Mean Squares	F
Between Groups	279.2183	2	148.6091	4.26
Error	10358.9783	297	34.8787	

(c) $S = \sqrt{34.8787} = 5.91$

(d) Significant Studentized Ranges for a 5% Duncan Multiple Range Test:

P:	2	3
$N_2 = 297$	2.772	2.981

(e) Appropriate Significant Range Factors ($R'_p = SZ_{p,13}$)

P:	2	3
R'_p:	16.38	17.61

(f) In order for $(\bar{X}_B - \bar{x}_C)$ to be significant:

$$(\bar{x}_B - \bar{x}_C)\sqrt{\frac{2\,(N_B N_C)}{N_B + N_C}} \quad \text{must exceed } R'_3 = 17.61$$

$$(14.07 - 11.50)\sqrt{\frac{2\,(54)(112)}{54 + 112}} = 8.54 \times 2.57 = 21.94 > R'_3$$

Therefore $(\bar{x}_B - \bar{x}_C)$ is significant.

(g) The remainder of the mean differences are tested by this formula, compared with the appropriate range factor and summarized in Table 23.

TABLE 23

A SUMMARY OF THE COMPARISONS OF MEAN DIFFERENCES AMONG THE SOCIOECONOMIC GROUPS BY KRAMER'S EXTENSION OF DUNCAN'S NEW MULTIPLE RANGE TEST AS ILLUSTRATED IN TABLE 22

$$(\bar{x}_1 - \bar{x}_2)\sqrt{\frac{2\,(N_1)(N_2)}{N_1 + N_2}} \qquad R'_p = SZ_{p,13}$$

Significant Range Factors

Groups[a]	C	A	B	
C		7.45	21.94	$R'_2 = 16.38$
A			18.99	$R'_3 = 17.61$
	C	A	B	

Any two means not underscored by the same line are significantly different.

Any two means underscored by the same line are not significantly different.

[a]A - Below Poverty/Poverty Level; B - Middle/Upper Income Level; C - Low Income Group.

Validity of the awareness instrument was determined by (1) a jury of experts in the fields of medicine, health education, nutrition, psychology, and anthropology, and (2) by utilization of item validity analysis. The external curricular validation was established by the application of Peters and Van Voorhis Formula (43) to the mean ratings of the jurors. The split-half method was the basis for the determination of the instrument reliability. The coefficient of objectivity of the instrument was obtained by correlation of scores obtained by the investigator and those of others administering the instrument to the pilot sample.

Awareness of CHD risk factors was assessed by the administration of the final instrument to a sample of 300 Black adult residents of the city of Knoxville, Tennessee. Scores obtained through the instrument administration were arranged into frequency distribution. Mean, mode, median, range, and standard deviation were, accordingly, computed. Four different hypotheses were also tested to determine if significant differences existed between different group participants of the sample population. A one-way analysis of variance (ANOVA) with a confidence level at .05, was utilized to test the hypothesis.

CHAPTER V

SUMMARY, FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

I. SUMMARY

The primary purpose of this study was to develop an instrument to evaluate the level of awareness of coronary heart disease risk factors in a selected Black population. A second purpose was the assessment of the level of awareness of coronary heart disease (CHD) risk factors among the selected Black population.

The questions which the research sought to answer concerned the appropriateness and scientific accuracy of the instrument, its validity, reliability and objectivity, as well as the overall awareness of the chosen Black population.

A total of 300 subjects formed a random sample population of this study. The subjects were Blacks chosen from three predominantly Black neighborhoods of the City of Knoxville, Tennessee. The subjects' ages ranged between 18 to 65 years. The research instrument was developed by the investigator and validated by a jury of fifteen experts. The instrument composed of 33 multiple choice items and was administered to the subjects via questionnaire-personal-interview technique. The results were analyzed using standard statistical programs to ascertain awareness levels among different group participants. Four different hypotheses were tested and three of them differed significantly at the

0.05 level of confidence. The hypotheses tested concerned the subjects' ages, their educational levels, sex, and their socioeconomic status.

II. FINDINGS

The findings of this study are summarized under two headings, general and hypothesis testing:

A. General findings

1. The administration of the research instrument resulted in a 100% response.
2. Forty-three percent of the sample population were males while the females made up the remaining 57%.
3. The age distribution of the subjects revealed a majority of respondents in the age range of 20 to 29. The lowest group of respondents were subjects in the 40 to 49 age category.
4. There were more responses from the younger age group than from the middle and older age categories.

B. Hypothesis testing

5. Although the mean score among the female subjects was more than that of the males, awareness levels for both sexes did not differ significantly.
6. Older age groups exhibited higher level of awareness of coronary heart disease (CHD) risk factors.
7. There was a significant difference among different age groups of the sample population regarding CHD risk factors.

8. Level of awareness was closely related to the subjects' level of education, college graduates scored higher than any other educational group of the sample population.
9. There was a significant difference in the level of awareness among the uneducated, minimal educated, and the highly educated members of the sample population.
10. Socioeconomic status of the subjects played a major role in the determination of their awareness of CHD risk factors.
11. There was a significant difference in the level of awareness among different economic groups of the sample population regarding CHD risk factors.

III. CONCLUSIONS

Based on the analysis of the data and the findings of this study, the following conclusions were reached:

1. The research instrument was valid, reliable, and objective for purpose of measuring coronary heart disease (CHD) risk factors awareness.

2. The instrument was suitable for use among predominantly Black, nonmedical oriented groups for the determination of CHD risk factors awareness.

3. The overall level of awareness of the sample population, regarding CHD risk factors, was relatively low.

4. Coronary heart disease (CHD) risk factors awareness was closely related to age, level of education, and socioeconomic level.

5. The demographic factor of sex did not make a difference in the overall awareness of CHD risk factors among the sample population.

6. There was a significant difference in the level of awareness among various age groups of the sample population regarding CHD risk factors.

7. The older the individual in any given group, the more knowledgeable he is regarding CHD risk factors.

8. There was a significant difference in the level of awareness among different educational groups of the sample population, regarding CHD risk factors.

9. The higher the level of education attained by a group, the greater that group's level of awareness of CHD risk factors.

10. There was a significant difference in awareness level among various economic groups of the sample population regarding CHD risk factors.

11. The higher the level of annual income maintained by a group, the higher the group's level of awareness of CHD risk factors.

IV. RECOMMENDATIONS

Based on the analysis, findings, and conclusions of this study, the investigator recommends that:

1. The instrument to determine the level of awareness of coronary heart disease risk factors should be administered to a wider and more representative Black population. This will help in the determination of the overall Black awareness of CHD risk factors throughout the United States.

2. The instrument should be revised and revalidated, as necessary, to keep abreast with the advancements in Black awareness and understanding of coronary heart disease risk factors.

3. A preventive coronary heart disease (CHD) instructional program should be initiated in all Black neighborhoods throughout the United States. The purpose of this will be to foster greater awareness, understanding, and acceptance of the disease by the Black population. Such a program will also help to determine the quantitative effects of primary dietary intervention on CHD incidence.

4. Awareness groups should be organized, within the Black communities, to deal with the complexities of human health behavior, factors, conditions, living habits or lifestyles that can lead to coronary heart disease.

5. The results of this study should be made available to related organizations such as the American Heart Association, the National Heart and Lung Institute, and State Health Departments.

6. Efforts which will involve attempts to change the knowledge and attitude of Blacks and influence their behavioral patterns, as they relate to coronary heart disease, should be intensified at all community levels.

7. It is recommended that the instrument be made available to persons and organizations wishing to conduct research in awareness of coronary heart disease or its risk factors.

8. Predominantly Black schools, colleges and Universities should be encouraged to develop meaningful and effective coronary heart disease

prevention programs that will deal with Black problems relative to CHD, its risk factors, and complications. Such programs should also be geared to developing a pattern, in early childhood, that will prevent CHD risk factors from becoming a problem in later years.

CHAPTER VI

THE STUDY IN RETROSPECT

Sometimes, it is difficult to recognize the importance of determining the intelligence of a community—what they have already known or want to know about a specific health problem area. This research was undertaken with the ultimate purpose of assessing the level of knowledge of Blacks, regarding coronary heart disease (CHD) risk factors.

Coronary heart disease (CHD) whose chief manifestation is heart attack, has in recent years, emerged as the leading health problem in the United States. Extensive clinical and statistical studies of life-styles, physical conditions, and family medical history have also identified several factors as contributing to coronary heart disease and heart attack. At the same time, specific studies relative to Blacks have revealed that hypertension, a major predisposing factor to CHD, is a serious health problem that confronts Black Americans. Blacks are also believed to have a higher rate of hypertensive heart disease than any other ethnic group and as a result suffer a higher mortality rate. Yet the majority of persons within the Black community still lack basic understanding of what coronary heart disease and its risk factors are all about, as reflective in the current study.

As already indicated, the problem area of this research was coronary heart disease/risk factors. Subjects were tested for their

competencies in the recognition of coronary heart disease as well as its signs and symptoms. They were also tested for their basic knowledge toward those conditions, living habits or lifestyles that can lead to the manifestation of the disease. The relationships between the subjects' age, sex, educational as well as socioeconomic levels and the overall level of Black awareness of CHD/risk factors were thoroughly investigated. The result of the study did indicate that the overall Black awareness of coronary heart disease risk factors was low. The CHD risk factors awareness was closely related to age, level of education, and socioeconomic level. The study revealed that the older the individual and the higher his/her level of education, the more knowledgeable he or she is regarding coronary heart disease risk factors. Furthermore, the investigation showed that the higher the level of annual income maintained by a group, the higher their level of awareness of coronary heart disease risk factors. The possible reasons for the higher level of awareness among the older age groups, 40 to 49 and 60 to 69, are that: (a) individuals in these age groups are more prone to possible complications of cardiovascular diseases and are, therefore, more concerned about coronary heart disease risk factors; (b) because more deaths due to heart attacks have been frequently reported, in recent years, among persons in these age categories, it sounds reasonable to assume that individuals in these age groups would be more aware of the disease and therefore become more concerned about CHD risk factors. Finally, sex did not make a difference in the overall awareness of coronary heart disease risk factors among the sample population.

During the conduct of this study, several problems were encountered. These ranged from the initial lack of sufficient funds by the investigator to complete the research within a reasonable length of time, to lack of cooperation on the part of the Black community to participate in the study. The unique problem imposed by the sample concerned the essential demographic information. A large proportion of the sample was very reluctant to reveal their actual annual income or indicate their correct age groups. The general complaint among the subjects was that Blacks had, in the past, been "fooled" to participate in studies that yielded nothing good in return. The interviewers, therefore, had to devise other means, including offering of some incentives, at certain points, to obtain these very essential information. Greater cooperation, however, came from subjects who are either attending college, had attended college, or graduated from college.

It could be said that the significance of this study pointed to the need for adequate, effective, and comprehensive methods whereby health information on CHD risk factors can be easily disseminated to all members of the Black community. It also revealed that coronary heart disease/heart attack can be prevented through public awareness and understanding of the disease and its risk factors. Furthermore, it indicated health education as the principal tool for implementing coronary heart disease prevention.

It is a truism that the content and procedure of health education, on many occasions, is difficult to define. Some regard health education as an instructional program—the Organization of Learning Experiences

(53). Others know it as a process of selling sound health understanding and behavior to the community (21). Health education, thus, can generally be regarded as education for healthy living of the individual, family, and the community. It is a composite of what the individual knows, senses and values, and what he/she does and practices about health. Aside from this, health education provides an atmosphere condusive to the development of skills and competencies which will help the individual confront and examine a complexity of social and cultural forces, persuasive influences and ever-expanding options, as these affect health behavior. The health educated person, therefore, is one who possesses resources and abilities that will last throughout a life time—and that lead to a sense of responsibility for the community and the world concerns. Hence, every member within the Black community must assume increasing role for the solution to the problem of coronary heart disease, and consequently must be educated to do so.

The question now before us is: What can be done to improve the overall Black awareness of coronary heart disease (CHD) risk factors? Or what type of health programs can we, as health educators, initiate in this area in the best interest of the Black community? As has already been indicated, health problems of the Black population are not only related to their low income status, but the severity of these problems is aggravated by social handicapping characteristics such as old age, ethnic cultural beliefs, apathy, and above all ignorance. Moreover, the lack of convincing evidence of the current recommended preventive measures plus the self-depriving nature of some of them, which include

breaking of such habits as cigarette smoking or modification of diets to low caloric or low cholesterol foods, also tend to minimize Black cooperation and interest about CHD prevention.

It is the general belief of the author that a comprehensive health education program will offer the best opportunity to improve the Black community's basic understanding of the problems relative to coronary heart disease. Therefore, any health education program initiated in this field, specifically for the Black community, must aim at: (a) increasing their basic knowledge and understanding of the disease, its risk factors and complications, (b) changing their behavior, especially in regard to dietary habits, physical activity, and tobacco consumption, and (c) developing a pattern in early childhood which tends to prevent the CHD risk factors from becoming a problem, in an effort to avert heart attack in later years.

Using the foregoing recommendations, health educators will be better equipped to make a variety of valid and objective decisions aimed at reducing the incidence of coronary heart disease among Blacks. Ethnic Black physicians, nurses, pharmacists, and other health professionals should be encouraged to become genuinely interested in taking active part in the community health education. Lay health workers and paramedics should also be increasingly involved in the total health educational process since it is this group of personnel who can interact more freely and directly with the local community than their peers in the professional category.

Finally, economics has been cited as a principal motivator in developing any health care program. It has also been described as an important determinant of public attitude toward the health system. Although several points have been noted as being necessary for the determination of the health education program policy, nevertheless, recently some studies have been conducted to determine the economic impact of coronary heart disease on the society. One of such studies by Acton (1) analyzes different prehospital CHD prevention programs and their results are assessed in terms of cost-effectiveness. It may be necessary for the Black oriented CHD health education programs to be geared to the utilization of the above methodology in the management of its financial resources.

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APPENDICES

APPENDIX A

LIST OF RESOURCE MATERIALS

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APPENDIX B

THE PRELIMINARY INSTRUMENT AND RATING SCALE FOR APPRAISING CORONARY HEART DISEASE RISK FACTORS AWARENESS

Check List for Preliminary Instrument

(Rating Scale)

Instructions

In order to get a general view of the content of this instrument (questionnaire), it is suggested that you review the entire instrument before executing.

Directions

Please indicate your acceptance or rejection of the items based on: (1) scientific accuracy, and (2) appropriateness for appraising awareness of coronary heart disease risk factors by circling one number (1 through 5), located at the right margin of each item.

Description of Rating Scale

1. ---------- Not desirable nor accepted.
   The item has no significance, whatsoever, relative to appraising coronary heart disease risk factors awareness of laymen.

2. ---------- Not required but accepted.
   The item does not necessarily need to be included but there is no objection to including it.

3. ---------- Desirable.
   The item is worthy and significant enough to be included.

4. ---------- Essential.
   The item is a very important constituent of an instrument to appraise coronary heart disease risk factors awareness of laymen.

5. ---------- Indispensible.
   The item cannot possibly be excluded for it constitutes a "must."

A separate rating scale card is provided for your convenience. Please rate the items for (a) scientific accuracy and (b) appropriateness. It will be appreciated if you will feel free to add any comment you deem significant to the instrument.

Preliminary Coronary Heart Disease Risk Factors Awareness Inventory

Introductory Questions

	YES	NO
Have you ever heard of Coronary Heart disease?	___	___
If your answer is yes, what kind of sickness is it? _____		
Do you know some risk factors (causative agents) associated with Coronary Heart disease?	___	___
If yes, name some of them. _____		
Have you ever known anyone suffering from Coronary Heart disease?	___	___
If your answer is yes, was the person a relation, or friend of yours? _____		

	RATINGS	
	Scientific Accuracy	Appropriateness
1. Coronary heart disease is similar to:	1 2 3 4 5	1 2 3 4 5
a. Heart Attack b. Congestive heart failure c. Stroke d. Rheumatic heart disease		
2. Coronary heart disease is a disease that affects:	1 2 3 4 5	1 2 3 4 5
a. Black people only b. White and Orientals only c. Blacks and Whites only d. Persons of every race.		

	RATINGS	
	Scientific Accuracy	Appropriateness
3. The term "risk factors" means:	1 2 3 4 5	1 2 3 4 5
a. Seeds of the disease b. Tiny bacteria or germs that can cause the disease c. Conditions, living habits or lifestyles that can cause the disease d. The danger of the disease		
4. Coronary heart disease is:	1 2 3 4 5	1 2 3 4 5
a. The nation's third killer b. The natinn's sixth killer c. The nation's number one killer d. The nation's number two killer		
5. You can fight coronary heart disease by:	1 2 3 4 5	1 2 3 4 5
a. Increasing the risk factors b. Reducing or decreasing the risk factors c. Maintaining a balance among the risk factors d. Increasing the later decreasing the risk factors		
6. One in four of all coronary heart disease deaths occurs among persons:	1 2 3 4 5	1 2 3 4 5
a. Under 75 years of age b. Over 75 years of age c. Under 65 years of age d. Just over one year of age		
7. Coronary heart disease is a disease that can:	1 2 3 4 5	1 2 3 4 5
a. Pass from person to person by body contact b. Pass from man to man through drinking bad water c. Start from other disease conditions d. Pass from person to person through water, food and body contact		

	RATINGS	
	Scientific Accuracy	Appropriateness
8. Coronary heart disease is most likely to occur among persons with:	1 2 3 4 5	1 2 3 4 5
a. Higher blood cholesterol levels b. Lower blood cholesterol levels c. Medium blood cholesterol levels d. No blood cholesterol level		
9. We can reduce the danger of coronary heart disease by:	1 2 3 4 5	1 2 3 4 5
a. Much increase of fatty foods in our daily diets b. Much decrease of fatty foods in our daily diets c. Eating much beef everyday d. Eating much pork-chop everyday		
10. We can have coronary heart disease by:	1 2 3 4 5	1 2 3 4 5
a. Heavy smoking of marihuana b. Heavy cigarette smoking c. Heavy taking of "uppers" d. Heavy taking of "downers"		
11. In men aged 45 to 64 years, the overall coronary heart disease death rate among the "never smoked" and "smokers" is:	1 2 3 4 5	1 2 3 4 5
a. 1:1 b. 1:3 c. 1:2 d. 1:4		
12. Coronary heart disease death rate among persons who smoke cigarette is:	1 2 3 4 5	1 2 3 4 5
a. 50% to 200% b. 10% to 20% c. 30% to 60% d. 50% to 100%		

	RATING	
	Scientific Accuracy	Appropriateness
13. Coronary heart disease is much more likely to occur among: a. Thin middle-aged persons b. Highly overweight middle-aged persons c. Thin adolescents or teenagers d. Highly overweight adolescents or teenagers	1 2 3 4 5	1 2 3 4 5
14. In the United States, women of which racial groups are more likely to become overweight (Obese)? a. White women b. Black women c. Oriental women d. Chicano women	1 2 3 4 5	1 2 3 4 5
15. Hypertension (high blood pressure) is most common disease among: a. Oriental Americans b. Black Americans c. White Americans d. Indian Americans	1 2 3 4 5	1 2 3 4 5
16. Hypertension (high blood pressure) is the major cause of _____ among Black Americans: a. Cancer b. Congestive heart failure c. Heart Attack d. Congenital heart disease	1 2 3 4 5	1 2 3 4 5
17. Therefore getting hypertension (high blood pressure) under control can greatly reduce the risk of: a. Cancer b. Congestive heart failure c. Heat attack d. Congenital heart disease	1 2 3 4 5	1 2 3 4 5

		RATING	
		Scientific Accuracy	Appropriateness
18.	Another common agent present within our society which may cause coronary heart disease is: a. Smoke b. Emotional stress c. Tension d. B and C only	1 2 3 4 5	1 2 3 4 5
19.	It is generally believed that men who do not do hard jobs or exercise will: a. Live longer than others b. Run lower risk of getting coronary heart disease c. Run higher risk of getting coronary heart disease d. Run no risk at all	1 2 3 4 5	1 2 3 4 5
20.	Regular and moderate exercise: a. Will increase the risk of coronary heart disease b. Will reduce the risk of coronary heart disease c. Will first increase and then reduce the risk of coronary heart disease d. Will first reduce and then increase the risk of coronary heart disease	1 2 3 4 5	1 2 3 4 5
21.	Studies have also shown that the danger of coronary heart disease increases with: a. The number and severity of risk factors b. The severity of the risk factors only c. The number of risk factors d. None of the above.	1 2 3 4 5	1 2 3 4 5
22.	Young women: a. Are more likely to have coronary heart disease than men b. Do not ever have coronary heart disease c. Are much less likely to have coronary heart disease than the men d. Constantly have coronary heart disease	1 2 3 4 5	1 2 3 4 5

		RATING	
		Scientific Accuracy	Appropriateness
23.	Risk of coronary heart disease can be much lower through diet: a. Highly rich in fat and cholesterol b. Highly rich in cholesterol only c. Low in fat and cholesterol d. With no fat and cholesterol	1 2 3 4 5	1 2 3 4 5
24.	A person who smokes more than a pack of cigarette a day has: a. Nearly five times the risk of coronary heart disease than a non-smoker b. Nearly twice the risk of coronary heart disease as a non-smoker c. Has no risk of coronary heart disease at all d. Has the same risk of coronary heart disease as a non-smoker	1 2 3 4 5	1 2 3 4 5
25.	Risk of coronary heart disease can also be linked with: a. Diabetes b. Familial tendency toward diabetes c. Heredity d. All the above	1 2 3 4 5	1 2 3 4 5
26.	It is believed that the risk of coronary heart disease will be lowered with: a. Understanding of the disease b. Having regular physical examinations c. Watching and reducing your weight d. All the above	1 2 3 4 5	1 2 3 4 5
27.	It is also believed that the risk of coronary heart disease will be much lower by: a. Being able to know and point out the existing risk factors b. Taking prescription drugs c. Modifying the existing risk factors d. A and C only	1 2 3 4 5	1 2 3 4 5

		RATING	
		Scientific Accuracy	Appropriatness
28.	The best way to avoid coronary heart disease in later years is: a. To visit doctor's office regularly b. To take medications regularly c. To take good and adequate meals regularly d. To develop a pattern in early childhood which tends to prevent the risk factors from becoming a problem	1 2 3 4 5	1 2 3 4 5
29.	Most Black women could have coronary heart disease as a result of: a. Having too many children b. Not taking regular exercise c. Too much stress and eating too much D. B and C	1 2 3 4 5	1 2 3 4 5
30.	Correction of overweight (obesity) may: a. Reduce amount of fatty substances in the blood b. Reduce the chances of high blood pressue (hypertension) c. Reduce the chances of coronary heart disease d. All the above	1 2 3 4 5	1 2 3 4 5
31.	Which of the following <u>may not</u> form or make-up a risk factor closely linked with coronary heart disease? a. Eating meals constantly rich in beef and pork b. Eating eggs continuously at a rate of seven (7) per week c. Eating more beans and vegetable with <u>very little</u> eggs, beef or pork d. Eating more beans, little vegetable with <u>heavy</u> intake of eggs, beef and pork	1 2 3 4 5	1 2 3 4 5

	RATING	
	Scientific Accuracy	Appropriatness
32. Other major risk factors of coronary heart disease include which of the following combinations: a. Lack of regular exercise and obesity b. Evidence of hepatitis and a family history of heart murmur c. Evidence of diabetes and a family history of heart attack d. A and C only	1 2 3 4 5	1 2 3 4 5
33. Which of the following is not a possible risk factor associated with coronary heart disease? a. Drinking too much alcoholic beverages b. Growing old and being male c. Previous history of chronic lung disease d. Oral contraceptives - birth control pills.	1 2 3 4 5	1 2 3 4 5
34. As far as it is known, smoking pipes or cigars can result in: a. An increased risk of heart attack b. No increased risk of heart attack c. Very little risk of heart attack d. Medium risk of heart attack	1 2 3 4 5	1 2 3 4 5
35. Which of the following is not a symptom coronary heart disease or heart attack? a. Prolonged chest pain - angina pain b. Shortness of breath c. Lower abdominal pain and restlessness d. Faintness and lightheadness	1 2 3 4 5	1 2 3 4 5
36. The following except one are signs of coronary heart disease or heart attack: a. Blue coloration of the skin - cyanosis b. Cold sweat and paleness c. Intense headache and confusion d. Abnormal pulse rate	1 2 3 4 5	1 2 3 4 5

	RATING	
	Scientific Accuracy	Appropriatness
37. To be physically fit and avoid being overweight, we should have:	1 2 3 4 5	1 2 3 4 5
a. Excessive outdoor physical exercise b. Excessive physical exercise followed by months of rest periods c. Moderate physical exercise followed by weeks of rest periods d. Moderate but constant physical exercise		
38. Which of the following is not listed as the usual symptoms of coronary heart disease or heart attack:	1 2 3 4 5	1 2 3 4 5
a. Unusual discomfort in the center of the chest behind the breast bone b. Pain or discomfort which moves to the shoulder, arm, neck or jaw c. Pain or discomfort on the lower abdomen moving to the legs d. Pain or discomfort often accompained by sweating, vomiting and shortness of breath.		
39. If one parent has a family characteristic of coronary heart disease:	1 2 3 4 5	1 2 3 4 5
a. It may be passed onto some of the children b. It will not be passed onto any of the children c. It will be passed onto the female children only d. It will be passed onto the male children only		
40. Persons with coronary heart disease risk factors:	1 2 3 4 5	1 2 3 4 5
a. Should work on any type of job b. Should work on specialized jobs c. Should be able to work according to the number and types of the risk factors d. Should go on welfare because they are handicapped		

	RATING	
	Scientific Accuracy	Appropriatness
41. Although coronary heart disease or heart attack itself is sudden, it is the result of a slowly-developing disease called:	1 2 3 4 5	1 2 3 4 5
a. Heart bleeding disease b. Hardening of the arteries - Arteriosclerosis c. Thickening of the inner layers of the arteries - Atherosclerosis d. B and C only		
42. Medical scientists now share the opinion that the average individual as well as coronary-prone persons should be well advised to:	1 2 3 4 5	1 2 3 4 5
a. Adopt a diet aimed at increasing cholesterol levels in blood b. Adopt a diet aimed at maintaining a balance between the body weight and cholesterol levels in blood c. Adopt a diet aimed at reducing cholesterol levels in blood d. Adopt a diet aimed at maintaining a zero cholesterol in blood		
43. A person with high blood pressure (Hypertension) will have up to six times as great the risk of _____ as a person with normal blood pressure:	1 2 3 4 5	1 2 3 4 5
a. Congenital heart disease b. Rheumatic heart disease c. Heart attack d. Chronic lung disease		
44. Which of the following coronary heart disease risk factors can be changed through doctor's care (Medical Supervision)?	1 2 3 4 5	1 2 3 4 5
a. Blood cholesterol and EKG abnormality b. Cigarette smoking and stress c. High blood pressure (hypertension) and diabetes d. A and C only		

	RATING	
	Scientific Accuracy	Appropriatness
45. Which of the following coronary heart disease risk factors cannot be changed?	1 2 3 4 5	1 2 3 4 5
a. Diet and diabetes b. Heredity, sex and age c. Cigarette smoking and stress d. Blood cholesterol and EKG abnormality		
46. Some coronary heart disease risk factors can be changed by the person at risk. Select the correct ones.	1 2 3 4 5	1 2 3 4 5
a. Blood cholesterol and EKG abnormality b. Sedentary (easy-going) life-style and diet c. Cigarette smoking and stress d. B and C only		
47. Other ways in which coronary heart disease can be prevented or reduced is through:	1 2 3 4 5	1 2 3 4 5
a. Screening of children and adults with high risk of coronary heart disease b. Public knowledge of coronary heart disease risk factors c. Greater knowledge, understanding and acceptance of the disease by members of the public d. All the above.		
48. Men have between _____ more heart attacks than women of child-bearing age:	1 2 3 4 5	1 2 3 4 5
a. Ten to fifteen (10 - 15) times more b. Three to four (3 - 4) times more c. Six to ten (6 - 10) times more d. Nine to twelve (9 - 12) times more		

	RATING	
	Scientific Accuracy	Appropriateness
49. The latest statistics released by the American Heart Association shows that coronary heart disease was the cause of death of: a. Over 680,000 Americans in 1973 b. One-half million Americans in 1973 c. Two and a half million Americans in 1973 d. Below 200,000 Americans in 1973.	1 2 3 4 5	1 2 3 4 5
50. An individual with blood cholesterol of 250 or more has: a. Average risk of coronary heart disease b. About two times the risk of coronary heart disease c. About three times the risk of coronary heart disease d. No risk of coronary heart disease.	1 2 3 4 5	1 2 3 4 5

AWARENESS APPRAISAL OF CORONARY HEART DISEASE RISK FACTORS INVENTORY

Questionnaire Answers

1.	A	26.	D
2.	D	27.	D
3.	C	28.	D
4.	C	29.	D
5.	B	30.	D
6.	C	31.	C
7.	C	32.	D
8.	A	33.	C
9.	B	34.	B
10.	B	35.	C
11.	C	36.	C
12.	A	37.	D
13.	B	38.	C
14.	B	39.	A
15.	B	40.	C
16.	C	41.	D
17.	C	42.	C
18.	D	43.	C
19.	C	44.	D
20.	B	45.	B
21.	A	46.	D
22.	C	47.	D
23.	C	48.	C
24.	B	49.	A
25.	D	50.	C

APPENDIX C

COMMITTEE OF JURORS

COMMITTEE OF JURORS

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APPENDIX D

THE FINAL INSTRUMENT FOR APPRAISAL OF CORONARY HEART DISEASE RISK FACTORS AWARENESS

FINAL FORM OF SURVEY INSTRUMENT TO MEASURE AWARENESS OF

HEART DISEASE RISK FACTORS AMONG BLACK POPULATION

CORONARY HEART DISEASE AND RISK FACTORS KNOWLEDGE INVENTORY

Directions: The purpose of this inventory is to determine your level of awareness (knowledge) of coronary heart disease risk factors.

There are four possible answers for each of the following questions. Choose the one which answers the question best and if you are not sure of the correct answer, guess. Please answer all the questions.

INTRODUCTORY QUESTIONS

	Yes	No
Have you ever heard of Coronary Heart Disease?	____	____
Do you know some risk factors (causative agents) associated with coronary heart disease?	____	____
Have you ever known anyone suffering from coronary heart disease?	____	____
If your answer is yes, was the person a relative or friend of yours?	____	____

A. General Knowledge of Coronary Heart Disease/Risk Factors

1. Coronary heart disease can lead to:

    1. Stroke
    2. Heart attack
    3. Congestive heart failure
    4. Rheumatic heart disease

2. The term "risk factors" refers to:

    1. Seeds of the disease
    2. Tiny bacteria or germs that can cause the disease
    3. Conditions, living habits or lifestyles that can lead to the disease
    4. The danger of the disease

3. Coronary heart disease is presently:

   1. The nation's (United States') third killer
   2. The nation's (United States') sixth killer
   3. The nation's (United States') number one killer
   4. The nation's (United States') number two killer

4. The best way to reduce the risk of coronary heart disease in later years is:

   1. To visit the doctor's office regularly
   2. To take medication regularly
   3. To eat good and heavy meals regularly
   4. To develop a pattern in early childhood which tends to prevent the risk factor from becoming a problem

5. The following except one are signs of coronary heart disease or heart attack:

   1. Blue coloration of the skin—cyanosis
   2. Cold sweat and paleness
   3. Intense headache and confusion
   4. Abnormal pulse rate

6. Which of the following is not listed as the usual symptoms of coronary heart disease or heart attack?

   1. Unusual discomfort in the center of the chest behind the breast bone
   2. Pain or discomfort which moves to the shoulder, arm, neck or jaw
   3. Pain or discomfort on the lower abdomen moving to the legs
   4. Pain or discomfort often accompanied by sweating, vomiting and shortness of breath

7. Although coronary heart disease or heart attack itself is sudden, it is also the result of a slowly-developing disease called:

   1. Heart bleeding disease
   2. Hardening of the arteries—Arteriosclerosis
   3. Thickening of the inner layers of the arteries—Atherosclerosis
   4. Only numbers 2 and 3 are correct.

B. KNOWLEDGE OF SPECIFIC RISK FACTORS

8. Coronary heart disease is most likely to occur among persons with:

   1. High blood sugar levels
   2. High blood cholesterol levels
   3. Low blood sugar levels
   4. Low blood cholesterol levels

9. Risk of coronary heart disease can be lowered through diets:

   1. Highly rich in animal fats and vegetable oils
   2. Highly rich in vegetable oils but low in animal fats
   3. Highly rich in animal fats only
   4. None of the above is correct

10. Select the one which may not form a risk factor closely linked with coronary heart disease:

   1. Eating meals with heavy intake of beef and pork, seven times per day
   2. Eating more beans, little vegetable with heavy intake of eggs, beef or pork
   3. Eating more beans and vegetable with little eggs, beef or pork
   4. Eating eggs continuously at a rate of seven per week

11. Medical scientists now share the opinion that the average individual as well as coronary-prone persons should well be advised to:

   1. Adopt a diet aimed at increasing cholesterol levels in blood
   2. Adopt a diet aimed at maintaining a balance between the body weight and cholesterol levels in blood
   3. Adopt a diet aimed at reducing cholesterol levels in blood
   4. Adopt a diet aimed at maintaining a zero cholesterol in blood

12. We can have coronary heart disease by:

   1. Heavy smoking of marihuana
   2. Heavy smoking of cigarettes
   3. Heavy taking of "uppers"
   4. Heavy taking of "downers"

13. Which of the following coronary heart disease risk factors can be changed through doctor's care (medical supervision)?

   1. Blood cholesterol and EKG abnormality
   2. Cigarette smoking and stress
   3. High blood pressure (hypertension) and diabetes
   4. Numbers 1 and 3 only are correct

14. In men aged 45 to 64 years, the overall coronary heart disease death rate among the "never smoked" and "smokers" is:

   1. 1:1
   2. 1:3
   3. 1:2
   4. 1:4

15. A person who smokes a pack of cagarettes a day has:

    1. Nearly five times the risk of coronary heart disease than a nonsmoker
    2. Nearly twice the risk of coronary heart disease as a nonsmoker
    3. Has no risk of coronary heart disease at all
    4. Has the same risk of coronary heart disease as a nonsmoker

16. Coronary heart disease is more likely to occur among:

    1. Thin middle-aged persons
    2. Highly overweight middle-aged persons
    3. Thin adolescents or teenagers
    4. Highly overweight adolescents or teenagers

17. It is believed that the risk of coronary heart disease will be lowered with:

    1. Understanding of the disease
    2. Watching and reducing your weight
    3. Having regular physical examinations
    4. All of the above

18. Hypertension (high blood pressure) is the most common disease among:

    1. Lower class Black Americans
    2. Upper, middle and lower class Black Americans
    3. Lower class White Americans
    4. Upper, middle and lower class White Americans

19. Which of the following can be linked to hypertension (high blood pressure)?

    1. Congenital heart disease and heart murmur
    2. Heart murmur and congestive heart failure
    3. Stroke and heart attack
    4. Rheumatic heart disease and stroke

20. Controlling hypertension can greatly reduce the risk of:

    1. Congenital heart disease and heart murmur
    2. Stroke and heart attack
    3. Rheumatic heart disease and stroke
    4. Heart murmur and congestive heart failure

21. Risk of coronary heart disease can also be linked with:

    1. Diabetes
    2. Familial tendency toward diabetes
    3. Heredity
    4. All of the above

22. Another common agent present within our society which may cause coronary heart disease is/are:

    1. Germs or bacteria
    2. Emotional stress
    3. Tension
    4. Numbers 2 and 3 only are correct

23. It is generally believed that men who do not do hard physical labor or exercise sufficiently will:

    1. Live longer than others
    2. Run lower risk of getting coronary heart disease
    3. Run higher risk of getting coronary heart disease
    4. Run no risk at all

24. Regular and moderate exercise:

    1. Will increase the risk of coronary heart disease
    2. Will reduce the risk of coronary heart disease
    3. Will first increase and then reduce the risk of coronary heart disease
    4. Will first reduce and then increase the risk of coronary heart disease

25. Studies have also shown that the danger of coronary heart disease increased with:

    1. The number and severity of the risk factors
    2. The severity of the risk factors only
    3. The number of risk factors
    4. None of the above

26. To be physically fit and to help avoid being obese (overweight) we should have:

    1. Daily physical exercise for three months continuously
    2. Daily physical exercise for one month followed by months of rest periods
    3. Moderate but constant physical exercise with no specific rest periods
    4. Moderate physical exercise followed by weeks of rest periods

27. Correction of overweight (obesity) may also:

    1. Reduce amount of fatty substances in the blood
    2. Reduce the chances of high blood pressure (hypertension)
    3. Reduce the chances of coronary heart disease
    4. All of the above

28. Other major risk factors of coronary heart disease include which of the following combinations:

    1. Lack of regular exercise and obesity
    2. Evidence of hepatitis and a family history of heart murmur
    3. Evidence of diabetes and a family history of heart attack
    4. Only numbers 1 and 3 are correct

29. A person with hypertension (high blood pressure) will have up to _____ times as great the risk of heart attack as a person with normal blood pressure:

    1. Four (4) times
    2. Three (3) times
    3. Five (5) times
    4. Six (6) times

30. Many Black women could have coronary heart disease as a result of:

    1. Family tension and emotional stress
    2. Eating too much
    3. Not taking regular exercise
    4. All of the above

31. Some coronary heart disease risk factors can be changed by the person at risk. Select the correct ones.

    1. Blood cholesterol and EKG abnormality
    2. Sedentary (easy-going) lifestyle and diet
    3. Cigarette smoking and stress
    4. Only numbers 2 and 3 are correct

32. Other ways in which coronary heart disease can be prevented or reduced is through:

    1. Screening of children and adults with high risk of coronary heart disease
    2. Some public knowledge of coronary heart disease risk factors
    3. Greater knowledge, understanding and acceptance of the disease by members of the public
    4. All of the above

33. We can reduce the danger of coronary heart disease by:

    1. Much increase of fatty foods in our daily diets
    2. Much decrease of fatty foods in our daily diets
    3. Eating much beef everyday
    4. Eating much pork-chops everyday

APPENDIX E

INTERVIEW SCORE SHEET AND INSTRUCTIONS

CORONARY HEART DISEASE RISK FACTORS AWARENESS
SCORE SHEET

AGE _____ SEX _____ LEVEL OF EDUCATION: 1 2 3 4 5 6 7 8
9 10 11 12 (Circle one)

ANNUAL INCOME:

COLLEGE: 1 2 3 4 5 6 7 8

$0 - 5,999
$6,000 - 9,999
$10,000 - 100,000

DIRECTIONS: The purpose of this inventory is to measure your level of awareness of Coronary Heart Disease Risk Factors.

There are four (4) possible answers for each of the following questions. All of the answers may be correct, but there is one (1) best answer. Choose the one answer you believe to be Best for each question. If you are not sure of the correct answer, guess. Answer all questions.

Example: Coronary Heart Disease is:

1. Caused by a germ
2. Caused by a virus
3. Caused by kissing people with the disease
4. None of the above

In the example, the best answer is "4." Therefore, the answer would be "4."

Remember this inventory is not a test; it is not designed to test you, the scores will be kept confidential unless you wish to know your own score.

MARK THE CORRECT ANSWER WITH AN "X." MARK ONLY ONE (1) CHOICE FOR EACH QUESTION.

1. 1 2 3 4	13. 1 2 3 4	25. 1 2 3 4
2. 1 2 3 4	14. 1 2 3 4	26. 1 2 3 4
3. 1 2 3 4	15. 1 2 3 4	27. 1 2 3 4
4. 1 2 3 4	16. 1 2 3 4	28. 1 2 3 4
5. 1 2 3 4	17. 1 2 3 4	29. 1 2 3 4
6. 1 2 3 4	18. 1 2 3 4	30. 1 2 3 4
7. 1 2 3 4	19. 1 2 3 4	31. 1 2 3 4
8. 1 2 3 4	20. 1 2 3 4	32. 1 2 3 4
9. 1 2 3 4	21. 1 2 3 4	33. 1 2 3 4
10. 1 2 3 4	22. 1 2 3 4	34. 1 2 3 4
11. 1 2 3 4	23. 1 2 3 4	35. 1 2 3 4
12. 1 2 3 4	24. 1 2 3 4	

APPENDIX F

LETTERS TO PROSPECTIVE COMMITTEE MEMBERS, FOLLOW-UP LETTERS AND REPLIES

School of Health
Division of Health and Safety
University of Tennessee
Knoxville, Tennessee 37916
October 17, 1977

Dr. Robert I. Levy, Director
National Heart and Lung Institute
9000 Rockville Pike
Bethesda, Md. 20010

Dear Dr. Levy:

I am a graduate (doctoral) student in the School of Health, University of Tennessee, Knoxville and presently engaged in writing a doctoral dissertation. The dissertation, "The Development and Administration of an Instrument to Assess the Awareness of Coronary Heart Disease Risk Factors Among Blacks," deals specifically with developing an evaluative inventory to assess the level of knowledge of coronary heart disease risk factors among black adults who are not members in the health or medical professions.

The items in this preliminary instrument were constructed after an intensive search of the related literature. And it is desired that you, please, analyze each item for scientific accuracy and appropriateness of information relative to appraising the level of knowledge of coronary heart disease risk factors among lay-persons. Fresh sheets of paper may be used for corrections or comments if you so desire.

Much thanks for your anticipated assistance and I shall be grateful if you will return the preliminary instrument to me within two weeks of its receipt so that I can put finishing touches to the instrument.

Sincerely yours,

Patrick B. O. Williams

PBOW/
Enclosure

School of Health
Division of Health and Safety
University of Tennessee
Knoxville, Tennessee 37916
November 15, 1977

Dr. Robert I. Levy, Director
National Heart and Lung Institute
9000 Rockville Pike
Bethesda, Md. 20010

Dear Dr. Levy:

On October 17, 1977, a preliminary instrument for appraising "Awareness of Coronary Heart Disease Risk Factors" was mailed to you. It was requested that you should analyze the items therein for scientific accuracy and appropriateness relative to measuring the knowledge levels of laymen regarding CHD risk factors.

Since I plan to compile the final form of this instrument during the last week of this month, I would be very grateful if you would execute the questionnaire and return same to me soon enough to allow for the inclusion of your rating in the final instrument.

Upon completion of the study, a copy of the final form and the result will be sent to you.

Again thanks for your cooperation.

Sincerely yours,

Patrick B. O. Williams

PBOW/

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
PUBLIC HEALTH SERVICE
NATIONAL INSTITUTES OF HEALTH
BETHESDA, MARYLAND 20014

NATIONAL HEART, LUNG, AND BLOOD INSTITUTE

November 21, 1977

Mr. Patrick B. O. Williams
Division of Health and Safety
The University of Tennessee
Knoxville, Tennessee 37916

Dear Mr. Williams:

Your letter to Dr. Robert I Levy has been referred to me for response.

It was fun reading your questionnaire and I had several members of my staff look it over also. The ratings enclosed therefore represent a consensus.

In general, this was felt to be a good instrument but several questions were felt to be ambiguous. It was also felt to be somewhat too long -- cutting it down to 20-30 questions may be better.

Good luck in your research. I would appreciate hearing how it comes out.

Sincerely yours,

M Feinleib

Manning Feinleib, M.D., Dr.P.H.
Chief, Epidemiology Branch
Division of Heart & Vascular Diseases

Enclosure

School of Health
Division of Health and Safety
University of Tennessee
Knoxville, Tennessee 37916
January 10, 1978

Dear

I am a graduate (doctoral) student in the School of Health, the University of Tennessee, Knoxville and presently engaged in writing a doctoral dissertation. The dissertation, "The Development and Administration of An Instrument to Assess the Awareness of Coronary Heart Disease Risk Factors Among Blacks," deals specifically with developing an evaluative inventory to assess the level of knowledge of coronary heart disease risk factors among Black adults who are not members in the health or medical professions.

Recognizing that your busy schedule requires a great deal of your time, I have constructed the evaluative instrument (Questionnaire) in such a way as to allow for, approximately, a maximum of 20-30 minutes to rate the questions.

Would you, therefore, be willing to serve as a committee person (juror) to rate this preliminary instrument?

Should you agree to serve as such, I shall be grateful if you will indicate so on the enclosed Preliminary Instrument Rating Check-Form and return same early to me. A stamped self-addressed envelope is provided for your convenience.

Much thanks for your anticipated cooperation and assistance.

Sincerely yours,

Patrick B. O. Williams

PBOW/
Enclosure

PRELIMINARY INSTRUMENT RATING CHECK FORM

NAME_____

ADDRESS_____

_____

(Please Indicate Title or Position)

Physician:

(I) Cardiologist_____

(II) General Practitioner_____

(III) Surgeon_____

(IV) Other_____

Health Educator (School or Community):_____

Registered Nurse/Nurse Educator: _____

Psychologist: _____

Sociologist: _____

A Person with Coronary Heart Disease or Traits: _____

WOULD YOU BE WILLING TO RATE THE PRELIMINARY INSTRUMENT? Yes No

(Circle One)

School of Health
Division of Health and Safety
University of Tennessee
Knoxville, Tennessee 37916
February 23, 1978

Dear Dr.

Sometime ago, you indicated your willingness to serve as a committee person to help develop an instrument for evaluating the awareness of coronary heart disease risk factors among Blacks. It is my pleasure to inform you that work on the preliminary instrument has now been completed.

The items in the instrument were constructed after an intensive search of the literature, interviews with cardiologists and research specialists on coronary heart disease as well as conversation with the actual coronary heart disease patients.

It is desired that you will, please, analyze and rate each item for scientific accuracy and appropriateness relative to appraising the level of knowledge of coronary heart disease risk factors among laymen. Should you feel that a particular item is undesirable, please, comment as to your suggestions for revision or deletion. But should you choose to revise or add any item, please, rate the added or revised item also.

I have to thank you, once more, for the time you have taken to assist me in this preliminary instrument evaluation.

I shall be grateful if you would complete the instrument and return same to me within three weeks so that you and other committee members may receive the revised instrument while the information is still fresh in your minds.

With kind regards.

Sincerely yours,

Patrick B. O. Williams

PBOW.
Enclosure

FLORIDA JUNIOR COLLEGE AT JACKSONVILLE
NORTH CAMPUS
4501 CAPPER ROAD
JACKSONVILLE, FLORIDA 32218

March 27, 1978

Mr. Patrick B. O. Williams
School of Health
Division of Health & Safety
University of Tennessee
Knoxville, Tennessee 37916

Dear Mr. Williams:

We have returned, under separate cover, your preliminary instrument evaluation.

Faculty input was obtained to respond to your questionnaire.

I trust that this information will be of assistance to you in your evaluation. I appreciate the fact that you selected me to assist in reviewing your preliminary instrument evaluation.

Sincerely,

Lois D. Gibson/cjs

Lois D. Gibson, R.N., Ed.D.
Director of Nursing

LDG/cjs

APPENDIX G

MAP OF KNOXVILLE-KNOX COUNTY

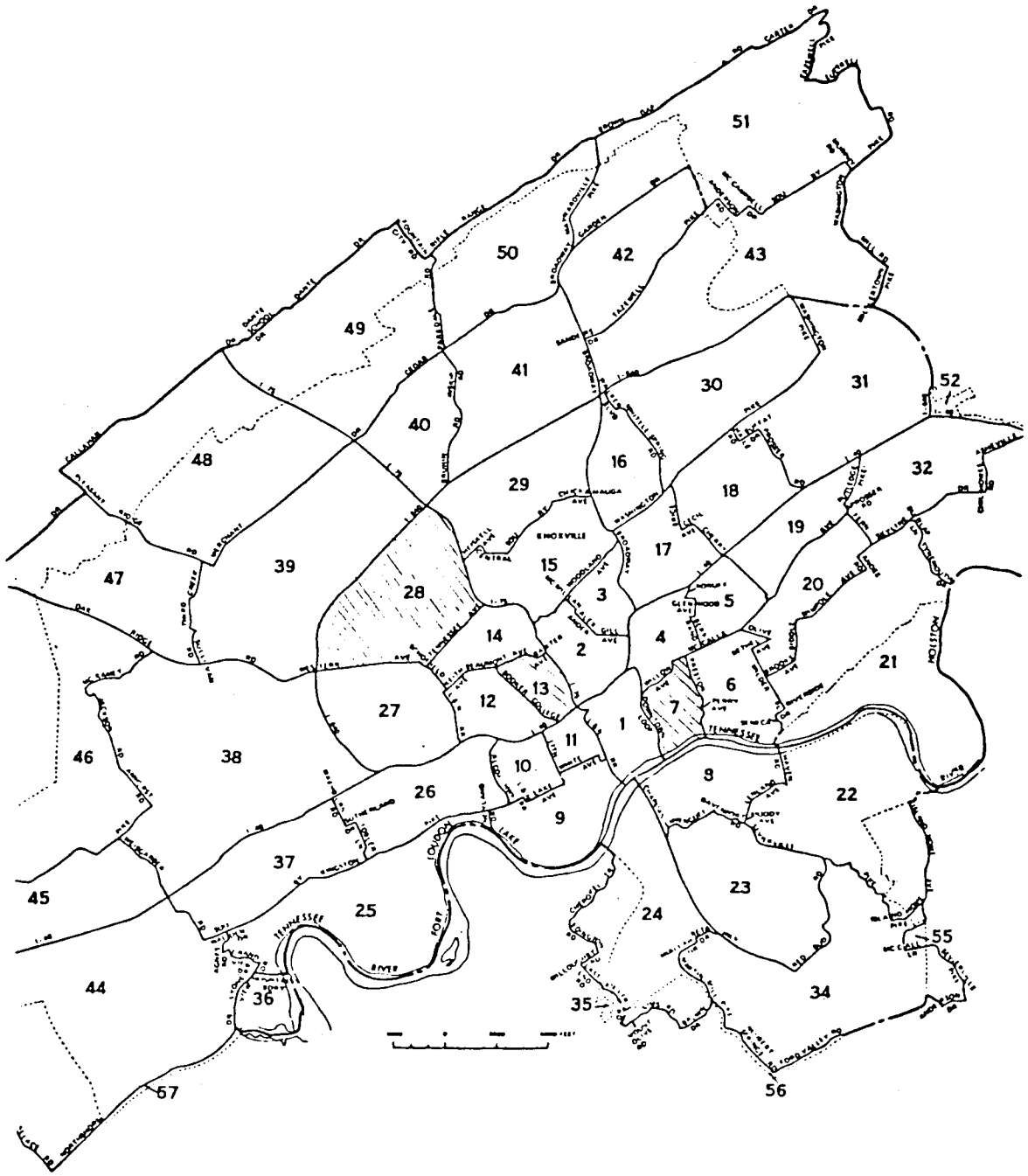

Figure 1. Census Tracts in the Knoxville, Tennessee, SMSA and Adjacent Area.

VITA

Patrick Bassey Okon Williams was born on June 24, 1942, at Ikot Nseyen-Iman, Cross River State of Nigeria. He attended elementary school in Ikot Ekpene, Nigeria, and graduated from the St. Patrick's Catholic Secondary School, Calabar, Nigeria, in 1959.

In 1960, he enrolled in a health diploma program in the Eastern Nigeria School of Hygiene and was granted the Royal Society of Health Diploma in Health in 1963. He then served with the Nigerian Ministry of Health for eight years as a Public Health Inspector.

He came to the United States in September 1971 and began studying towards a Bachelor of Science degree in Public Health Education at the Western Illinois University. He received this degree in June, 1974.

In September, 1974, he entered the gradute school at the University of North Florida, Jacksonville, and received a Master's degree in Community Health Education in August, 1975.

He later enrolled in the doctoral program at the University of Tennessee, School of Health, in September, 1976. He received the Doctor of Philosophy degree with a major in Health Education in August, 1978.