ABSTRACT

Cheryl B. Batchelor. A COMPARATIVE ANALYSIS OF CARDIOVASCULAR RISK FACTORS OF PREMENOPAUSAL CLERICAL WORKERS AND HOUSEWIVES (Under the direction of Mary K. Kirkpatrick) Department of Nursing, May, 1986.

This study compared the incidence, in terms of numbers and weighted severity, of cardiovascular risk factors of premenopausal clerical workers to premenopausal housewives. It also determined if there was a significant relationship between stress and the other risk factors of this target population and if an association existed between their level of cardiovascular risks and demographic data. The data were collected from approximately 104 premenopausal female volunteers between 18 and 49 years of age.

A modified version of the Cardiovascular Risk Factor Questionnaire and the Psychosocial Scales utilized in the Framingham Heart Study were used to collect the data. These instruments provided information on the incidence and significance of major risk factors for atheroslerotic cardiovascular disease as well as data on behavioral types, reaction to anger, situational stress, job mobility, and cultural mobility. The tools were administered at six industrial settings and five parent-teacher organizations from local schools in eastern North Carolina.

The data obtained were analyzed using descriptive statistics with comparison of means at .05 level of significance, independent t-tests, Pearson Correlation of Coefficients, and cross tabulations with Chi-Square Analysis. The results of the analysis showed that all three of the research hypotheses failed to be rejected.

Thus, there was no difference in the reported incidence of the number and weighted severity of the risk factors among premenopausal clerical workers compared to premenopausal housewives. Both groups were found to be at medium risk for developing cardiovascular disease. Next, there was no association between the perceived stress levels and incidence of cardiovascular risk factors of premenopausal clerical workers and housewives. Finally, no significant relationship existed between the demographic data and the incidence of cardiovascular risk factors of these two groups.

A COMPARATIVE ANALYSIS OF CARDIOVASCULAR RISK FACTORS OF PREMENOPAUSAL CLERICAL WORKERS AND HOUSEWIVES

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TO GARY FOR WAITING

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CHAPTER ONE

Introduction

As this country strives for technological and economic advancement, the female population is witnessing changes in its health. Specifically, one alteration of health in females, particularly the premenopausal working woman, is the potential exposure to increased risks for developing cardiovascular disease. It is a misconception that cardiovascular disease is solely a male illness. Researchers have documented increasing cardiovascular risks for the working female population. The health of the working woman may decline as she takes on the problems that have traditionally belonged to men such as executive pressures, corporate games, professional expectations and competitive behavior (Schrader, 1981).

At present, the female lifespan over males is approximately eight years, but it has been proposed that this longevity will substantially decrease by the year 2000 (Milio, 1980). Specifically, according to various authors, the reasons for future diminishing in female longevity will be : 1. difficulty in detecting early signs of cardiovascular disease in women (Waters, 1978), 2. increased incidence of chest pain in women (Haynes, 1978), 3. rise of female mortality resulting from coronary artery disease (Gibbons, 1983), 4. poorer prognosis for women suffering

heart attacks or undergoing coronary artery bypass surgery as compared to males (Douglas, 1981); and, 5. the growth of female disability resulting from coronary artery disease (Chirikos, 1984).

First, research suggests that women with clinically significant chest pain are more likely to have normal coronary arteriograms than are men with comparable symptoms (Waters, 1978). In addition, it has been proven that exercise stress tests in women are of limited usefulness because the false-positive results are greater for females than males (Winternitz, 1983).

The second effect, on female longivity, is that females are more likely than males to develop chest pain. However, studies show that this pain is usually benign, approximately 85% of the time, meaning that it does not kill females as quickly as males; it only effects their ability to carry on activities of daily living (Haynes, 1978).

Third, although men presently have a higher incidence of coronary heart disease than women, cardiovascular illness may be the leading cause of death of females (Gibbons, 1983). Futhermore, women in our country have higher rates compared to the rest of the world, which is estimated to be approximately 259 per 100,000 (Gibbons, 1983). Specifically, for black women, ages 30-39, cardiovascular disease is the number one cause of death; but for the white female population, ages 35-39, this illness falls behind breast cancer as a cause of death (Winternitz, 1983).

Next, despite the fact that women experience heart attacks at an older age than men, when they do experience these infarctions, the prognosis for their survival is often worse than for males. Specifically, following the first year after a heart attack, females have a higher reoccurrence of infarctions as well as 45% greater mortality when compared to males (Douglas, 1981). Douglas has also demonstrated the poorer survival rate of women undergoing coronary artery bypass surgery in comparison to men.

Finally, documentation supports an increase in female disability. The most recent social security reports show that one-sixth of our female population, which involves approximately two million women between the ages of 18-64, "are either limited in the amount of the kind of work they can do or prevented from working altogether because of major cardiovascular conditions" (Chirikos, 1984, p. 55).

Overall, women do not report lower levels of cardiovascular risk factors than men. Specifically, analysis of one portion of the famous Framingham Study (Haynes, 1978) suggested that risk factors may be higher for women than for the male population. Yet, female mortality remained lower than males, despite the fact that women had higher levels of all risk factors. Furthermore, this study also showed that married female clerical workers, who had children, may be more than twice as likely to develop cardiovascular disease than nonclerical working mothers. Specifically, the working women at the potentially highest risk were those clerical workers who had children and were married to

blue collar workers. This research also concluded that, in general, all working females, in the study, may not have significantly higher rates of cardiovascular disease than housewives.

Problem Identification

The potential problem in this study is that two groups of women are at risk for developing cardiovascular illness: premenopausal clerical workers and premenopausal housewives. This elevation of risks may be due to the increase in stress of females, to the high percentage of women who smoke as well as to those who take oral contraceptives. Yet, there is a dearth of information regarding who may be at higher risk, the premenopausal clerical worker or housewife?

Foremost, what are the risks for developing cardiovascular disease for the premenopausal clerical worker and the housewife? This researcher cites two studies which propose such risks. First, the Framingham Study supports cigarette smoking, hypertension, and elevated cholesterol as risk factors for women more likely to develop cardiovascular illnesses. The other presumed risks, left ventricular hypertrophy and glucose tolerance, have been less thoroughly studied in women (Gibbons, 1983). Also, between 1972-1973, Waters performed cardiac catheterizations on 239 females and found that the most prevalent risk factors were diabetes, hypertension, hyperlipidemia,

cigarette smoking, and positive family history. Ninety-six percent of those women with coronary artery disease had two or more of these risks (Waters, 1978). As a result of literature review and clinical practice, this researcher proposes eight risk factors specific to the premenopausal woman: 1) occupational and personal stress, 2) sedentary life style, 3) diet, 4) diabetes, 5) hypertension, 6) cigarette smoking, 7) oral contraceptives; and, 8) obesity.

Stress has been closely associated with cardiovascular disease (Haynes, 1980). Women are stress conscious, stress concerned, but not stress educated because the main focus, until now, has been on males. Working women constitute 49% of the work force which registers approximately 40 million workers (Jacobson, 1982), and with this increase, women have taken on the occupational stressors that have traditionally belonged to men. If this is the present circumstance, what impact could this have on the survival advantage of women over men, in terms of cardiovascular risks? As of 1980, the Framingham scientists have hypothesized that although the number of women have increased in the workforce since their original study, the increase of cardiovascular disease has not been significantly documented (Haynes, 1980). If this is the case, then, there is a lack of current documentation of the relationship between stress and the incidence of cardiovascular disease of premenopausal housewives and clerical workers. For example, the Framingham Study showed that the stress of the clerical worker's environment plus the

burdens of raising a family may have been associated with the development of cardiovascular disease in women (Haynes, 1984). Failure to express anger, having a nonsupportive boss, changing jobs infrequently, being married to a blue collar worker, and having children were independently associated with the risk of cardiovascular disease among clerical working women. In addition to the Framingham Study, (Haynes, 1984), a second study focused on the relationship of stress and cardiovascular disease (Waldon, 1978). This research investigated the relationship between Type A, or coronary prone behavior, socio-economic status, inter-generational socio-economic mobility, and parental status and whether Type A was more prevalent among employed women than among housewives. The results showed that Type A was more prevalent among full-time employed women than among housewives or women employed part-time.

Furthermore, compounded with the occupational stress are the personal stressors. Research has found that the home life can be more stressful for women (The Franco-Americo Study, 1983), and that the aging process itself provides greater stress for females (Jacobson, 1982). Basically, this researcher cited only two studies which substantiated a correlation between occupational and personal stress, (Haynes, 1980; Walden, 1978), of working women compared to housewives. However, both of these studies included menopausal as well as premenopausal subjects. There have been no studies which look at premenopausal women and no comparisons made of stress levels of these two groups.

Assumptions

1. There is a minimal level of health awareness needed in order to complete the instrument.

2. The research instrument will provide the necessary data to fulfill the purposes of the study.

3. Participants understand instructions and answer questions honestly.

Purposes

The purposes of this study are threefold:

1) Provide current documentation of the incidence, in terms of numbers and weighted severity, of cardiovascular risk factors of premenopausal clerical workers in comparison to premenopausal housewives.

2) Determine if a significant relationship exists between stress and the other cardiovascular risk factors of both premenopausal clerical workers and premenopausal housewives.

3) Determine if there are any significant differences between the cardiovascular risk levels of both groups, compared with their demographic variables (i.e. race, education, marital status, and number of children currently living at home).

Reseach Hypotheses

HYPOTHESIS I: There is no difference in the reported incidence of the number and weighted severity of the risk factors among premenopausal clerical workers compared to premenopausal housewives.

HYPOTHESIS II. There is no association between the perceived stress levels and incidence of cardiovascular risk factors of premenopausal clerical workers and premenopausal housewives.

HYPOTHESIS III. There are no significant differences between the demographic data and the incidence of cardiovascular risk factors of groups of premenopausal clerical workers and housewives.

Significance of the Study

The results of this study can be of benefit to both health care professionals and women's self-care groups in the development of primary prevention programs for cardiovascular disease. Secondly, since the nursing profession is limited in the number of nurses available to promote health protective behaviors, identification of high risk groups would help to facilitate the direction of nursing interventions. Finally, it is hoped that individuals who find themselves at high risk for a chronic disease will try to modify their lifestyles to decrease their chances of developing the illness.

Definitions of Terms

1) Cardiovascular disease - defined as encompassing coronary heart disease, stroke, myocardial infarction, or intermittent claudication (Kannel, 1976, p. 447).

2) Premenopausal - defined as relating to or occurring in the period preceding menopause or cessation of menses.

3) Working (clerical) woman - defined as a premenopausal woman employed, for money, in a nonsupervisory role, to keep records or accounts or to perform general office work.

4) Cardiovascular risks - defined as those factors which may facilitate the incidence of disease of the heart and/or blood vessels.

5) Incidence - defined as the rate of occurrence or influence of cardiovascular risk factors upon premenopausal women.

6) Housewife - defined as a premenopausal woman in charge of a household and not employed, for money, outside the home.

Organization

The organization of this thesis is as follows: Chapter One is an introduction of the study. It presents the statement of the problem, followed by the assumptions, the purposes, the research hypotheses to be investigated, the significance, and the definitions of terms in the study. Chapter Two presents the conceptual framework to be utilized in investigating this problem. It also includes a review of the literature in nursing and related fields that supports this study and from which the questionnaire was developed. Chapter Three identifies the research design and the time frame of the study. In addition, the sample selection, instrumentation, and analytic methods are included in this chapter. Finally, the analysis of the data are presented in Chapter Four, while the conclusions, implications, limitations, and recommendations for future research are discussed in Chapter Five.

CHAPTER TWO

Conceptual Framework / Review of Literature

Introduction

This chapter is divided into two parts. Part one is a discussion of the conceptual framework from which this study is based. Theoretically, a conceptual framework provides the perspective in investigating a problem. The second part consists of a review of the literature pertinent to cardiovascular risks of women, particularly young females. Consequently, perspective studies from nursing as well as other disciplines are examined and presented in this chapter.

Conceptual Framework

The conceptual basis for this study relates to stress, its effect on illness; most particularly cardiovascular disease, women, and their occupation. Stress is defined as "the nonspecific response of the body to any demand," where stressors consists of any internal or external stimuli that upset the psychophysiologic balance requiring an adaptive change to reestablish homeostasis (Selye, 1974, p.27).

Research has shown that psychosocial stress has a significant influence on the development of physiological as well as psychological maladies. For example, the development of

inflammatory diseases such as arthritis, allergies, asthma, and tubercolosis may be affected significantly by psychosocial stress (Selye, 1974). The association between diseases of maladaption and stress have also been documented. These diseases include respiratory illnesses, (Stout, 1982), metabolic illnesses, (Friedman, et.al., 1958), cancer, (Greer and Morris, 1975), depression, (Keith, 1983), hypertension, (Zimmerman, 1982); and, cardiovascular disease, (Haynes, 1980).

Research suggests that psychosocial stress can insult the cardiovascular system. Under intense psychosocial stress, the central nervous system profoundly effects the cardiovascular mechanisms in certain individuals (Eliot, 1983). Specifically, these effects can best be explained by using Selye's general reaction to stress known as the "General Adaptation Syndrome" (Selye, 1974, p. 39). It is divided into three stages.

Stage one is the immediate response to stress or anticipated stress called the "alarm reaction." During this phase, the hypothalamus is stimulated to release corticotropin-releasing factor (CRF) which travels to the anterior pituitary through the hypothalamic-hypophyseal portal vessels. The CRF causes the release of adrenocortiocotropic hormone (ACTH) from the anterior pituitary, which flows through the bloodstream to the adrenal cortex. The ACTH then causes the adrenal cortex to release corticoids. In addition to precipitating gluconeogenesis, corticoids cause a general increase bodily response to stress by an unknown mechanism. Simultaneously, the body's sympathetic

nervous system is more active than usual, releasing norepinephrine from most of its nerve terminals. This is generally known as the "fight or flight response" (Kjervik and Martinson, 1979, p.89). From the cardiovascular perspective, the mechanisms involved with this response include: 1) copious diaphoresis, 2) increased rate and force of the heart beat, 3) vasodilation of coronary vessels, 4) increased cardiac output and blood pressure, 5) vasoconstriction of systemic blood vessels, 6) increased coagulation of blood, 7) increase in blood glucose concentration; and, 8) increased basal metabolism including oxygen consumption. Sympathetic stimulation also causes a general release of epinephine and norepinephine from the adrenal medulla that has the same cardiovascular effects as direct sympathetic stimulation but will last approximately ten times longer (Kjervik and Martinson, 1979).

If the stress continues, a stage of "adaptation or resistance" occurs (Selye, 1974, p. 39). Adaptation may be defined as an adjustment of the organism to make it more fit for existence. If adaptation does not take place, the organism will die within a few hours or days.

The third and final stage of stress, if acquired adaptation is eventually lost, is complete exhaustion and death. This phase may or may not be accompanied by increases in sympathetic nervous system activity.

This general response to stress is characteristic of both men and women. However, some studies have shown that females are less likely to respond to emotionally arousing stress by release of epinephrine (Selye, 1976). Yet, contemporary methods of measuring emotional behavior have shown that women are more susceptible to anxiety (Kjervik and Martinson, 1979). Women can strain themselves to the same state of physical exhaustion as men, but they are less likely to push themselves to complete exhaustion. Finally, when both sexes are tested, women attain higher values in work intensity, heart rate, lactic acid concentration, and ventilation, than do males (Kjervik and Martinson, 1979). In the 1950's, Friedman and Rosenman demonstrated that, in a group of male certified public accountants, stress precipitated elevated cholesterol levels. This was the beginning of Friedman and Rosenman's work in defining the Type A individual or one prone to develop coronary artery disease (Friedman and Rosenman, 1971). Today, Type A behavior continues to be accepted as a risk factor by the American Heart Association and the National Heart, Lung, and Blood Institute (1983) for developing cardiovascular disease.

In terms of the female population, as they enter the workplace, they are becoming more susceptible to psychophysiological distress and the strain of meeting multiple role demands. A woman feeling stressed at work enhances her vulnerability to personal stressors. Consequently, excessive demands at home lessens the woman's energy available for adapting

to professional stressors. For example, when stress levels, stress responses, and stressors between male and female managers were examined, it was found that the women reported a higher overall level of stress and that their stressors were primarily familial, not job related (Staats, 1983). Regardless, the stress a woman is exposed to can affect her health and health-seeking behavior. For example, in a study of 579 women, ages 25-65, one-fourth of all the women reported physical health as a major stressor (Griffith, 1983).

Research remains inconslusive as to whether clerical work is more stressful and places the woman at more risk for cardiovascular disease than housework on a full time basis. Consequently, The Franco-American Study, (1983), supported the argument that housewives were under great stress. Specifically, these researchers identified two personalities as most stressful: "Sister Superstress" which was the full-time mother who was torn between her multiple roles of being all things to all people and "Petticoat Prisoner" who was the housewife dissatisfied with her household chores and desired a full-time job.

On the other hand, research studies have documented lower status occupations with increased levels of coronary heart disease, such as the low status, low pay, repetitive work, and low levels of physical activity of the female clerical worker. Specifically, the boredom, lack of challenge, lack of chance for promotion, and lack of direct involvement with organizational goals tend to characterize female clerical workers as exposed to

high rates of stress. In addition, a national survey conducted in 1984 concerning job stress for women showed that of all working females, clerical workers ranked second in job insecurity as a stressor (9 to 5 National Survey, 1984).

Review of Literature

A review of the literature reveals that, currently, there exists research on the relationship between work and cardiovascular risks for men and women. However, the majority of this data involves menopausal women with a paucity of knowledge on the young premenopausal female. In addition, few studies have investigated the cardiovascular risks of employed women and housewives. Specifically, this researcher has discovered that, since 1978, only ten studies have been published regarding the cardiovascular risks of working women in comparison to housewives. Only recently, with the increase of women joining the work force has the interest arisen to investigate these groups of women.

Yet, what are the cardiovascular risks for premenopausal women? This researcher has already cited two studies which proposed such risks for women in general: The Framingham Study, (Haynes, 1980); and, Water's Research, (1978). Therefore, this investigator reviewed studies which suggested stress, sedentary lifestyle, diet, diabetes, hypertension, cigarette smoking, oral

contraceptives, and obesity as risks for women to develop cardiovascular disease.

Stress

There are two types of stress for premenopausal women: personal and occupational. Occupational stress is defined as the "sum total of all factors experienced in relation to work which affect the psychological and physiological homeostasis of the worker"(Schrader, 1981, p. 18). Very few women work solely as housewives today. Our inflationary times have brought budgetary strains that often send women into the job market. The number one psychological stress for a woman is the circumstances under which she decides to enter the work force, whether it be a result of personal desires, divorce, bereavement, or finances.

The greatest increase in the number of working women, between 1970 and 1980, were married, under 35 years of age, and had children under the age of six (Haynes, 1980). Furthermore, half of the working women have economic responsibility because one out of ten women is head of a family (Milio, 1980). Women may eventually fear losing their survival advantage over men. For example, a woman's salary is lower and job advancement is slower when compared to men of equal or lesser ability. Also, low status, low pay, repetitive work and low levels of physical activity on the job are working conditions of the 15-18 million clerical workers in the United States (Cohen, 1983, p. 30).

Finally, it is estimated that less than 40 percent of female employees have maternity benefits under employer health plans (Milio, 1980).

Compounded with the occupational stress are the personal stressors. Home stress is greater for women. Home stress, for a woman, refers to the amount of unpaid work at home, the altered relationship with her spouse, and the responsibility of day care and medical care for the children which a woman must deal with on a daily basis. For example, in 1983, the Franco-American Company published a study on today's women and found that "contrary to commonly-held views, however, it [was not] work that created the most pressure, [it was] motherhood" (Franco-American Study, 1983, p. 3). In addition, females spend more time in unpaid work at home, with or without a spouse. For instance, it is suggested that women who are employed full time typically work the equivalent of two full workdays a week more than their husbands (Wash and Egdahl, 1980). Also, for a working woman, employment may alter the relationship with her spouse, particularly finding time for romance or meshing two careers. A woman achieving a higher status or salary than her husband may generate feelings of emasculation and add further stress. The other extreme is the weekend marriage where one partner makes sacrifices for the other's career. Another personal stressor for working mothers is day care and finding time for medical care for their children and themselves. Furthermore, the aging process is more stressful for women than men (Jacobson, 1982). This may be the result of the

American perspective of remaining "young and attractive". Finally, it is a possibility that since women outlive men they may be exposed to even more physically demanding or dangerous settings. Consequently, women may suffer more debilitating chronic illnesses than men. One such chronic illness is cardiovascular disease.

Overall, this researcher noted three research studies which substantiated the correlation between occupational and personal stress to the incidence of cardiovascular illness of working women in comparison to housewives. Also, an additional study reported a correlation between psychophysiological disorders and stress among working and nonworking women. The first research, the Framingham Study, which has been reported earlier in this paper, was conducted between 1965-1967. It explored the relationship between employment status and employment-related behaviors and the incidence of cardiovascular illness in 1,674 men and women (Haynes, 1980). The conclusions of this research were that working women did not have significantly higher rates of cardiovascular disease than housewives; however, cardiovascular risks were reported as higher for women holding clerical jobs as compared to housewives. On the other hand, although the results of the Framingham Study were valid, several limitations of the research are evident: 1) the study is nineteen years old, 2) the inherent limitations of their instrument are evident in gathering the data, (i.e. 300 item questionnaire); and, 3) the study included both men and menopausal women.

The second study focusing on the relationship of stress and cardiovascular disease was conducted in 1978 (Waldon, 1978). This research investigated the relationship between Type A, or coronary prone behavior, socio-economic status, inter-generational socio-economic mobility, parental status and whether Type A behavior is more prevalent among employed women than among housewives. Type A, or coronary prone behavior is defined as "a hard driving, aggressive, competitive, rushed style of life which is associated with a substantially increased risk of cardiovascular disease" (Waldon, 1978, p. 79). The results showed that Type A scores were higher for women whose occupational status was higher than their husband's as compared to females with occupations of equal or lower status of their spouses. Also, Type A women closely correlated with women in higher occupational status and upward educational mobility. Finally, Type A was more prevalent among full-time employed women than amoung housewives or women employed part-time.

In addition, in 1982, a comparative study conducted on 123 employed women and 68 housewives suggested that employment was not a coronary artery disease risk factor for women (Heasley, 1985). Results of this research further indicated that women with two or more of the most prevalent risk factors were at high risk for developing cardiovascular disease. The female clerks in this study demonstrated less cardiovascular risks, yet they represented the largest occupational category of women having coronary artery disease. On the other hand, this study encompassed two

limitations: 1) the sample included menopausal women; and, 2) the female respondents already had a primary diagnosis of coronary artery disease.

Finally, an additional research investigation suggests an association between psychophysiological disorders and employed women in comparison to housewives. Specifically, this study suggested that family pressures were more important in generating a woman's physical symptoms than her employment status. The percentage of women reporting one or more symptom complexes increased with the number of roles the woman performed (Woods and Hulka, 1979).

Sedentary Life Style

Lack of exercise and its contribution to the incidence of coronary heart disease has been well researched, except for the female population. However, this writer did discover two studies specifically aimed at the physical fitness of women. First, the Framingham Study explored the relationship between exercise and cardiovascular risk factors. The results showed that women with higher levels of physical fitness had lower cardiovascular risks (Gordon, 1978). In addition, between 1971-1980, Gibbons and his associates observed 1700 healthy females, ages 18-65, in order to note an association between coronary risk factors and physical fitness (Gibbons, 1983). The conclusions showed there existed a strong correlation between triglyceride levels, high density

lipoprotein-cholesterol levels, and physical fitness. Specifically, the strongest association with fitness was its relationship with the ratio of total cholesterol to high density lipoprotein-cholesterol. Also, no significant relationship existed between total cholesterol ratio and exercise. Finally, this study was conducted on women from middle to upper socioeconomic levels and the subjects were 99 percent white. Thus, the limitations of this research are evident.

Diet

There has been a continuing debate concerning the relationship between dietary factors and the incidence of coronary heart disease, particularly dietary fats. Thompson postulates that the lipid hypothesis has never been demonstrated to be true. The lipid hypothesis states that the correlation between high fat diet, high plasma cholesterol, and atheroma, leads eventually to coronary heart disease (Thompson, 1983, p. 246). In addition, up to 1982, fourteen major studies have been conducted exhibiting that changing the diet leads to decreased cholesterol but does not decrease mortality (Thompson, 1983, p. 246). On the other hand, recent research suggest that a mathematical model can predict, with a high degree of accuracy, the extent of change in plasma cholesterol due to dietary cholesterol (Keys, 1984). Also, current findings from the Lipid Research Clinics randomized trial suggest that reducing serum cholesterol levels in high-risk

patients can reduce both morbidity and mortality from coronary heart disease (Lipid Research Clinics Program, 1984). Yet, what is the dietary significance in terms of cardiovascular risk for premenopausal housewives and clerical workers? First, one study suggests that our knowledge about nutrition remains doubtful. Specifically, an observation of 210 urban women revealed that their nutritional knowledge was low, particularly concerning dietary fats (Rahn and Sabry, 1983). On the contrary, a recent national probability sample of the public by telephone interviewing based on random-digit dialing suggested that nutritional public awareness had actually increased. Specifically, 63 percent of the respondents claimed awareness of health problems such as heart attacks, arteriosclerotic disease, and hypertension as being related to consumption of cholesterol or saturated fat (Heimbach, 1985, p. 9). This sample included 63 percent female population. Yet, even with reports of increased public awareness, there does not exist enough research on solely the female populations in terms of documented dietary risks. For example, this researcher only located one study which compared housewives and working women in regards to dietary risks. At the University of Texas a comparison study investigated the blood lipids, lipoproteins, and cholesterol of 700 women and men (Kangilaski, 1983). The conclusions suggested that, of the sample, women tended to have higher levels of high density lipoprotein-cholesterol than men and that high density

lipoprotein-cholesterol was significantly higher in currently employed women than in housewives.

Diabetes

Diabetes, or a high serum glucose level, has long been recognized as a risk factor for developing cardiovascular disease. In particular, the American Diabetic Association reports that diabetes strikes women nearly twice as often as men and that black females have the highest death rate from this chronic disease (American Diabetes Association, 1984). Furthermore, as far back as 1976, Kannel and his associates hypothesized, by their research, that diabetes would be the only risk factor that virtually eliminated the female advantage in cardiovascular morbidity and mortality (Kannel, 1976). Finally, several researchers have commented that "women have a greater prevalence of diabetes" than their counterparts (Winternitz and Oparil, 1983, p. 130).

Hypertension

Reseachers have previously documented that women do not have lower cardiovascular risk factors than men. Yet, men have higher incidence of cardiac problems in younger ages when compared to females of equal years. The difference between the sexes remains a hypothesis. Hypertension, on the other hand, may be another risk, according to Kannel, in closing the incidence gap between

the sexes (Kannel, 1976). Specifically, this investigator could not find a statistic on the incidence of high blood pressure of females in comparison to males. However, the American Heart Association reports that one in every four adults are afflicted with hypertension whether they are aware of it or not (American Heart Association, 1983). This may lead one to conclude, then, that the incidence of hypertension, even among premenopausal women, is growing substantially. On the other hand, research is limited regarding working women and the incidence of hypertension. It has been suggested that hypertension kills black females seventeen times the rate for white females (Johnson, 1983, p. 192). Also, it is hypothesized that blacks in the south are harder hit by hypertension than those in the north (Johnson, 1983, p. 195). Still, this researcher located a study which investigated the relationship between blood pressure and employment of women (Waldon, 1978). The conclusions showed that employed women had lower blood pressures than housewives. The reasons for this finding were that less healthy women were more prone to be housewives and under medical supervision for their blood pressure. Meanwhile, employed females less frequently sought medical attention whether it was because of their life style or value system. However, the limitations of this study include: 1) the ages of the sample were 40-59 years old; 2) the participation rate was relatively low (i.e. 50 percent); and, 3) this study lacked the impact of a longitudinal investigation.

Cigarette Smoking

The incidence of smoking in the United States female population has increased sharply during the past twenty-five years and the cessation rate has been consistently lower for women than for men (Tagliacozzo, 1982). Why? One reason may be that more females than males feel that they smoke in order to cope with stressful situations, especially the job situation. Another reason may be as a result of our advertising campaigns. Advertisers present a profile of today's female smoker as young, well educated, and aspiring in a career. Also, women who continue to smoke have shifted from regular to filter cigarettes and thus may feel they are at less risk. Tagliacozzo has found that the prevalence of smoking is higher in professional women than in the general population (Tagliacozzo, 1982). One-third of women of child-bearing age smoke and the risk of sudden death in white women who smoke is four times that of nonsmoking females (Muskinski, 1984, p. 354). Recently, the Framingham investigators have looked into the incidence of cardiovascular illnesses and female smoking (Kannel, 1984). Their conclusions were that 20 percent of cardiovascular disease were attributed to smoking, that although women were using more filtered cigarettes, no indications showed lower risk for coronary heart disease, that smoking doubled the risk of congestive heart failure in women, that sudden death was increased five-fold in women who smoked, and that smoking decreased high density lipoprotein-cholesterol (HDL) and increased

low density lipoprotein cholesterol (LDL). However, these reseachers could not determine whether smoking precipitated cardiovascular disease in those subjects with already compromised arterial circulation or if it directly accelerated atherogenosis.

Oral Contraceptives

Oral contraceptive use is a unique risk factor for women. Increased risk of heart attacks has been linked with current and past use of oral contraceptives. Yet, the issue of estrogen administration as a protective mechanism against coronary artery disease remains controversial. The basic effect of birth control pills is on lipid metabolism and the incidence of increased serum triglyceride and cholesterol concentrations. Specifically, the Lipid Research Clinics Program has found that plasma triglyceride levels are increased 50 percent and plasma cholesterol levels are 5-7 percent higher in women using oral contraceptives as compared with women not using hormones (Wahl, 1983, p. 862). The other interesting result of this work was that women taking birth control pills containing high amounts of progestin or pills with progestin alone tended to have lower high density lipoprotein-cholesterol but when estrogen was taken alone, higher levels of high density lipoprotein-cholesterol resulted. Another study investigating the relationship of oral contraceptives and blood pressure was conducted by Kannel and his associates (Kannel, 1982). These researchers basically noted that women using birth

control pills showed a gradual increase in arterial pressure over time that was not seen in age-matched control subjects. Specifically, they found that hypertension appeared three to six months with onset of the use of the pills, that the oral contraceptives caused two to three times the hypertension when compared to women using other means of birth control, and that this pill-induced hypertension was considered relatively mild and reversed on withdrawal of the pills (Kannel, 1982). Finally, in 1983, Wahl and her colleagues conducted research on 374 women taking birth control pills, 284 females taking estrogen preparations after menopause, and 1086 women taking no hormones, to determine the relation of plasma lipids and lipoprotein-cholesterol levels to different types of estrogen-progestin formulations (Wahl, 1983). The results suggested that HDL and LDL cholesterol concentrations varied in direct relationship to the potencies of estrogen and progestin in the hormones. The HDL cholesterol tended to be highest in users of estrogen-dominant pills (Wahl, 1983). Furthermore, LDL cholesterol levels were generally the highest in women using low-dose estrogens (Rosenberg, 1981). Finally, the LDL cholesterol levels tended to be higher in women using hormones overall when compared to non-users.

Obesity

The importance of body weight, body mass, and other measures of adiposity, in the prediction of coronary heart disease, has long been debated. The complex relationship between body weight and heart disease is still not clearly understood. Researchers do feel, however, that obesity predisposes coronary heart disease. They believe that, through unidentified physiologic and metabolic mechanisms, obesity precedes the development of major cardiac risk factors which produce elevated blood pressure and eventually cause heart disease. For instance, the Framingham investigators studied the relationship between the degree of obesity and the incidence of coronary heart disease in the original 5209 men and women subjects. Their findings suggested that, over the last twenty-six years, obesity was a significant independent factor of coronary heart disease, particularly among women (Hubert, 1983, p. 468). The scientists also noted that weight gain was an important long term predictor of coronary heart disease. Specifically, females were 20.5 percent overweight while males were 18.9 percent overweight (Huber, 1983, p. 962). Finally, in 1984, Heath and Broadhurst conducted a study, over 12 weeks to evaluate the effectiveness of exercise training and dietary modification on weight reduction in 48 overweight females (Heath and Broadhurst, 1984). The research showed that significant weight loss occurred and that the combined effects of exercise and modification of diet caused greater weight loss than either intervention alone. Also,

conclusions of the program indicated that exercise caused serum lipid changes and lowered the subjects' blood pressure.

Summary

In short, many research studies have been devoted to cardiovascular risk assessments of males, yet few conducted on the female population, particularly premenopausal women. Research suggests that women may be at potential risk for developing heart disease. Yet, the data remain inconclusive. Therefore, investigations need to be conducted on premenopausal women in order to provide more evidence concerning the potential risks of this group.

CHAPTER THREE

Methodology

Introduction

This chapter presents a description of the study and the procedures involved in the investigation. A brief discussion of the methods and population sampling followed by a detailed description of the instruments utilized in this research, are presented in the subsequent pages. Results and implications inferred from the data are discussed in the following chapters.

Research Design

A descriptive format is selected as the study design. This comparative survey provides an evaluation of premenopausal housewives and clerical workers in terms of their cardiovascular risks.

Time Frame

This survey was conducted over a period of approximately one month during the winter of 1986. Beginning in January, permission for entry was obtained, via phone, to six industrial settings and five public schools. Due to the rigid scheduling of meetings, it

took from January 20 to February 27 to distribute the questionnaires. (See Appendix A).

Population

The target population chosen for this study involved premenopausal housewives and premenopausal clerical workers in southeastern rural North Carolina. This area may be described as one consisting of small towns with individuals in predominantly farming occupations. A description of the sample is presented in the following section.

Sample

The sample for this descriptive study involved one hundred and four premenopausal women comprising two groups: fifty-seven premenopausal clerical workers and forty-seven premenopausal housewives. The respondents were all between the ages of 18 and 49. The group of volunteer premenopausal clerical workers were selected from industrial settings in six different rural locations. The group of volunteer premenopausal housewives were selected from five Parent-Teacher Organizational Meetings in four elementary schools and one middle school setting.

Instrumentation

Data for this survey were collected by utilizing two self-administered questionnaires: 1) a modified version of the Cardiovascular Risk Factor Questionnaire (Diethrich, 1982); and, 2) the Psychosocial Scales Used in the Framingham Heart Study (Levine and Scotch, 1966). (See Appendix B).

The Cardiovascular Risk Factor Questionnaire is a 12-item, (one question has two parts), self-administered instrument composed of a forty-point scale. This tool examines the most significantly reported cardiovascular risk factors (i.e. smoking, diet, high blood pressure, etc.). It was developed by a panel of physicians at Arizona Heart Institute. A number is assigned to each response on the questionnaire which represents the weights assigned to each category. These weights were determined on the basis of clinical judgment and a pilot sample study. Validity of this screening instrument was tested in 1981-82 after a nationwide broadcast of the Heart Test on ABC's "20/20" program. Specifically, 131,603 television viewers completed and mailed in this questionnaire. The sample was distributed proportionately over the nation's regions with the final responses being divided into three groups: 1) no heart problem group, 2) early onset group; and, 3) late onset group. Descriptive statistics were used to determine group differences. Factor analysis, analysis of variance, multiple regression analysis, and comparison of mean scores at 0.001 level of significance showed that the obtained

values were close to population values. Also, the measured variables on this instrument were in congruence with the recognized syndrome of factors promoting the onset of heart disease. In particular, of the analysis utilized, factor analysis and stepwise multiple regression analysis indicated the questionnaire to be valid. Currently, a second validation paper is in press, but the sample size is very small by comparison and offers no novel data. No reliability scores were reported for this instrument.

For purposes of this study, modifications, with the author's permission, (See Appendix C), have been made in this questionnaire. First question number one, (question number eight on the modified version), has been changed to accommodate the ages of this target population. Secondly, question number two, pertaining to sex, was deleted from the original instrument. This was done because all the subjects were females. As a result of these changes, the scoring was reduced by one to eliminate the sex bias.

The Psychosocial Scales Used in the Framingham Heart Study are divided into twenty sections of Likert-type responses, open-ended and close-ended questions for a total of 99 responses. This instrument investigates a relationship of psychosocial factors to the incidence of coronary heart disease. Specifically, these scales reflect an inquiry into: 1) behavior types, 2) reaction to anger, 3) situation stress, 4) somatic strain; and, 5) socio-cultural mobility.

First, the concept of behavior types is composed of four scales. Scale number one consists of ten Likert-type and close-ended questions pertaining to the Framingham Type A Behavior Pattern. Scale number two contains thirteen Likert-type and close-ended questions reflecting emotional lability. Next, scale number three has three Likert-type questions pertaining to ambitiousness. Finally scale number four consists of three Likert-type questions relecting non-easygoing.

The concept of reaction to anger is divided into three scales. These questions investigate ways of expressing or coping with anger such as keeping it to oneself (anger-in scale), taking it out on others (anger-out scale), or talking to a friend or relative (anger-discuss scale). The anger-in scale contains three Likert-type questions, the anger-out scale is composed of two Likert-type questions, and the anger-discuss scale also has two Likert-type questions.

Next, the concept, situational stress, is reflected in six scales developed to represent situations in one's job, marriage, or life which pose a potential threat to an individual. Scale number one contains seven close-ended questions pertaining to non-support from one's boss. Scale number two consists of two close-ended questions representing work overload. Scale number three contains twelve Likert-type questions reflecting marital disagreements. Scale number four is made up of three Likert-type questions pertaining to marital dissatisfaction. Scale number five represents aging worries and consists of five Likert-type

questions. Finally, scale number six contains five Likert-type questions reflecting personal worries.

The concept of somatic strain, physiologic or behavioral responses of individuals to their environment, is measured by four scales. The first scale, tension, is composed of seven close-ended questions. Scale number two, daily stress, contains four Likert-type questions. Scale number three, anxiety symptoms, contain five close-ended questions. Finally, the sixth scale is made up of five Likert-type questions reflecting anger symptoms.

Next, socio-cultural mobility is made up of three scales: 1) social class incongruity, 2) educational mobility; and, 3) occupational mobility. Social class incongruity contains one Likert-type question pertaining to the self-reported class of the respondent in comparison to her acquaintances. Educational mobility scale is reflected by one Likert-type question which compares the woman's educational level with that of her father's level of education. Finally, the occupational mobility scale consists of two open-ended questions suggesting a comparison of the respondent's husband's occupation to the respondent's father's occupation.

The concept of job mobility is represented by three open-ended questions. These questions pertain to self-reported job changes, line of work changes, and number of job promotions in the previous ten years of the woman's life.

Finally, the last closed-ended question on the instrument pertains to any previous hospitalization or medical treatment for emotional disease.

The Psychosocial Scales originated from The Framingham Heart Study Questionnaire developed by physicians in 1966. Validation of the Framingham Type A Behavior Scale was conducted in two studies using two standard techniques for measuring Type A Behavior: 1) The Jenkins Activity Survey (Jenkins, et.al., 1967); and, 2) The Structured Interview (Rosenman, et.al., 1964). Specifically, one study of male aerospace industrial employees, (Chesney, et.al., 1978), significantly correlated the Framingham Type A Scale to The Jenkins Activity Survey (0.41) and most especially with The Jenkins Activity Scale speed and impatience scores (0.52). Also, a study of male college students, (MacDougall, et.al., 1979), reported even higher correlations between the Framingham Type A Scale and The Jenkins Activity Survey (0.53 and 0.64). In regards to Structured Interviews, in the aerospace study, The Structured Interviews classified Type A Behavior 77% of the time, while the Framingham Scale reported Type A Behavior 60-68% of the time. In the college study, the reported percentage of Type A Behavior, using The Structured Interviews, was 78, in comparison to the Framingham Scale which reported Type A 60% of the time. Overall, when compared to The Structured Interviws, the Framingham A Scale correctly classified men as Type A about 60% of the time. However, validation of the Framingham Scale in populations other than middle class men has not been

published. In addition, there are currently no published studies pertaining to the validation of the other Framingham scales besides face validity. Also, no reliability scores for this tool were reported in the literature. Permission to use the Psychosocial Scales Used in the Framingham Heart Study was obtained from the developers of The Framingham Life History Questionnaire. (See Appendix D).

In short, for the purposes of this study, the questionnaires are arranged in a numerical sequence to facilitate respondents answering on a computer sheet. Basically, questions one through seven relate to demographic data, questions eight through eighteen contain the modified version of The Cardiovascular Risk Factor Questionnaire, and questions nineteen through one hundred-nineteen make up the Psychosocial Scales used in the Framingham Study. The five open-ended questions on the Psychosocial Scales were answered on a separate sheet attached to the respondent's computer sheet. Finally, an additional sheet was attached to the questionnaire which contained two close-ended questions asking the women if they had experienced menopause and if they had had a hysterectomy. This was included in order to eliminate premature menopausal females who may have effected the results of the study. (See Appendix E).

Data Collection

The data were collected over approximately one month. Permission was obtained from the administrator, through the occupational health nurse, of each of the industrial settings in six different rural locations in order to gather data on premenopausal clerical workers. This researcher met with clerical workers at each setting. After explanations for the study were provided, premenopausal clerical workers, who volunteered, were asked to complete the self-administered questionnaire. The questionnaire was presented to the respondents in a self-addressed, stamped envelope in order for the women to take the instrument home and complete it in privacy. The clerical workers then mailed the questionnaire back to this researcher.

Permission to collect data on premenopausal housewives, at parent teacher organizational meetings, (PTO), was obtained from the principals of four elementary and one middle school. Once permission was obtained, this researcher then attended the next regularly scheduled PTO meetings of these schools. At the end of each meeting, explanations were provided by this investigator, and volunteers were asked for out of the population of housewives attending the meeting. The respondents who volunteered were given the questionnaire in a self-addressed, stamped envelop in order for the women to take the instrument home to complete in privacy. These housewives then mailed the questionnaire back to this researcher.

All potential subjects were assured of anonymity and asked to sign a consent form. (See Appendix F).

Data Analysis

Assistance from a statistician was sought in analyzing the collected data. Initially, all the data was analyzed using descriptive statistics. This involved a comparison of the two groups using means, at a .05 level of significance, standard deviations, and frequency distributions.

Secondly, the demographics, reported incidence of risk factors, and nineteen of the Framingham Psychosocial Scales were than analyzed using Pearson's Correlation, and independent t tests. Finally, all of the responses, reported on the computer answer sheets, by both groups, were analyzed using cross tabulations with Chi-Square Analysis.

Summary

This chapter has described the research design, and conduct of the study, including collection of data through the use of the questionnaire, and the method of data analysis. Consequently, the results of this analysis is presented in Chapter Four.

CHAPTER FOUR

Results And Discussion

Introduction

This chapter will present and describe the results of the study. The research hypotheses were answered totally or in part through the use of statistical analysis.

Data Results

The data results of this study are based on the responses of one hundred and four volunteers. Fifty-three questionnaires were distributed to premenopausal housewives with forty-seven of the instruments completed and returned. Thus, the response rate, for housewives, was 88%. In considering premenopausal clerical workers, one hundred and seven questionnaires were distributed with fifty-seven returned. The response rate for this group was 53%.

From the total sample, three women were rejected, due to reported early menopause. Two respondents were rejected due to reported hysterectomies and ten participants were excluded from the study secondary to a reported combination hysterectomy and early menopause. Women with hysterectomies and/or early menopause were rejected from the study to assure that all the respondents

were premenopausal subjects. Also, these women were rejected during the early analysis phase of the study and were not considered part of the response rates. Consequently, the following demographic data will be presented with the exclusion of these women.

The demographic data describes the following characteristics of the total group: age, race, number of children presently living at home, marital status, and highest grade completed in school. All of the respondents were less than forty-nine years of age.

Of the one hundred and four volunteers, comprising the study sample, eighty-nine (86.4%) were white and thirteen (12.6%) were black. However, it should be noted that one participant, in the group of clerical workers, failed to respond to the question pertaining to race.

In terms of the number of children presently living at home, the results ranged from none to more than six children. Specifically, twenty-four women (23.1%) reported having no children, seventy-one females (68.3%) had one to three children at home, while eight women (7.7%) had four to six children. Only one participant (1.0%) reported having more than six children at home.

Eighty-seven of the respondents (83.7%) were married. In terms of divorced women or those who had never married, there were six women (5.8%) in each category. Five women (4.8%) reported currently being separated from their spouses.

In regards to educational background, the participants ranged from high school to post-graduate education. Seven women (6.7%) reported having more than four years of college while fifty-two women (50.0%) had one to four years of education on a collegiate level. Also, forty-one respondents (39.4%) had a high school diploma while four women (3.8%) did not finish high school.

In regards to a comparison of the demographic data between the two groups, the characteristics are presented as follows: age, race, number of children living at home, marital status, and educational background. Since all the participants were less than forty-nine years of age, no further categorization of age groups was implemented.

In terms of race, both groups were predominantly white. For instance, forty-four clerical workers (78.6%) and forty-five housewives (95.7%) were white.

Thirty-seven of the clerical workers (64.9%) reported having one to three children at home. In comparison, thirty-four housewives (72.3%) also reported having one to three children, while one housewife indicated having more than six children at home.

In regards to marital status, forty-two clerical workers (73.7%) and forty-five (95.7%) housewives reported being presently married. However, it is interesting to note that no housewife was divorced and only one housewife was separated or had never been married.

Twenty-nine clerical workers (50.9%) indicated having some college education with twenty-five (43.9%) high school graduates in this group. In contrast, twenty-three housewives (48.9%) had one to four years of collegiate education while four housewives (8.5%) reported not having a high school diploma.

Overall, the total sample consisted of predominantly white, married women, less than forty-nine years of age. In addition, the majority of women had one to three children living at home. The demographics are summarized in Table 1.

Interpretation of Data

The data were interpreted according to the three hypotheses stated in Chapter One. Therefore, the findings are presented in consideration of each hypothesis.

Hypothesis I stated that there would be no difference in the number and weighted severity of the risk factors among premenopausal clerical workers compared to housewives. The group mean score for clerical workers, in terms of cardiovascular risks, was 18.53 (s.d.=8.4) while housewives had a mean risk score of 19.28 (s.d.=7.9). Thus, the comparison between the two group means indicated both were at medium risk for developing heart disease. (Medium risk was estimated to be a score of 18-34, according to this questionnaire). However, the data did not support any significant difference and the hypothesis under test

Table 1. COMPARISON OF DEMOGRAPHIC DATA OF HOUSEWIVES AND CLERICAL WORKERS USING CROSS TABULATION

Demographic Variables	Clerical Workers (N=57)		Housewives (N=47)		Total Sample	
	Frequency	(%)	Frequency	(%)	Frequency	(%)
Age#						
50-55						
49 or under	57	100%	47	100%	104	100%
Race*						
Black	11	19.6%	2	4.3%	13	12.6%
White	44	78.6%	45	95.7%	89	86.4%
Other	1	1.8%				
Number of Children Presently Living At Home						
None	20	35.1%	4	8.5%	24	23.1%
1-3	37	64.9%	34	72.3%	71	68.3%
4-6			8	17.0%	8	7.7%
6			1	2.1%	1	1.0%
Marital Status						
Married	42	73.7%	45	95.7%	87	83.7%
Divorced	6	10.5%			6	5.8%
Separated	4	7.0%	1	2.1%	5	4.8%
Never Married	5	8.8%	1	2.1%	6	5.8%
Highest Grade Completed In School						
1-3 Years of High School			4	8.5%	4	3.8%
4 Years of High School	25	43.9%	16	34.0%	41	39.4%
1-4 Years of College	29	50.9%	23	48.5%	52	50.0%
More Than 4 Years of College	3	5.3%	4	8.5%	7	6.7%

*There was one response missing under race in the group of clerical workers.
#All respondents were less than 49 years of age.

failed to be rejected. Table 2 presents a summary of these findings.

On the other hand, a closer look at the risk variables of each group revealed several similarities. For example, neither the housewives nor the clerical workers reported any personal history of heart disease. Both groups also reported similar family histories of heart disease. Furthermore, 100% of the housewives and 94.6% clerical workers indicated they had never had diabetes. In terms of smoking, 54.4% clerical workers and 46.8% housewives had never smoked. Both groups reported an average blood pressure of less than 140/90. In regards to exercise, 50.9% clerical workers and 54.3% housewives reported exercising less than once a week. Finally, only two housewives and six clerical workers knew their actual cholesterol level which may not be reflected in the percentages in Table 3.

In contrast, 17.5% clerical workers and 8.5% housewives indicated smoking one to two packs per day or having quit smoking less than one year ago. In terms of diet, more clerical workers (41.5%) reported consuming poultry, fish, and little or no red meat when compared to housewives (22.7%). These results are summarized in Table 3.

Additionally, when investigating contraceptive method, alcohol and caffeine consumption, both groups indicated similiar findings. For instance, 82.5% clerical workers and 91.5% house-

Table 2. CARDIOVASCULAR RISK SCORES OF CLERICAL WORKERS COMPARED TO HOUSEWIVES

	Clerical Workers (N=57)	Housewives (N=47)
Mean	18.53	19.28
Standard Deviation	8.4	7.9

Comparison of Groups: p=0.643

*p<.05 level of significance
#High Risk=score 35 and above
Medium Risk=score 18-34
Low Risk=score 17 and below

Table 3. CROSS TABULATION OF CARDIOVASCULAR RISK SCORES OF CLERICAL WORKERS COMPARED TO HOUSEWIVES

Risk Variables	Clerical Workers (N=57) (%)	Housewives (N=47) (%)
Age		
50-55		
49 or under	100%	100%
*Family History		
[+] Family History of Heart Attacks and Strokes Before Age 60	33.9%	40%
[+] Family History Before Age 60 But No Heart Attacks or Strokes	5.4%	6.7%
Blood Relative With Heart Attack or Stroke After Age 60	39.3%	33.3%
No [+] Family History	21.4%	20%
Personal History		
Had Heart Attack, Stroke or Heart/Blood Vessel Surgery		
None of the Above	100%	100%
#Diabetes		
Diabetes Before Age 40	3.6%	
Diabetes After Age 40	1.8%	
Never had Diabetes	94.6%	100%
Smoking		
2 Packs Per Day	3.5%	2.1%
1-2 Packs Per Day or Quit Smoking < One Year Ago	17.5%	8.5%
< 1 Pack Per Day or Quit > One Year Ago	24.6%	42.6%
Never Smoked	54.4%	46.8%
+Cholesterol		
Level 225-275	33.3%	
Level < 224	66.7%	100%

Risk Variables	Clerical Workers (N=57)	Housewives (N=47)
	(%)	(%)
+Diet		
Daily Consumption of Red Meat, Butter, Whole Milk, Cheese, and 7 Eggs/Week	9.4%	9.1%
Red Meat 4-6 Times/Week, 4-7 Eggs/Week, Margarine, Low Fat Dairy Products, and Some Cheese	49.1%	68.2%
Poultry, Fish, Little or No Red Meat, Some Margarine, Skim Milk, and Skim Milk Products	41.5%	22.7%
High Blood Pressure		
> 160/100	2.1%	
140/90-160/100	6.3%	10.5%
< 140/90	91.7%	89.5%
Weight		
25 lbs. Overweight	25.5%	36.4%
10-24 lbs. Overweight	18.2%	27.3%
< 10 lbs. Overweight	56.4%	36.4%
Exercise		
< Once/Week	50.9%	54.3%
1-2 Times/Week	31.6%	30.4%
> 3 Times/Week	17.5%	15.2%
Stress		
Often in a Hurry, Easily Angered, Irritable	15.8%	19.1%
Occasionally Hurried, or Moody	68.4%	55.3%
Comfortable When Waiting	15.8%	25.5%

*There were two unanswered responses under family history in the group of housewives and one unanswered response in the group of clerical workers.

#There was one unanswered response under diabetes in the group of clerical workers.

+Respondents had the option of answering either question on cholesterol or diet. Only two housewives and six clerical workers knew their actual cholesterol level.

wives did not currently use birth control pills. In regards to alcohol consumption, 98.2% clerical workers and 97.9% housewives reported drinking less than two ounces of alcohol daily or non-alcoholic consumers. Both groups, 98.6% housewives and 94.9% clerical workers, admitted to consuming five or less cups of caffeinated coffee daily. These percentages are recapitulated in Table 4.

Hypothesis II predicted that there would be no association between the perceived stress levels and the incidence of cardiovascular risk factors of clerical workers and housewives. In terms of the perceived stress levels between the two groups, nineteen of the Framingham Psychosocial Scales were analyzed using independent t-tests, descriptive statistics, and Pearson Correlation Coefficients.

In comparing housewives to clerical workers, regarding stress, using t-tests, two of the psychosocial scales revealed a significant difference ($p \leq .05$). These were ambitiousness and anxiety symptoms. (See Table 5). However, when comparing the perceived stress levels to the cardiovascular mean risk scores, no significance appeared. (See Tables 6-7). The data failed to reject Hypothesis II. The fact that there was no significant difference between the stress levels of these two groups is interesting. Why was there no difference? It may be as a result of these women living in a less stressful area when compared to women in a metropolitan area. Also, the housewives may perceive themselves as under the same amount of stress as clerical workers

Table 4. COMPARISON OF HOUSEWIVES TO CLERICAL WORKERS REGARDING CONTRACEPTIVE METHODS, ALCOHOL AND CAFFEINE CONSUMPTION

Risk Variables	Clerical Workers (N=57)	Housewives (N=47)
	(%)	(%)
Contraceptive Method		
Birth Control Pills	17.5%	8.5%
No Birth Control Pills	82.5%	91.5%
Alcohol Consumption		
Drinks > 2 oz. Daily	1.8%	2.1%
Drinks < 2 oz. Daily or Drinks no Alcohol	98.2%	97.9%
Caffeine Consumption		
Drinks > 5 Cups Caffeinated Coffee Daily	5.3%	6.4%
Drinks < 5 Cups Caffeinated Coffee Daily	94.7%	93.6%

Table 5. COMPARISON OF PSYCHOSOCIAL SCALES OF HOUSEWIVES TO CLERICAL WORKERS USING INDEPENDENT T-TESTS

Psychosocial Scales	Clerical Workers (N=57)		Housewives (N=47)		Level of Significance
	X	SD	X	SD	P
Framingham Type A	5.0	1.7	4.9	2.3	0.73
Emotional Lability	125.4	2.2	124.7	2.3	0.16
Ambitiousness	1.3	0.6	1.0	0.6	0.05
Non-Easygoing	2.1	0.5	2.0	0.5	0.44
Non-support From Boss	4.1	1.8	4.6	1.7	0.39
Marital Dissatisfaction	2.1	0.9	2.1	0.7	0.70
Marital Disagreement	3.8	2.0	3.8	2.3	0.94
Work Overload	1.2	0.7	1.2	0.7	0.81
Aging Worries	1.6	1.2	1.6	1.3	0.92
Personal Worries	1.8	1.2	1.8	1.0	0.74
Tension	2.2	1.9	2.4	2.6	0.60
Daily Stress	1.8	0.9	1.7	1.1	0.44
Anxiety Symptoms	1.5	1.5	1.0	1.3	0.05
Anger Symptoms	1.8	1.1	1.9	1.3	0.65
Anger-in	1.3	0.9	1.0	0.9	0.10
Anger-out	0.4	0.5	0.6	0.6	0.07
Anger-discuss	1.0	0.7	1.2	0.6	0.18
Social Class Incongruity	1.0	0.3	1.0	0.3	0.84
Educational Mobility	0.7	0.4	0.6	0.5	0.45

*p< .05

Table 6. RESULTS OF THE COMPARISON OF PSYCHOSOCIAL SCALES TO THE CARDIOVASCULAR MEAN RISK SCORE OF HOUSEWIVES USING PEARSON CORRELATION COEFFICIENTS

Psychosocial Scales	Coefficients	Significance
Framingham Type A	.3475	.008
Emotional Lability	.5134	.000
Ambitiousness	.0544	.358
Non-Easygoing	-.1727	.123
Non-Support From Boss	-.2898	.108
Marital Dissatisfaction	-.0845	.288
Marital Disagreement	.0899	.276
Work Overload	.1136	.282
Aging Worries	.0443	.385
Personal Worries	.3121	.016
Tension	.3525	.008
Daily Stress	.3179	.015
Anxiety Symptoms	.3201	.014
Anger Symptoms	.2660	.035
Anger-in	.3155	.015
Anger-out	.0947	.263
Anger-discuss	-.3361	.010
Social Class Incongruity	.2180	.073
Educational Mobility	.2513	.044

*Mean Cardiovascular Risk Score for Housewives was 19.27 (s.d.=7.9)
#p≤.05

Table 7. RESULTS OF COMPARISON OF PSYCHOSOCIAL SCALES TO THE CARDIOVASCULAR MEAN RISK SCORE OF CLERICAL WORKERS USING PEARSON CORRELATION COEFFICIENTS

Psychosocial Scales	Coefficients	Significance
Framingham Type A	.1195	.188
Emotional Lability	.0968	.237
Ambitiousness	-.2642	.024
Non-Easygoing	-.0514	.352
Non-Support From Boss	.2851	.016
Marital Dissatisfaction	.2070	.079
Marital Disagreement	.2725	.024
Work Overload	-.1102	.207
Aging Worries	-.0331	.403
Personal Worries	-.0217	.436
Tension	.2323	.041
Daily Stress	-.0794	.279
Anxiety Symptoms	.1950	.073
Anger Symptoms	.1592	.118
Anger-in	-.0140	.459
Anger-out	.0058	.483
Anger-discuss	.1667	.108
Social Class Incongruity	-.0830	.389
Educational Mobility	-.0334	.403

*p= $\leq$ .05

and vice versa. Basically, the rationale for this finding remains inconclusive. Tables 5-7 summarize the findings regarding this tested hypothesis.

The third hypothesis stated that there would be no significant differences between demographic data and the incidence of cardiovascular risk factors of the two groups. The demographics, considered in testing this hypothesis, included education, race, marital status, and number of children living at home. Using t-tests and analysis of variance, these variables were compared to the cardiovascular mean risk scores of the two groups. The results indicated no significant difference. Hence, the data could not reject Hypothesis III. The lack of significant difference between the two groups may be a result of a homogeneous sample, as reflected by the previously stated demographics. Table 8 recapitulates a summary of the findings for this hypothesis.

Summary

This chapter has presented a discussion on the interpretation of the data results. Chapter Five provides the conclusions, implications, and limitations indicative in this study. Finally, recommendations for further research are presented.

Table 8. COMPARISON OF DEMOGRAPHICS OF THE SAMPLE TO THE INCIDENCE OF CARDIOVASCULAR RISK FACTORS USING T-TESTS

Demographics	Frequency	Mean	Standard Deviation	Level of Significance
	f	X	SD	p
Race				
Blacks	13	18.3	8.7	0.74
Whites	89	19.1	8.0	
Education				
Some High School + High School Graduate	45	19.2	9.2	0.64
Some College + College Graduate	59	18.5	7.2	
Children Presently* Living at Home				
None	24	19.0	8.5	.8822
1-3	71	18.9	8.0	
>3	9	17.5	9.1	
Marital Status*				
Married	87	18.7	7.8	.3292
Divorced	11	21.4	10.2	
Never Married	6	15.3	8.0	

*Analysis of Variance was indicated.
#p≤.05

CHAPTER FIVE

Conclusions / Implications / Recommendations

Conclusions

This study suggests, through failure to reject the three hypotheses, that there are no statistically significant differences in the incidence of cardiovascular risks of premenopausal housewives compared to clerical workers.

However, even though the three research hypotheses failed to be rejected, there are several subtle findings worth mentioning. First, although there were no significant differences, in terms of cardiovascular risks, between the two groups, both were identified as being at potential medium risk for developing heart disease. Also, the majority of women reported exercising less than once a week. In terms of birth control, it is interesting to note that both groups indicated not currently using birth control pills as a contraceptive method. Furthermore, there may be subtle differences indicated, between the groups, in regards to diet and termination of cigarette smoking less than one year ago or smoking one to two packs per day. Finally, in reference to the psychosocial scales, ambitiousness and anxiety symptoms, a significant difference was reported between the two groups.

Implications and Importance to Nursing

There are several implications of this study. Even though the findings failed to reject the hypotheses, the advantage of using this multidimensional instrument encourages nurses to explore indepth the major concepts of stress. It is an instrument worthy of further use. In addition, because the research in this present study relied on questionnaires with self-reported data, only quantitative differences have been reported. Consequently, these findings could be strengthened by data gathered by direct observations. Occupational health nurses and nurses participating in wellness programs are in an ideal positions to observe women of all occupational, racial, socioeconomic, and educational backgrounds. Furthermore, both groups of women in this study were at medium risk for developing cardiovascular disease. For example, in terms of exercise, all respondents indicated they exercised less than once a week. This may have implications for increasing cardiovascular risks when combined with an increase in age and family history. Also, it may be that women who live in rural areas are under less stress, as implied by the reported results of these two groups. Finally, this study represents one step in investigating the potential cardiovascular risks of young women. Thus, nurses must continue to replicate studies in order to generate nursing research for promoting the well-being of young women.

Limitations

It seems only proper that this researcher present several limitations evident in the study. Three limitations are identified: time, instrumentation, and sample population.

In regards to the time limitation, this study was conducted over one month. Thus, the data collection disallowed analysis of change over time.

Secondly, there is documented limitation inherent in the Psychosocial Scales used in the Framingham Heart Study. The Framingham researchers have identified four specific limitations: 1) individual perception of the questions by the subjects, 2) respondents who elect not to answer the questionnaire due to the length of the instrument, 3) subjects tend to answer questions favorably and therefore, the answers will be biased; and, 4) the Framingham Type A Scale is the only scale of which validity scores have been published.

Lastly, the sample population is identified as a limitation. The population was selected by volunteer sampling and represented, in this study, premenopausal clerical workers and housewives. However, generalizing the results to all premenopausal housewives and clerical workers should be done with caution. The rationale for this statement stems from the fact that the sample size was very small and, in some areas, the sample groups appeared dissimilar. In addition, the women were generally from the middle social class and were predominantly white.

Consequently, a more socially divergent population needs to be examined to determine if associations between perceived stress and cardiovascular risks do indeed exist.

Recommendations for Future Research

Several recommendations for future research can be drawn from this study. First, because of the quite limited sample size, the study needs to be replicated with a larger sample size. Also, other populations of women with different racial, ethnic, religious, educational, socioeconomic, occupational, and cultural backgrounds need to be investigated.

Secondly, longitudinal studies need to be implemented that study women in traditional male roles. For example, investigative research need to be conducted on women in traditional male occupations such as law, medicine, and, business. Furthermore, more longitudinal studies must be done on working women versus housewives to allow analysis of change over time.

Finally, studies need to be conducted, by nurses, on the effects of multiple roles on the health of young women. This includes the working mother, single parent, and working women returning to school for further education.

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APPENDICES

APPENDIX A

TIME TABLE

Appendix A

Time Table

August - November, 1985	Thesis Proposal Approved
January - February, 1986	Questionnaires Administered
April, 1986	Analysis of Data
May, 1986	Thesis Approved

APPENDIX B

QUESTIONNAIRE

A P P E N D I X B

DEMOGRAPHIC DATA

INSTRUCTIONS: Please mark the computer sheet with the appropriate letter that applies to you. Please mark only one response to each question.

1. Race
   - A. Black
   - B. Caucasian
   - C. Oriental
   - D. Indian
   - E. Other

2. Number of children presently living at home
   - A. None
   - B. 1 to 3
   - C. 4 to 6
   - D. Greater than 6

3. Marital status
   - A. Married
   - B. Divorced
   - C. Widowed
   - D. Separated
   - E. Never married

4. Highest grade completed in school
   - A. 3 to 8 years of elementary school
   - B. 1 to 3 years of high school
   - C. 4 years of high school
   - D. 1 to 4 years of college
   - E. More than 4 years of college

5. Contraceptive method
   - A. Currently on birth control pills
   - B. Currently not taking birth control pills

6. Alcohol consumption
   A. Drink more than 2 ounces of alcohol daily
   B. Do not drink alcohol or no more than 2 ounces daily

7. Caffeine consumption
   A. Drink more than 5 cups of caffeinated coffee daily
   B. Drink 5 or less cups of caffeinated coffee daily

MODIFIED VERSION OF CARDIOVASCULAR RISK FACTOR QUESTIONAIRE

8. Age
   A. 50 and above
   B. 49 or younger

9. Family history
   A. Have blood relatives who have had a heart attack or stroke before age 60
   B. Have blood relatives with a known history of heart disease at or before age 60 but no heart attacks or stroke
   C. Have blood relatives who have had a heart attack or stroke after age 60
   D. No blood relatives who have had a heart attack or stroke

10. Personal history
   A. AGE 50 TO 55: Have had either a heart attack, a stroke, heart, or blood vessel surgery
   B. AGE 49 AND YOUNGER: Have had either a heart attack, a stroke, heart or blood vessel surgery
   C. None of the above

11. Diabetes
   A. Diabetes before age 40 and now on insulin
   B. Diabetes before or after age 40 and now on insulin or pills
   C. If your diabetes is controlled by diet, or your diabetes began after age 50
   D. Never had diabetes

12. Smoking

A. 2 packs per day
B. Between 1 and 2 packs per day or quit smoking less than 1 year ago
C. Smoke 6 or more cigars a day or inhale a pipe regularly
D. Less than 1 pack per day or quit smoking more than a year ago
E. Never smoked

13. Cholesterol (IF CHOLESTEROL COUNT IS NOT KNOWN, GO TO QUESTION 14)

A. Cholesterol level - 276 or above
B. Cholesterol level - between 225 and 275
C. Cholesterol level - 224 or below

14. Diet (IF YOU ANSWERED QUESTION 13, DO NOT ANSWER THIS QUESTION)

Does your normal eating pattern include:

A. 1 serving of red meat daily, more than 7 eggs a week, and daily consumption of butter, whole milk, and cheese
B. Red meat 4 to 6 times a week, 4 to 7 eggs a week, margarine, low fat daily products, and some cheese
C. Poultry, fish, little or no red meat, some margarine, skim milk, and skim milk products

15. High blood pressure

If either number is:

A. 160 over 100 (160/100) or higher
B. 140 over 90 (140/90) but less than 160 over 100 (160/100)
C. If both numbers are less than 140 over 90 (140/90)

16. Weight: Ideal weight formula:

Females = 100 pounds plus 5 pounds for each inch over 5 feet

A. 25 pounds overweight
B. 10 to 24 pounds overweight
C. Less than 10 pounds overweight

17. Exercise: Do you engage in any aerobic exercise (brisk walking jogging, bicycling, racketball, swimming) for more than 15 minutes:
    A. Less than once a week
    B. 1 to 2 times a week
    C. 3 or more times a week

18. Stress: Are you:
    A. Frustrated when waiting in line, often in a hurry to complete work or keep appointments, easily angered, irritable
    B. Impatient when waiting, occasionally hurried, or occasionally moody
    C. Comfortable when waiting, seldom rushed, and easygoing

PSYCHOSOCIAL SCALES USED IN THE FRAMINGHAM HEART STUDY

SECTION A

INSTRUCTIONS: Here is a list of several traits or qualities. For each one, mark on the computer sheet whether each trait describes you very well, fairly well, somewhat, or not at all.

19. Being hard-driving and competitive
    A. Very well
    B. Fairly well
    C. Somewhat
    D. Not at all

20. Usually feeling pressed for time
    A. Very well
    B. Fairly well
    C. Somewhat
    D. Not at all

21. Being bossy or dominating
    A. Very well
    B. Fairly well
    C. Somewhat
    D. Not at all

22. Having a strong need to excel (be best) in most things
    A. Very well
    B. Fairly well
    C. Somewhat
    D. Not at all

23. Eating too quickly
    A. Very well
    B. Fairly well
    C. Somewhat
    D. Not at all

INSTRUCTIONS: Please mark the appropriate answer on your computer sheet for the following questions.

I would like to know how you have generally felt at the end of an average day in your regular line of work:

24. Have you often felt very pressed for time?
    A. Yes
    B. No

25. Has your work often stayed with you so that you were thinking about it after working hours?
    A. Yes
    B. No

26. Has your work often stretched you to the very limits of your energy and capacity?
    A. Yes
    B. No

27. Have you often felt uncertain, uncomfortable, or dissatisfied with how well you were doing in your regular line of work?
    A. Yes
    B. No

28. Do you get upset when you have to wait for anything?
    A. Yes
    B. No

SECTION B

INSTRUCTIONS: Here is a list of several traits or qualities. For each one, mark on the computer sheet whether each trait describes you.

29. Having feelings easily hurt
    A. Very well
    B. Fairly well
    C. Somewhat
    D. Not at all

30. Getting angry very easily
    A. Very well
    B. Fairly well
    C. Somewhat
    D. Not at all

31. Getting easily excited
    A. Very well
    B. Fairly well
    C. Somewhat
    D. Not at all

32. Getting easily sad or depressed
    A. Very well
    B. Fairly well
    C. Somewhat
    D. Not at all

33. Worrying about things more than necessary
    A. Very well
    B. Fairly well
    C. Somewhat
    D. Not at all

34. Do you cry easily
    A. Yes
    B. No

35. Are you easily embarrassed
    A. Yes
    B. No

36. Are your feelings easily hurt
    A. Yes
    B. No

37. Are you generally a high-strung person
    A. Yes
    B. No

38. Are you usually self-conscious
    A. Yes
    B. No

39. Are you easily upset
    A. Yes
    B. No

40. Do you feel sometimes that you are about to go to pieces
    A. Yes
    B. No

41. Are you generally calm and not easily upset
    A. Yes
    B. No

SECTION C

INSTRUCTIONS: Here is a list of several traits or qualities. For each one, mark on your computer sheet whether each trait describes you.

42. Being very socially ambitious (e.g. trying to know important people)
    A. Very well
    B. Fairly well
    C. Somewhat
    D. Not at all

43. Being financially ambitious
    A. Very well
    B. Fairly well
    C. Somewhat
    D. Not at all

44. Having a strong need to excel (be best) in most things
    A. Very well
    B. Fairly well
    C. Somewhat
    D. Not at all

SECTION D

INSTRUCTIONS: Here are more traits or qualities. For each trait, please mark on your computer sheet the answer which describes you best.

45. Having a sense of humor
    A. Very well
    B. Fairly well
    C. Somewhat
    D. Not at all

46. Being easygoing
    A. Very well
    B. Fairly well
    C. Somewhat
    D. Not at all

47. Having ability to enjoy life
    A. Very well
    B. Fairly well
    C. Somewhat
    D. Not at all

SECTION E

INSTRUCTIONS: Please indicate on your computer sheet if the following statements are true of your boss.

Your boss (the person directly above you)

48. Is a person you can completely trust
    A. Yes
    B. No

49. Is cooperative
    A. Yes
    B. No

50. Is a person you can rely upon to carry his load
    A. Yes
    B. No

51. Is a person who appreciates you
    A. Yes
    B. No

52. Is a person who interferes with you or makes it difficult for you to get your work done
    A. Yes
    B. No

53. Is a person who generally lets you know how you stand
    A. Yes
    B. No

54. Is a person who takes a personal interest in you
    A. Yes
    B. No

SECTION F:

INSTRUCTIONS: Please answer the following questions pertaining to your marriage on your computer sheet.

55. Everything considered, how happy would you say that your marriage has been?

A. Very happy
B. Happy
C. Average
D. Unhappy
E. Very unhappy

56. Everything considered, how happy would you say that your spouse has found your marriage to be?

A. Very happy
B. Happy
C. Average
D. Unhappy
E. Very unhappy

57. About marriage, are you more satisfied, as satisfied, or less satisfied than most of your close friends are with their marriages?

A. More satisfied
B. As satisfied
C. Less satisfied

SECTION G:

INSTRUCTIONS: Every marriage has its agreements and disagreements. I would like to know how often you and your spouse disagree (disagreed) about the following things? (for present or most recent marriage)

58. Handling family finances or money matters

A. Often
B. Once in a while
C. Never

59. How to spend leisure time
    A. Often
    B. Once in a while
    C. Never

60. Religious matters
    A. Often
    B. Once in a while
    C. Never

61. Amount of time that should be spent together
    A. Often
    B. Once in a while
    C. Never

62. Gambling
    A. Often
    B. Once in a while
    C. Never

63. Sexual relations
    A. Often
    B. Once in a while
    C. Never

64. Dealings with in-laws
    A. Often
    B. Once in a while
    C. Never

65. On bringing up children
    A. Often
    B. Once in a while
    C. Never

66. Where to live
    A. Often
    B. Once in a while
    C. Never

67. Way of making a living
    A. Often
    B. Once in a while
    C. Never

68. Household chores
    A. Often
    B. Once in a while
    C. Never

69. Drinking
    A. Often
    B. Once in a while
    C. Never

SECTION H

INSTRUCTIONS: Has your regular line of work involved the following things? Please respond by answering the questions on your computer sheet.

70. Working overtime?
    A. Yes
    B. No

71. Meeting deadlines or rigid time schedules?
    A. Yes
    B. No

SECTION I

INSTRUCTIONS: Please respond to the following question. Do you worry a great deal, somewhat, a little, or not at all about the following things?

72. Growing old
    A. A great deal
    B. Somewhat
    C. A little
    D. Not at all

73. Retirement

A. A great deal
B. Somewhat
C. A little
D. Not at all

74. Sickness

A. A great deal
B. Somewhat
C. A little
D. Not at all

75. Death

A. A great deal
B. Somewhat
C. A little
D. Not at all

76. Loneliness

A. A great deal
B. Somewhat
C. A little
D. Not at all

SECTION J

INSTRUCTIONS: Do you worry a great deal, somewhat, a little, or not at all about the following things?

77. Sexual problems

A. A great deal
B. Somewhat
C. A little
D. Not at all

78. Change of life

A. A great deal
B. Somewhat
C. A little
D. Not at all

79. Money matters
   A. A great deal
   B. Somewhat
   C. A little
   D. Not at all

80. Family problems
   A. A great deal
   B. Somewhat
   C. A little
   D. Not at all

81. Not being a success
   A. A great deal
   B. Somewhat
   C. A little
   D. Not at all

SECTION K

INSTRUCTIONS: Here is list of symptoms which many people have. Please answer yes or no on your computer sheet to the following questions.

82. Often troubled by feelings of tenseness, tightness, restlessness, or inability to relax?
   A. Yes
   B. No

83. Often bothered by nervousness or shaking?
   A. Yes
   B. No

84. Often have trouble sleeping or falling asleep?
   A. Yes
   B. No

85. Feel a great deal of tension?
   A. Yes
   B. No

86. Have trouble relaxing?
    A. Yes
    B. No

87. Often have periods of restlessness so that you cannot sit for long?
    A. Yes
    B. No

88. Often felt difficulties were piling up too much for you to handle?
    A. Yes
    B. No

SECTION L

INSTRUCTIONS: Please respond to the following question on your computer sheet. "Do the following statements describe you?"

89. At the end of the day I am completely exhausted mentally and physically.
    A. Very well
    B. Fairly well
    C. Somewhat
    D. Not at all

90. There is a great amount of nervous strain connected with my daily activities.
    A. Very well
    B. Fairly well
    C. Somewhat
    D. Not at all

91. My daily activities are extremely trying and stressful.
    A. Very well
    B. Fairly well
    C. Somewhat
    D. Not at all

92. In general, I am unusually tense and nervous.
    A. Very well
    B. Fairly well
    C. Somewhat
    D. Not at all

SECTION M

INSTRUCTIONS: Here is a list of symptoms which many people have. For each question, please mark your answer on the computer sheet.

93. Often become tired easily or feel continuously fatigued?
    A. Yes
    B. No

94. Often have giddiness or dizziness or a feeling of unsteadiness?
    A. Yes
    B. No

95. Often have palpitations, or a pounding or racing heart?
    A. Yes
    B. No

96. Often bothered by breathlessness, sighing respiration or difficulty in getting a deep breath?
    A. Yes
    B. No

97. Often have poor concentration or vagueness in thinking?
    A. Yes
    B. No

SECTION N

INSTRUCTIONS: Here is a list of things people may do when they get angry, irritated, or annoyed. Please indicate on the computer sheet whether, when you are really angry or annoyed, you are very likely, somewhat likely, or not too likely to do the following things.

98. Get tense or worried
    A. Very likely
    B. Somewhat likely
    C. Not too likely

99. Get a headache
    A. Very likely
    B. Somewhat likely
    C. Not too likely

100. Feel weak
    A. Very likely
    B. Somewhat likely
    C. Not too likely

101. Feel depressed
    A. Very likely
    B. Somewhat likely
    C. Not too likely

102. Get nervous or shaky
    A. Very likely
    B. Somewhat likely
    C. Not too likely

SECTION O

INSTRUCTIONS: Here are more things people may do when they get angry, irritated, or annoyed. Please indicate on the computer sheet whether, when you are really angry or annoyed, you are very likely, somewhat likely, or not too likely to do the following things.

103. Try to act as though nothing much happened
   A. Very likely
   B. Somewhat likely
   C. Not too likely

104. Keep it to yourself
   A. Very likely
   B. Somewhat likely
   C. Not too likely

105. Apologize even though you are right
   A. Very likely
   B. Somewhat likely
   C. Not too likely

SECTION P

INSTRUCTIONS: Please respond these statements concerning when you are really angry or annoyed.

106. Take it out on others
   A. Very likely
   B. Somewhat likely
   C. Not too likely

107. Blame someone else
   A. Very likely
   B. Somewhat likely
   C. Not too likely

SECTION Q

INSTRUCTIONS: Here is a final list of responses to anger. Please indicate on your computer sheet if, when you are really angry or annoyed, they describe you very likely, somewhat likely, or not too likely.

108. Get it off your chest
A. Very likely
B. Somewhat likely
C. Not too likely

109. Talk to a friend or relative
A. Very likely
B. Somewhat likely
C. Not too likely

SECTION R

INSTRUCTIONS: Please answer these questions on your computer sheet.

110. To which social class do most of your acquaintances belong?
A. Upper class
B. Middle class
C. Working class
D. Lower class

111. To which social class would you say you belong?
A. Upper class
B. Middle class
C. Working class
D. Lower class

SECTION S

INSTRUCTIONS: Please answer the following questions on your computer sheet.

112. What was the highest grade your father completed in school?
A. 8 years or less
B. 9 to 12 years
C. 13 years or more

113. What was the highest grade you completed in school?
A. 8 years or less
B. 9 to 12 years
C. 13 years or more

SECTION T

INSTRUCTIONS: Please answer these questions on the paper attached to your computer sheet.

114. What kind of work did your father do most of his life?

115. What kind of work has your husband done most of his life?

116. In the past ten years, how many times have you changed jobs? (Actual number)

117. In the past ten years, how many times have you changed your line of work? (Actual number)

118. In the past ten years, how many times have you been promoted? (Actual number)

SECTION U

INSTRUCTIONS: PLEASE ANSWER THIS FINAL QUESTION ON YOUR COMPUTER SHEET.

119. Have you received previous hospitalization or medical treatment for emotional disease?
A. Yes
B. No

APPENDIX C

CONSENT LETTER

ARIZONA HEART INSTITUTE
P.O. Box 10,000
Phoenix, Arizona 85064
(602) 955-1000

October 2, 1985

Ms. Cheryl Bachelor
1108 Plymouth Drive
New Bern, NC 28560

Dear Ms. Bachelor:

This letter authorizes you to use the Arizona Heart Institute's Cardiovascular Risk Factor Questionnaire in your study, with the two following alterations: the omission of the sex question (all participants are female) and the change of the age question to "50 and above" receives a rating of one, inasmuch as the females are postmenopausal and therefore equivalent in risk to males in this age group. The rating will be accordingly reduced by one to eliminate the sex bias.

I am also enclosing a paper which reflects the validity of the screening tool. It was produced after our nationwide broadcast of the Heart Test on ABC's "20/20" program. A second validation paper is currently in press, but the sample size is very small by comparison and it offers no new data.

I hope this will be of help to you in your evaluation. If we can be of further assistance, please call upon us.

Yours truly,

Becky Bowman
Medical Editor

/bb
encls.

4800 North 22nd Street
Phoenix, Arizona 85016

APPENDIX D

CONSENT LETTER

Boston University

University Professors Program
745 Commonwealth Avenue
Boston, Massachusetts 02215
617/353-4020

October 1, 1985

Ms. Cheryl Batchelor
1108 Plymouth Drive
New Bern, NC 28560

Dear Ms. Batchelor:

I am very pleased to give you permission to use The Framingham Life History Questionnaire in your study. Good luck. I would be interested in being informed about your progress.

Sincerely,

Sol Levine, Ph.D.
University Professor,
Professor of Sociology and Public Health

SL/en

APPENDIX E

FRONT SHEET

A P P E N D I X E

PLEASE CHECK THE APPROPRIATE ANSWER ON THIS SHEET WHICH APPLIES TO YOU.

1. HAVE YOU EXPERIENCED MENOPAUSE (THE CHANGE OF LIFE)?

   [ ] YES
   [ ] NO

2. HAVE YOU HAD A HYSTERECTOMY?

   [ ] YES
   [ ] NO

NOW, PLEASE CONTINUE TO FOLLOW THE DIRECTIONS ON THE QUESTIONNAIRE. THANK YOU.

APPENDIX F

PARTICIPATE CONSENT FORM

Appendix F

Consent to Participate in Research

I hereby authorize Cheryl Batchelor to administer the questionnaire which she has described to me. Participation in this survey entails no risks or discomfort. There is no cost and no interruption in my daily work schedule due to the study. The questionnaire will take approximately thirty minutes to complete. Any information given will be held in strict confidence and anonymity will be protected in the publication of this survey's findings.

All participants in this study are making an important contribution to collecting current data on the cardiovascular risks of premenopausal women.

Any persons interested in the results of this survey will be granted the information by telephoning Cheryl Batchelor at (919) 638-8295 or by writing her at 1108 Plymouth Drive, New Bern, N.C. 28560.

Thank you for participating.

Participant's Signature: _____

Date: _____