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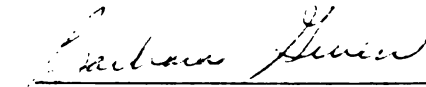
**The Relationship Between Perceived  
Social Stressors and Barriers to  
Dietary Compliance: A Study of  
Middle-Aged Hypertensive Women**

presented by

**Elizabeth Sue Haviland**

has been accepted towards fulfillment  
of the requirements for

M.S.N. degree in Nursing



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THE RELATIONSHIP BETWEEN PERCEIVED SOCIAL STRESSORS  
AND BARRIERS TO DIETARY COMPLIANCE:  
A STUDY OF MIDDLE-AGED  
HYPERTENSIVE WOMEN

By

Elizabeth Sue Haviland

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## ABSTRACT

### THE RELATIONSHIP BETWEEN PERCEIVED SOCIAL STRESSORS AND BARRIERS TO DIETARY COMPLIANCE: A STUDY OF MIDDLE-AGED HYPERTENSIVE WOMEN

By

Elizabeth Sue Haviland

A descriptive study of middle-aged hypertensive women was conducted to identify the relationship between their perceived social stressors and barriers to dietary compliance and to describe their perceived sources of social stress.

Data were collected by means of a self-administered questionnaire from 71 hypertensive women aged 35-65. Data were analyzed using Pearson-product moment correlations, ANOVA, and descriptive statistics.

There were significant relationships between barriers to diet and the social stressors of parenting ( $r = -.31$ ,  $p = .022$ ), homemaking ( $r = .41$ ,  $p = .015$ ), singlehood ( $r = -.57$ ,  $p = .009$ ), and finances ( $r = -.24$ ,  $p = .022$ ). Parenting, marriage, and singlehood constituted sources of social stress for this sample.

Nurses should assess social stressors as factors which may influence long-term compliance behaviors. Nurses should also be aware of the developmental transitions associated with Middlecence and the social stressors inherent in these transitions.

To my husband, David,  
and to our daughters,  
Wendy, Kristin, and Amy



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## CHAPTER I

### THE PROBLEM

#### Introduction

Essential or primary hypertension is the most common cardio-vascular disease and the greatest public health problem of this time (Clyburn, et al., 1980). Studies conducted in Framingham over the last two decades have clearly established that essential hypertension is THE most critical risk factor in predicting cardio-vascular morbidity and mortality in the general population (McGee and Gordon, 1976; Shurtleff, 1974). The complications of hypertension such as coronary artery disease, chronic renal failure, and stroke, contribute to at least 250,000 deaths each year in the United States (Kannel, 1978) and cost over \$20 billion per year in direct medical expenditures through illness, disability, premature loss of productivity, social disruption, and death (Kocher, 1981).

Morbidity and mortality rates from these complications can be decreased if hypertension is controlled through a therapeutic regimen that includes medication, weight loss for obese patients, and sodium restriction for all patients

(Taguchi and Freis, 1974). Dietary compliance by the patient is therefore necessary for effective control. Yet, compliance with a dietary regimen requires new behaviors on the part of the individual that necessitate relinquishing personal habits and the alteration of the patient's lifestyle. It is not surprising, therefore, that dietary compliance rates are low (Haynes, et al., 1979; Kirscht and Rosenstock, 1977).

The Health Belief Model is a theoretical formulation that explains variables related to health behaviors at the level of individual decision-making. Components of this model have been used to predict a person's readiness to take health-related actions, including compliance with the therapeutic regimen. One component of the model that may be predictive of compliance is the patient's perceived barriers to or costs of (financial, psychological, or social) implementation of the therapy. That is, perceived barriers to dietary compliance may account for patients' low adherence rates with a prescribed diet.

Researchers suggest that variables other than those included in the Health Belief Model need to be investigated to explain health behavior and compliance behaviors, especially as they relate to chronic illness (Kasl, 1974, 1975; Monahan, 1982). It has been suggested that the patient's perception of social stressors may be a variable that has relevance for chronic illness behaviors. Because

day-to-day stressors seem to be more problematic on an ongoing basis than uncommon major life events such as death of a spouse (Ilfeld, 1976a) it could be postulated that these stressors may affect compliance behavior.

Various authors have identified middle-aged women as a group with potentially increased stress levels due to the developmental transitions or "marker" events associated with middle-age (Barnett and Baruch, 1978; Lowenthal, et. al., 1975). Because stress is related to the etiology and control of hypertension and, in addition, may be related to compliance behaviors, its study is relevant for health care providers. By helping patients to identify their social stressors and determine how they relate to perceived barriers to dietary compliance, it may be possible to control their hypertension by managing stress and enhancing compliance with diet.

### Background of the Problem

Estimates for the incidence of hypertension in the United States population range from 23 million (BP  $\geq$  160/95 mm Hg) to 60 million (BP  $\geq$  140/90 mm Hg) with as many as one-third of diagnosed hypertensives uncontrolled despite treatment (Clyburn, et al., 1980; Kannel, 1978). Lack of control is generally attributed to low patient compliance rates. The 1980 Report from the Joint Committee on Detection, Evaluation, and Treatment of High Blood Pressure

clearly states that mortality and morbidity can be significantly reduced among hypertensive patients when they adhere to their prescribed therapy. Control of hypertension through medication, diet (weight loss, sodium restriction), and exercise, however, requires life-long management and behavioral changes on the part of the patient. Obviously, control of hypertension through proper medical management and enhancement of patient compliance with therapeutic regimen poses a significant challenge to health care providers.

Findings from epidemiological studies have shown a strong association between blood pressure and body weight (Stamler, et al., 1978; Tobian, 1978) as well as between blood pressure and sodium intake (Freis, 1976; Tobian, 1979). Several studies on the effects of dietary intervention suggest that weight reduction or moderate control of sodium intake appears to be an effective adjunctive therapy when combined with pharmacological treatment to lower blood pressure (Morgan, et al., 1978; Parijs, et al., 1973; Reisin, et al., 1978).

Weight reduction and sodium restriction are therefore important components in the management and control of hypertension. Both the National High Blood Pressure Education Program Coordinating Committee and the 1980 Report of the Joint National Committee on Detection, Evaluation, and Treatment of High Blood Pressure recommend moderate control



of sodium intake in all patients and weight reduction in obese patients as adjunctive management of hypertension. Weight reduction also has been suggested for borderline hypertensives who are overweight as a reasonable first step in treatment.

Thus, blood pressure control depends in large part on the patient's compliance with dietary recommendations. Yet, dietary compliance is one aspect of the therapeutic regimen that is less likely to be followed than others. Kirscht and Rosenstock (1977) found in a study of hypertensive patients' adherence to antihypertensive medical regimens that patients' compliance with their dietary regimen was considerably less than their compliance with medication. Haynes, Taylor, and Sackett (1979), in a review of compliance literature, cite dietary compliance rates as ranging from 8-70% for weight reduction and hemodialysis diets. Donabedian and Rosenfeld (1964) suggest that differences in compliance with the two treatments (medication and diet) are due to difficulties inherent in inducing change in dietary habits. Davis (1968) concludes that restrictions which necessitate changing or modifying personal habits (alterations in diet and eating patterns) are more difficult to follow than those, such as taking medication, that do not require behavior modification.

The Health Belief Model was developed to explain the factors that influence an individual's decision to take a

health-related action and therefore has value in predicting patient compliance. Motivation to follow the prescribed regimen depends on the person's perception and appraisal of his susceptibility to illness or its complications, the severity of the impact of the disease on his life, barriers to action (the financial, social, or psychological costs of the recommended action), and benefits of carrying out the action (Becker, and Maiman, 1975; Becker, et al., 1979; Rosenstock, 1975).

Several studies using the Health Belief Model have been conducted, but few have focused on compliance with diets and other long-term lifestyle modifications (Haynes, Taylor, and Sackett, 1979). Most research has been concerned with compliance with medication and short-term treatments.

The Health Belief Model is limited in explaining behavior related to chronic disease; that is, behaviors undertaken by the individual to decrease risk and maintain health (Kasl, 1974). Chronic illness behavior requires a person to stay in treatment and comply with the regimen even though he/she may not feel ill; to follow medication, diet and exercise regimens, even though no change in health status can be expected; and to follow treatment indefinitely. Baric (1969) and Monahan (1982) have identified these behaviors as the "at-risk" role of the chronically ill patient and contrast this role to the sick role. The "at-risk"

person is not institutionalized, is at-risk for complications for an indefinite time, and lacks reinforcement and feedback provided by a decrease in symptoms or changes in health status.

Some authors, therefore, have called for research to examine other variables that are not currently included in the Health Belief Model, but that may be more relevant to the "at-risk" role of the chronically ill patient and therefore more predictive of long-term compliance behaviors (Kasl, 1974; Mikhail, 1981; Monahan, 1982).

Kasl (1975) concluded from a review of the literature that the dynamics of patient adherence are poorly understood and suggested more broadly based studies to consider the issue of stress as it relates to patient compliance. Specifically, Kasl recommended that future studies focus on the interaction of five sources of demands on the patient that may influence compliance: medical regimen, disease state, social environment at home and at work, doctor-patient relationship, and medical care settings.

Social stressors are those situations and events that are problematic to an individual on a day-to-day basis. Social stressors are differentiated from stressful major life events as defined and measured by Holmes and Rahe (1967). Major life events are infrequent occurrences and have more short-term effects than do day-to-day stressors related to work, marital, and parenting roles. Further,

ongoing social relationships may produce more stress than that produced by major life events (Ilfeld, 1976a; Pearlin and Schooler, 1978).

Stressors may make it more difficult to modify behaviors. That is, stressful events and social relationships can influence an individual's response to illness and the likelihood that he/she will take health-related actions and make decisions to comply with treatment (Kasl, 1975; Mechanic, 1975). Determining stressors in a hypertensive patient's social relationships is important because, in addition to being predictive of non-compliance, there is a relationship between stress and the etiology and control of hypertension due to neuroendocrine changes inherent in the body's adaptive responses (Jenkins, et al., 1979; Martin, 1981; Shapiro, 1979).

Yet, no studies were found that included social stressors as a component of the Health Belief Model or investigated the relationship between ongoing stressors and perceived barriers as factors that influence chronic illness behaviors. Perceived social stressors of an individual, then, may be a variable that has a place in the Health Belief Model for chronic illness behavior.

Many people are at risk for stress because of the marker events or transitions associated with various stages of adult development. One perspective of adult development is that stress is inherent in developmental transition,

and each transition has the potential for crisis (Levinson, 1977; Lowenthal, et al., 1975). Middle-age, or middlecence, is a stage of adult development during which transitions such as the last child leaving home, care of aging parents, and retirement occur. These changes may represent potential sources of stress for middle-aged women. That is, middle-aged women may be more "at risk" for stress and crisis as a result of these marker events. Potential areas of stress for middle-aged women are related to the transitions associated with parenting, the marital relationship, employment, retirement, life-satisfaction, and role strain (Lowenthal, et al., 1975; Targ, 1979).

Stevenson (1977) on the basis of available research, has divided middlecence into two phases. Middlecence I forms the core of the middle years and includes ages 30-50; Middlecence II is termed the "new middle years" and encompasses ages 50-70. (It may be noted that Stevenson's ages are not mutually exclusive.) For each phase, Middlecence I and II, Stevenson identifies distinct goals, developmental tasks, and transitions.

There is contradictory evidence in research as to whether middle-age is fraught with crises for most women or whether middle-age is generally viewed more positively by women than has previously been assumed. The "crisis" view of middle-aged women is supported in research by

Lowenthal and associates (1975). In a study of four groups of men and women facing life transitions during different developmental stages, the investigators found that middle-aged women exhibited the most acute signs of desperation -- with themselves, their husbands, and their marriages -- as compared to other age groups. The middle-aged woman tended to have poorer self-concepts and lower levels of life satisfaction, to be more pessimistic, highest in existential despair, and most negative toward their spouse as compared to men and to other age groups of women.

In contrast, Glenn (1975) found marital happiness to be higher for both men and women during middle-age. Further, Neugarten (1968b) and Troll, Miller, and Atchley (1979) suggest that middle-aged women view the "empty nest" period as a time of freedom and change for personal growth.

In a review and critique of literature on women in the middle years, Barnett and Baruch (1978) state there is a need for knowledge about women in this age group. Empirical findings tend to be contradictory and non-cumulative while much of the previous research and theory has been made obsolete by women's increased educational attainment and labor force participation. In short, Barnett and Baruch (1978) contend that research on middle-age women has been limited by biases and assumptions such as the crucial nature of marriage and children to a woman's well-being.

With the exception of Stevenson's (1977) work on

middlescence, most nursing literature has focused on the middle-aged woman within the context of menopause. Perceptions of day-to-day stressors commonly experienced throughout the entire stage of middlescence have not been significantly addressed. It is important for nurses to examine how social stressors that may be related to developmental transitions affect perceptions of barriers to compliance.

Nursing needs to add to the research and knowledge base for practice relative to the psychosocial management of chronic illness, including the behavioral changes mandated through patient adherence to a therapeutic regimen. Nurses can help individuals attain, maintain, or restore health in order to function optimally in their social and work roles by helping the client to establish goals and explore means to realistically achieve these goals (King, 1980). Identification of elements that interfere with the goals, such as perceived social stressors and barriers to compliance, facilitate the design of intervention strategies to help patients manage the stressors and decrease the barriers, thereby helping clients to more effectively manage their hypertension.

Nurses are in a position to consider, investigate, and deal with variables other than those already included in the Health Belief Model (such as social stressors) that may influence health behaviors and compliance behaviors necessary for the management of chronic illness.

### Purpose of the Study

The impetus for this research came from several findings and conclusions. First, there is a lack of research that has tested other variables in the Health Belief Model, particularly variables that may be relevant to chronic illness behaviors. Secondly, Kasl (1974) has suggested that day-to-day stressors may be a variable that influences compliance. Third, there is a need for more empirical data on middle-aged women and whether or not the "marker events" of middle-age do indeed constitute sources of social stress for this age group. Last, dietary compliance rates are generally low, yet little research has been carried out on factors that may influence dietary compliance.

Barriers to dietary compliance were included in the present study instead of measures of dietary compliance. The rationale for this choice is based on the following reasons: barriers have not been consistently defined in previous studies, there is a need to examine factors that constitute barriers, and barriers may be more relevant than other variables in explaining and predicting long-term compliance behaviors. Barriers, therefore, may be the most significant predictors of chronic illness behavior and may even be strong enough to override the individual's other health beliefs and knowledge (Cummings, et al., 1982).

Further impetus for the present study was provided by



data collected for the research project Patient Contributions to Care, Link to Process and Outcome, B. Given and C. W. Given co-principal investigators (1982). Data on perceived social stressors were collected from the subjects in this study, and the sample of hypertensive patients used in the study included middle-aged women.

Therefore this study, which is based on secondary data, has the following purposes:

1. To describe and analyze how social stressors relate to perceived barriers to dietary compliance.
2. To describe the differences in mean social stressors scores between women in Middlecence I and Middlecence II.
3. To describe selected sources of social stress of middle-aged hypertensive women.

More specifically, the research questions to be addressed are:

1. What is the relationship between the total perceived social stressors scores of middle-aged hypertensive women and their perceived barriers to diet scores?
2. Is there a relationship between any of the nine categories of social stressors and barriers to diet for middle-aged hypertensive women?
3. Is there a difference in the mean social stressor scores of women in Middlecence I and Middlecence II?
4. For middle-aged hypertensive women, do parenting, singlehood, homemaker/job and marriage constitute sources of social stress?
  - a. Is the mean stressor score for parenting in the high range?

- b. Is the mean stressor score for singlehood in the high range?
- c. Is the mean stressor score for homemaker/job in the high range?
- d. Is the mean stressor score for marriage in the high range?

### Hypotheses

- 1. There is no relationship between total social stressor scores of middle-aged hypertensive women and their perceived barriers to diet scores.
- 2. There is no relationship between any one of the nine categories of scores of social stressors and perceived barriers to diet score.

### Subhypotheses

- a. There is no relationship between job stressors score and barriers to diet score.
- b. There is no relationship between financial stressors score and barriers to diet scores.
- c. There is no relationship between homemaking stressors score and barriers to diet score.
- d. There is no relationship between housewife/job stressors score and barriers to diet score.
- e. There is no relationship between parental stressors score and barriers to diet score.
- f. There is no relationship between marital stressors score and barriers to diet score.
- g. There is no relationship between singlehood stressors score and barriers to diet score.
- h. There is no relationship between unemployment stressors score and barriers to diet score.

- i. There is no relationship between retirement/disability stressors score and barriers to diet score.
3. There is no difference between the mean social stressors scores of women in Middlecence I and Middlecence II.

### Definition of Concepts

Middle-aged hypertensive women comprise the subjects of the study. The study variables include perceived social stressors, and perceived barriers to dietary compliance. Related concepts to be defined are middlecence and the Health Belief Model.

A middle-aged hypertensive woman is defined in this study as a female, ages 35-65, inclusive, with an established diagnosis of essential hypertension whose regimen includes a therapeutic diet. The therapeutic diet may include a low sodium diet, restricted calorie diet, or a combination of these diets. To be included in this study, the woman must: 1) have no other chronic illness, 2) have no evidence of stroke, cancer, blindness, end-stage renal disease, psychosis, or active pregnancy, 3) be literate, 4) speak and read English, and 5) have two blood pressure readings separated over time indicating a systolic pressure above 160 mm Hg and a diastolic pressure of 90 mm Hg or above.

Perceived social stressors are defined in this study as those circumstances or conditions that the individual generally considers to be problematic or undesirable (Ilfeld, 1976a). These stressors are tied to the individual's social role and are usually repeated experiences instead of discrete events. Perceived Social Stressors will be measured using a Life Situation Instrument that is an adaptation of Ilfeld's Current Social Stressors Scale. Nine areas of potential social stress will be measured: job, finances, homemaking, combination of homemaking/job, parenting, marriage, singlehood, unemployment, and disability/retirement.

Perceived barriers to dietary compliance are the expressed beliefs and attitudes of the individual concerning the financial, social, or psychological cost of following the therapeutic diet prescribed or suggested by the health care provider in order to improve the patient's health status (Sackett and Haynes, 1976). Barriers to dietary compliance are therefore those difficulties that the patient encounters before action is taken to follow the health care provider's advice and instruction regarding dietary modifications (Rosenstock, 1974).

Perceived barriers to diet will be measured using a Beliefs about Hypertension Instrument. The specific subscale that will measure barriers to diet is the Perceived Barriers to Following Diet Scale.

Middlescence is a developmental phase in the adult life cycle for which specific crises and developmental tasks can be identified (Medinger and Verghese, 1981; Stevenson, 1977). There is no agreement in the literature as to the time span included in Middlescence (Targ, 1979). For this reason, this study will define middle-age as encompassing ages 35-65; this definition is based on adaptations of Havighurst (1972), Stevenson (1977) and arbitrary judgment by the researcher. Middlescence will be dichotomized into two stages: Middlescence I, encompassing ages 35-50, and Middlescence II which encompasses ages 51-65. This dichotomization of Middlescence was adapted from Stevenson (1977).

The Health Belief Model is psychosocial formulation that was developed to explain the relationship among variables that influence an individual's health-related behavior and decision to take action. Four major concepts are included in the model: the individual's perceived susceptibility to the illness or its complications, the person's perceived severity of the disease, and perceived benefits of and barriers to taking action (Rosenstock, 1974). Factors that condition or modify an individual's perception of susceptibility, severity, benefits, and barriers are demographic variables, structural variables such as complexity and side effects of the regimen, attitudinal variables such as satisfaction with staff and

procedures, interaction variables such as quality and type of patient-provider relationship, and enabling variables such as sources of advice (Becker, 1974; Becker and Maiman, 1975). Thus, the Health Belief Model identifies how patients' beliefs are related to their health behaviors.

### Extraneous Variables

The researcher acknowledges the following variables which may affect the outcome of the study. Extraneous variables for which data are collected include sociodemographic variables (age, education, occupation, race, marital status, income, number of living children, number of children living at home), and duration of diagnosed hypertension. Extraneous variables for which data were not collected include care of aging parents, menopausal syndrome, stage of family life cycle, and presence or absence of social support.

### Assumptions

The following assumptions are made in this study:

1. It is assumed that middle-aged women are able to recognize and identify their social stressors and barriers to dietary compliance.
2. It is assumed that the instruments are sensitive enough to measure social stressors and barriers to diet as defined in the study.

3. It is assumed that participants in the study can read and understand the instrument.
4. It is assumed that middle-aged hypertensive women experience some social stressors and believe that they are experiencing barriers to dietary compliance.

### Limitations

The following limitations are acknowledged in this study:

1. The subjects who agreed to participate are different from those who refused and, therefore, the results are not generalizable to non-volunteers.
2. The physician's offices and Family Practice Clinics from which the sample was taken may not be representative of all middle-aged hypertensive women.
3. The instruments are close-ended and may not reflect the full range of feelings and experiences of the sample; there may be stressors and barriers not identified by the instrument.
4. The middle-aged women in this study may be experiencing more social stressors than women who are now in their 20's and 30's because of societal transitions relative to the role of women. Hence, the results of this study will not be generalizable to younger women as they approach middle-age.
5. Certain extraneous variables were not addressed in the study. These variables may have an impact on the woman's perception of stressors and barriers, and include existence of menopausal symptoms, presence or absence of social support, care of aging parents, and stage of family life cycle.
6. This study relied on self-reported data; the subjects may have responded in a socially desirable manner, thus posing a threat to the validity of the results.

7. The Life Situation Instrument did not measure parental stressors for parents with children under six years of age.
8. The Sociodemographic Instrument did not assess ages of living children.
9. The subjects were asked to respond to sections in the Life Situation Instrument that were applicable to them; thus, there may be small numbers of subjects responding to certain subscales of the instrument.

### Overview of Chapters

This research study is presented in six chapters. In Chapter I, the introduction of the study, the background of the problem, the statement of the problem, purpose of the study, definition of concepts, identification of extraneous variables, research questions and hypotheses, assumptions, and limitations are presented. The conceptual framework is discussed and related to nursing theory and nursing process in Chapter II. In Chapter III, pertinent literature and research concerning the problem are presented. The research design, methodology, and rationale for data analysis are described in Chapter IV. In Chapter V, research data are presented, analyzed, and discussed in relation to the research questions and hypotheses. The summary of research findings, conclusion, and implications for nursing are discussed in Chapter VI.



## CHAPTER II

### CONCEPTUAL FRAMEWORK

#### Overview

Presented in this chapter is a conceptual framework incorporating principles of the Health Belief Model and its relevance to chronic illness behavior, adult life-span developmental theory as it pertains to middle-age, and nursing theory. The utilization of these theories provides a framework for examining the relationship between perceived social stressors and perceived barriers to dietary compliance of middle-aged hypertensive women.

Discussion of the conceptual framework will begin with an overview of the Health Belief Model and aspects of chronic illness behavior that may affect compliance. This discussion will be followed by a description of middle-age and the developmental tasks and stressors specific to this stage of adult development. Last, nursing theory, including a nursing process model, and implications for nursing practice will be presented.

### The Health Belief Model

The Health Belief Model was chosen as a framework for this study because it provides a relevant perspective of: 1) factors that may influence an individual's decision to act on health-related matters, and 2) the way in which perceived social stressors may be related to perceived barriers to dietary compliance. The Health Belief Model serves as a framework for understanding human behavior as it pertains to prevention, detection, and treatment of disease.

Originated in the 1950s by Hochbaum, Kegeles, Leventhal, and Rosenstock, the Health Belief Model was formulated to provide an explanatory model of why some people use health services and others do not, what may account for high rates of non-compliance with aspects of the treatment regimen, and why some people take action to prevent disease while others do not (Rosenstock, 1974).

The Health Belief Model relates psychological theories of decision-making (which attempt to explain action in a choice situation) to an individual's decision about alternative health behaviors (Maiman and Becker, 1974). Rosenstock (1966) attributes the behavior motivation theory underlying the Health Belief Model to Lewinian social psychological theory. A special case of Lewin's general field theory is applied to the Health Belief Model and

involves goal-setting in the level-of-aspiration situation. Level-of-aspiration situation refers to "the level of future performance in a familiar task which an individual, knowing his level of past performance in that task, explicitly undertakes to reach" (Maiman and Becker, 1974, p. 10). Put more simply, level-of-aspiration is defined as "the degree of difficulty of attainment of the goal toward which the person is striving" (Deutsch, 1968; p. 453-454).

According to Maiman and Becker (1974), Lewin hypothesized that behavior depends on two variables: 1) the value placed by an individual on a particular outcome or goal, i.e., the "pull" or attractiveness of the goal and, 2) the individual's estimate of the likelihood that a given action will result in that outcome. This is referred to as the "value-expectancy" approach to predicting behavior. Lewinian theory therefore considers the conflict an individual faces in deciding whether to attempt tasks that appear difficult to achieve, or whether to be satisfied with more certain success at easier tasks. The theory assumes that, in a choice situation, choice is determined by the valence, i.e., positive or negative attraction that different degrees of difficulties within the same activity have for the person. The level of performance selected allows for possible outcomes of reaching the chosen level ("success") or not reaching the chosen level ("failure").

To put Lewinian theory in the context of the Health Belief Model, Maiman and Becker (1974) summarize Lewin's assumptions: 1) the difficulty of attaining a goal is directly related to the positive valence or attractiveness of future success at a given goal level, but the difficulty of goal attainment is negatively or inversely related to the subjective possibility of success, and, 2) the expected difficulty is inversely related to the negative valence of future failure, while the relationship of the level of difficulty to subjective probability of failure is direct. The paths of action selected by the individual, therefore, depend on the possible outcome (values) needs of the person and barriers to the goal.

As originally formulated, the Health Belief Model extends the use of sociopsychological variables to explain preventive health behaviors. That is, the Health Belief Model is used to analyze an individual's motivation to act as a function of expectancy of goal attainment; decisions are made to avoid negatively valued outcomes (avoid illness). Maiman and Becker (1974) state that the expectancy theory approach to health behavior thus views the individual's actions as related to the person's subjective desire to decrease susceptibility and severity of disease and to an individual's estimation of benefits of the action minus the costs/barriers of action.

It is therefore assumed in the Health Belief Model that

the subjective world of the perceiver determines behavior. The Model thus directs attention to the current subjective state of the individual rather than to his/her history or past experience (Rosenstock, 1966; 1974).

Because Health Belief theory assumes motivation is a necessary condition for action, the concept of motivation is operationalized as the four major variables in the Health Belief Model: perceived susceptibility, severity, benefits, and barriers. The Health Belief Model was originally formulated to explain preventive health behaviors (see Figure 1) and, according to Rosenstock (1966; 1974), assumed that in order for an individual to be motivated to take an action to prevent disease, he/she would need to have the following health beliefs: 1) that he/she was personally susceptible to the disease, 2) that the occurrence of the disease would have at least moderate severity on some aspect of his/her life, 3) that taking a particular action would produce certain benefits, and, 4) that taking a particular action would not entail overcoming barriers such as financial cost, pain, or inconvenience. That is, the perceived benefits of an action are weighed against the perceived psychological or financial barriers/cost of taking an action.

The original Health Belief Model also included factors thought to condition or modify the individual's perception of susceptibility, severity, benefits, and barriers.

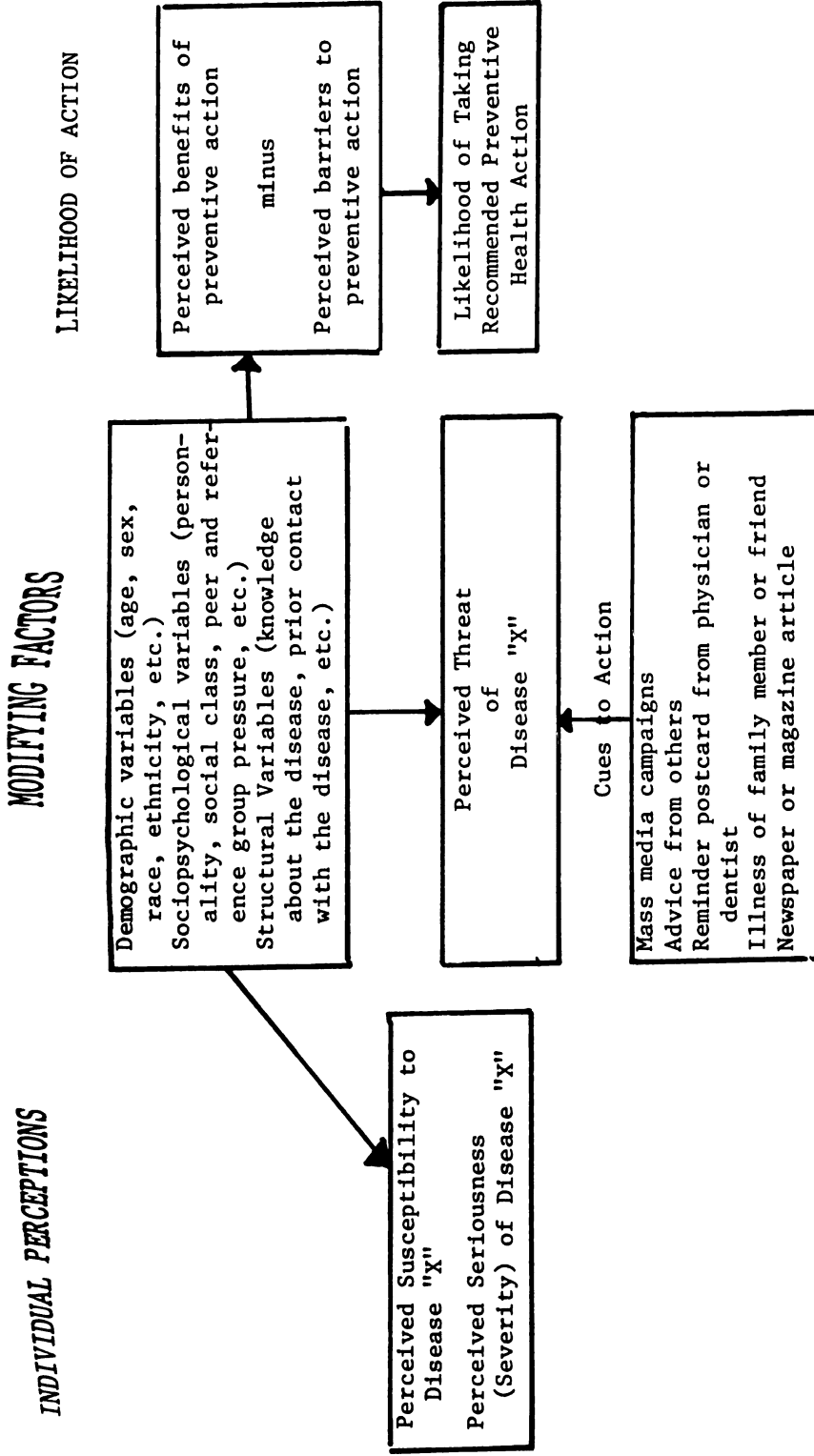


Figure 1. The Health Belief Model as a predictor of preventive health behavior. (Source: Becker, Marshall, (ed.), The Health Belief Model and Personal Health Behavior, New Jersey: Charles B. Slack, 1974, p. 7.

These modifying factors consisted of demographic, psychosocial, and structural variables.

Several investigators have expanded the Health Belief Model to explain illness, sick role, and chronic illness behaviors. A brief overview of these models will be presented to facilitate understanding of the application of the model to the variables addressed in this study (perceived social stressors and barriers to dietary compliance) and the model proposed to explain chronic illness behavior.

Illness behavior is "an activity undertaken by a person who feels ill, to define the state of his health and to discover a suitable remedy" (Kasl and Cobb, 1966; p. 246). According to Kirscht (1974) illness behavior includes only that portion of the process in which the individual attempts to discover what is wrong -- the transition between feeling states and undertaking some course of restorative action. The basic question in illness behavior therefore becomes: In the presence of symptoms, what will the individual do and why will he/she do it (Kasl and Cobb, 1966)? Kirscht (1974) and Kasl and Cobb (1966) therefore drew attention to the importance of symptoms -- the occurrence of symptoms becomes important not as feeling per se, but for the threat they represent to the individual.

In applying the Health Belief Model to illness behavior, attention is focused on four elements related to

decisions to act: 1) health motivation aroused by the symptom experience, 2) threat posed by the symptoms, 3) benefits, i.e., the efficacy or value of an action to reduce the threat, and 4) barriers or costs of the action (Kirscht, 1974) (See Figure 2). In the illness behavior model, personal characteristics are viewed as modifying factors.

Becker, Drachman, and Kirscht (1974) noted the limitations of the illness behavior model and expanded the Health Belief Model to explain sick role behavior (see Figure 3). Sick role behavior is "the activity undertaken by those who consider themselves ill for the purpose of getting well" (Kasl and Cobb, 1966; p. 246). Becker, et al. (1974) modified the concept of personal susceptibility (since diagnosis of illness had already occurred) and defined it as the probability of progressive effects or recurrence.

Readiness to undertake sick role behavior involves: 1) motivations, 2) value of illness threat reduction, including subjective estimates of susceptibility, extent of possible bodily harm, extent of possible interference with social and work roles, and presence or past experience with symptoms, and 3) probability that compliant behavior will decrease the threat (Becker, 1974). Modifying and enabling factors that condition the individual's perception of susceptibility, severity, and benefits in the sick role Health Belief Model include: 1) demographic variables, 2) structural





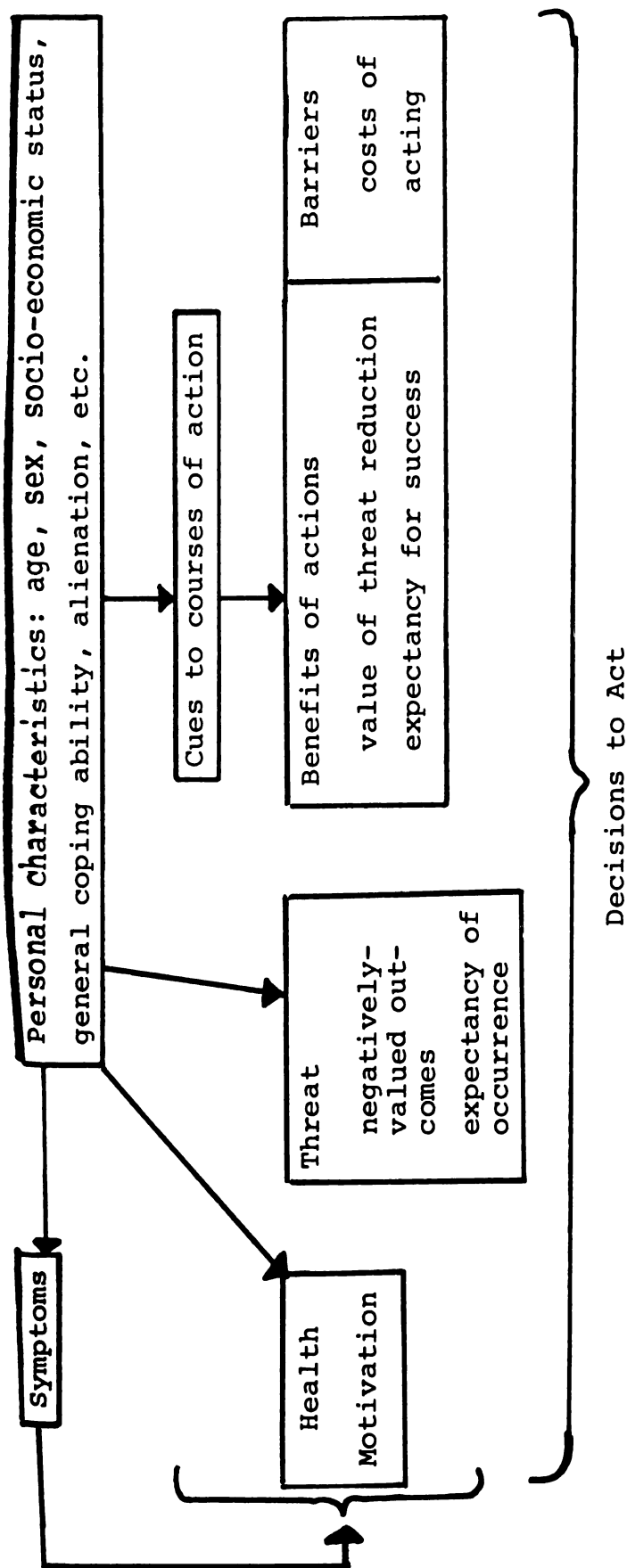


Figure 2. The Health Belief Model for illness behavior. (Source: Becker, Marshall, (ed.), The Health Belief Model and Personal Health Behavior, New Jersey: Charles B. Slack, 1974, p. 62.)

**MODIFYING AND ENABLING FACTORS**      **SICK ROLE BEHAVIORS**

**READINESS TO UNDERTAKE RECOMMENDED SICK ROLE BEHAVIOR**

*Motivations*  
 Concern about (salience of) health matters in general  
 Willingness to seek and accept medical direction  
 Intention to comply  
 Positive health activities

*Value of Illness Threat Reduction*  
 Subjective estimates of:  
 Susceptibility or resusceptibility (incl. belief in diagnosis)  
 Vulnerability to illness in general  
 Extent of possible bodily harm\*  
 Extent of possible interference with social roles\*  
 Presence of (or past experience with) symptoms

*Probability that Compliant Behavior Will Reduce the Threat*  
 Subjective estimates of:  
 The proposed regimen's safety  
 The proposed regimen's efficacy (incl. "faith in doctors and medical care" and "chance of recovery")

*Demographic* (very young or old)  
*Structural* (cost, duration, complexity, side effects, accessibility of regimen; need for new patterns of behavior)  
*Attitudes* (satisfaction with visit, physician, other staff, clinic procedures and facilities)  
*Interaction* (length, depth, continuity, mutuality of expectation, quality, and type of doctor-patient relationship; physician agreement with patient; feedback to patient)  
*Enabling* (prior experience with action, illness or regimen; source of advice and referral)

*Likelihood of:*  
 Compliance with prescribed regimens (e.g., drugs, diet, exercise, personal and work habits, follow-up tests, referrals and follow-up appointments, entering or continuing a treatment program)

\*At motivating, but not inhibiting, levels.

Figure 3. The Health Belief Model for predicting and explaining sick role behavior. (Source: Becker, Marshall, (ed.), The Health Belief Model and Personal Health Behavior, New Jersey: Charles B. Sicak, 1974, p. 89.)

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variables -- complexity and side effects of regimen, 3) attitudinal variables -- satisfaction with clinic and staff, 4) interactional variables -- quality and type of patient-provider relationship, and 5) enabling variables such as source of advice and social pressure to take action.

Compliance takes on importance in the Health Belief Model as applied to sick role behavior since compliance involves activities undertaken for the purpose of getting well. The model incorporating sick role behavior can be used as a conceptual model for predictors of compliance behavior and has been used to investigate the relationship between compliance and perception of susceptibility, severity, benefits, and barriers (Becker, 1974). Data from research generally indicate reliable and interpretable relationships between compliance and perceptions of severity, susceptibility, benefits, and barriers (Becker, 1974).

Elements of the Health Belief Model as applied to sick role behavior have relevance for the analysis of chronic illness behavior. A satisfactory adaptation of the Health Belief Model to explain behaviors associated with chronic illness has not been formulated, although there is research currently being conducted to explore variables relevant to chronic illness behavior (Given and Given, 1982).

Kasl (1974) has called for a reconstruction of the Model to make it more applicable to chronic illness.

Chronic illness behavior deserves special consideration because it requires the person to: 1) stay in treatment and comply with the regimen although not feeling sick, 2) take medication and follow a diet although no changes in health status are taking place, 3) follow treatment indefinitely, 4) comply with a treatment regimen in a setting that has minimal social and institutional support (Mikhail, 1981), and 5) modify lifestyle habits (diet and exercise) to reduce the risk of complications (Kasl, 1974).

Some authors (Baric, 1969; Kasl, 1974; Monahan, 1982) have labeled chronic illness behavior the "at-risk" role, in contrast to the "sick" role. The "at-risk" person is not institutionalized, is at-risk for complications of the disease for an indefinite time span, lacks feedback provided by a decrease in symptoms or change in health status, is continually threatened by decreasing function, and remains "at-risk" even while complying with treatment. Monahan (1982) suggests that features of the "at-risk" role need to be incorporated into the Health Belief Model to make the model more applicable to chronic illness behaviors.

Compliance is defined as "the extent to which the patient follows the provider's instruction and advice" (Sackett and Haynes, 1976) and is, therefore, an essential component in a model of chronic illness behavior. It is assumed by health care providers that compliance with the

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treatment regimen for chronic illness will lead to desirable health goals, such as reduction of risk factors associated with complications of chronic illness.

According to Kasl (1974) health beliefs relevant to the understanding and prediction of chronic illness behaviors include: 1) perceived threat components (susceptibility and severity), and 2) expected net benefit of action, that is, perceived effectiveness/benefits minus perceived costs/barriers. Kasl (1974) suggested that additional variables need to be addressed in the Health Belief Model for chronic illness behavior. These variables include: 1) social environment, 2) doctor-patient relationship, and 3) perception of symptoms and the social representation of illness and sick role. Kasl (1974) also emphasized the need for further studies to investigate factors that influence patient compliance and proposed that stress be one such factor.

This study, therefore, focuses on perceived social stressors because it is assumed that they are related to perceived barriers to dietary compliance. This assumption is consonant with Kasl's suggestion that the variables of social environment and stress may be significant factors influencing patient compliance. Social stressors, as defined in this study, are those circumstances or conditions that the individual generally considers to be problematic or undesirable (Ilfeld, 1976a). These stressors



are tied to the individual's social role and lifestyle and are usually repeated, rather than discrete, events.

Combining pertinent variables from the Health Belief Model related to preventive, illness, and sick role behavior, and incorporating variables suggested by Kasl, a conceptual model was developed for chronic illness behavior that includes the variables addressed in this study (see Figures 4 and 5).

The psychosocial variable of adult developmental stage (middlescence) may be a factor that modifies the individual's perception of social stressors. The perception of social stressors may, in turn, be related to perceived barriers to carrying out a regimen for a chronic health problem. These perceptions, then, are components of health beliefs that influence the likelihood of a person taking action to reduce the risk of complications and to control chronic disease through compliance with the therapeutic regimen.

#### Adult Life-Span Developmental Theory:

##### Middlescence

Adult developmental theory related to middlescence, particularly to middle-aged women, is germane to understanding the perceived social stressors examined in this study. The conceptual framework for middlescence used in this research will be that of Stevenson (1977). Many

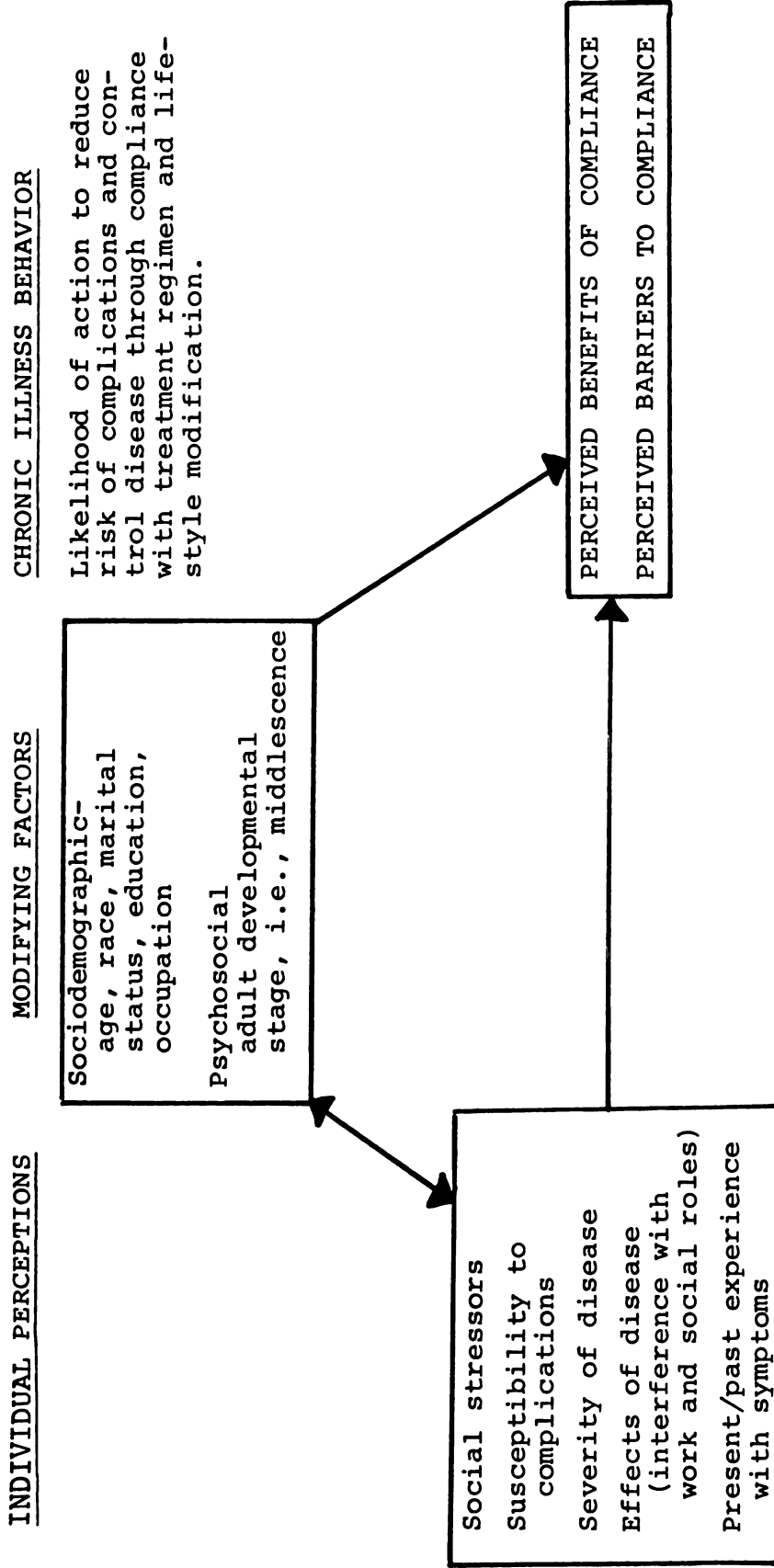


Figure 4. The Health Belief Model for chronic illness behavior. (Modified from the Health Belief Model for preventive health behaviors, illness behaviors, sick role behaviors, and recommendations for a chronic illness model by Stanislaw Kasl, in Becker, Marshall, (ed.), The Health Belief Model and Personal Health Behavior, New Jersey: Charles B. Slack, 1974.)

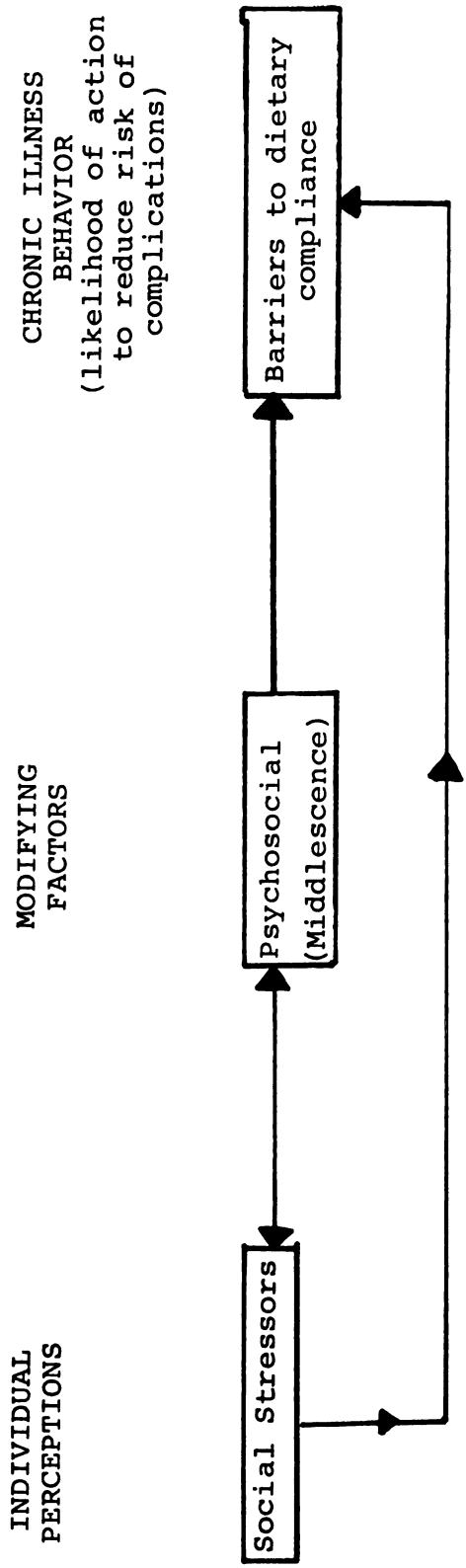


Figure 5. Conceptual model of study variables.

theories and empirical studies exist that deal with the developmental stages and tasks for children and adolescents. Theory related to adult development however, is in the early stages of accumulation and validation.

Stevenson's (1977) framework was chosen for this study because she synthesizes the ideas of theorists in adult development, incorporates systems theory and role theory in her framework, and specifically focuses upon issues and tasks of middle-age. Systems theory and role theory provide a relevant perspective for understanding the perceived social stressors of middle-aged women; potential social stressors are reflected in developmental tasks, dyadic role relationships, and the family as a social system.

Stevenson's (1977) model for middlecence is based on the theories and assumptions of Erikson (1959), Maslow (1970), Havighurst (1972), and Pikunas (1961) who were among the first to explain developmental tasks beyond adolescence and who sought scientific evidence that each decade of life has its own unique features, problems, and processes. Stevenson (1977) has incorporated into her model the work of behavioral scientists such as Levinson (1977), Neugarten (1968), and Gould (1975) who have done empirical studies that focused on middle-age.

Stevenson (1977) suggests that there are four major areas of experience that make up the adult's life space

and that these four are relevant to an understanding of issues related to the middle years. These four areas are: 1) work and leisure, 2) the family, including marital relationships and parenting, 3) community responsibility and participation, and 4) development of personal maturity.

Work is highly valued in North American culture and is an instrumental activity that many people use as a justification for their existence. Work is considered a source of identity and self-esteem for men. The commitment of women to work as a source of identity, rather than as an economic necessity, however, has not generally been addressed in the literature. Leisure is considered to be the antithesis of work because of cultural emphasis on the work ethic. Derivation of satisfaction from leisure time is identified by Stevenson (1977) as a developmental task in Middlescence I and Middlescence II.

Family includes the marital relationship and parental roles and there are several developmental tasks of middle-age that involve the individual acting out roles within the family. Community participation refers to the adult's participation in community life such as the adult's responsibility to direct, manage, and plan community life through government, business, and service organizations. Development of individual maturity is related to an individual's personal philosophy of life, self-concept, and goals. Maturity is viewed as a constantly changing process

by Stevenson (1977). Maturity at age 60, for example, implies that the individual is current in the developmental tasks of that stage of middlecence and will continue to mature as the next stage of adult development is reached. Thus, these four areas of experience that make up the adult's life space, as suggested by Stevenson (1977), are reflected in the developmental tasks for Middlecence I and Middlecence II and provide a perspective for examining social stressors associated with Middlecence.

Middlecence, according to Stevenson (1977), refers to "stages in life when adult life-style, occupational mode, and family life (or single-life patterns) have been chosen and the individual involved settles down to implement his/her choices" (Stevenson, 1977; pp. 17-18). Stevenson defines middle-age as encompassing the chronologic age span from 30 to 70 years of age and further divides this period, on the basis of available research, into two separate phases. Middlecence I forms the core of the middle years and includes ages 30-50; Middlecence II is termed the "new middle years" and covers the ages 50-70. (It may be noted that the ages are not mutually exclusive.) Stevenson acknowledges the early stage in the accumulation of knowledge regarding adult development and feels that Middlecence I and II will be further subdivided and re-defined as empirical evidence accumulates regarding transitional crises that occur between more specific ages.

Middle-age is defined in this study as ages 35-65 inclusive, based on the definitions of Stevenson (1977) and Havighurst (1972). It should be noted that there is no agreement on the definition of middle-age (in terms of chronologic years) in the literature.

Middlescence I is defined in this study as 35-50 years of age inclusive, while Middlescence II encompasses ages 51-65. According to Stevenson (1977), there are different transitions and developmental tasks associated with these two periods of middlescence.

An overview of the developmental tasks specific to middle-age, as synthesized by Stevenson (1977) from other developmental theorists, is necessary for an understanding of the perceived social stressors of middle-aged women. The developmental tasks are derived from marital relationships, parenting, finances, work, and retirement. These tasks may represent potential areas of social stress.

In the following section, developmental tasks marked with an asterisk (\*) are most relevant to the definition of social stressors used in this research. These developmental tasks reflect the social stressors measured in this study.

#### Developmental Tasks of Middlescence I (Stevenson, 1977):

The major objectives of this period are the "assumption of responsibility for growth and development of self and

of organizational enterprises, and provision of help to younger and older generations without trying to control them" (Stevenson, 1977, p. 18).

- \*1. Development of socioeconomic consolidation.
- \*2. Evaluating one's occupation or career in light of one's personal value system.
- \*3. Helping younger persons (biologic offspring) to become integrated human beings.
- \*4. Enhancing or redeveloping intimacy with spouse or most significant other.
- 5. Developing a few deep friendships.
- 6. Helping aging persons (parents, in-laws) progress through the later years of life.
- 7. Assuming responsible positions in social and civic activities, organizations, and communities.
- 8. Maintaining and improving the home or other forms of property.
- 9. Using leisure time in satisfying and creative ways.
- 10. Adjusting to biological or personal systems changes that occur (menopause, for example).

Developmental Tasks of Middlecence II (Stevenson, 1977):

The major objective during this period of middlecence is the assumption of primary responsibility for continued survival and enhancement of the nation.

- 1. Maintaining flexible views in occupational, civic, political, religious, social positions.
- 2. Keeping current on relevant scientific, political, and cultural changes/



- \*3. Developing mutually supportive (interdependent) relationships with grown offspring and other members of younger generation.
- \*4. Re-evaluating and enhancing the relationship with spouse or most significant other or adjusting to their loss.
5. Helping aged parents or other relatives progress through the last stage of life.
6. Deriving satisfaction from increased availability of leisure time.
- \*7. Preparing for retirement and planning another career when feasible.
8. Adapting self and behavior to signals of accelerated aging process.

Stevenson (1977) includes in her framework the experience of chronic illness and its potential effect on the developmental tasks in the middle years. Inclusion is based on the premise that chronic illness affects the entire family system and may produce major changes in family life. The middle-aged person with chronic illness may experience changes in the roles he/she occupies in the family; these role changes brought about by chronic illness have relevance for marital relationships and parenting roles and thus may represent potential conflicts and stressors. Therefore, role changes brought about by chronic illness are applicable to this research study.

A limitation of Stevenson's (1977) framework for mid-dlscence is that it does not specifically acknowledge or define the issues and transitions pertinent to women in the middle years. According to Barnett and Baruch (1979)

no theory of women in the middle years exists and the theoretical and empirical work concerning women in the middle years is weak. Two of the major theories of adult development, Erikson (1959) and Levinson (1977) reflect male experience.

Stevenson (1977) applies a systems perspective to her framework for middlecence. She suggests that the focus of systems theory in her framework is "a man and the groups and organizations that man creates in order to live out his life as a social being" (Stevenson, 1977; p. 43). The concept of social systems, therefore, underlies her definitions and descriptions of work and leisure, marriage and family, community and maturation.

Further, Stevenson uses social systems concepts to make generalizations about maturational and situational crises. "Maturational crises emanate from differentiable sets of variables in the individual and significant others and these tend to be closely tied at the subsystem level" (Stevenson, 1977; p. 48). Situational crises, on the other hand, emanate from variables at the suprasystem level, according to Stevenson. Since maturational crises refer to developmental transitions and tasks, the middle-aged woman may experience potential conflicts or stressors at the subsystem level, i.e., with spouse or children.

Using family as an example of a social system, Stevenson (1977) incorporates the requisites for a functioning

social system (adaptation to environment, integration of the parts, and decision-making about methods used to carry out the allocation of resources) into marriage and family problems that may confront the middle-aged individual. This view of family as a social system is a way of interpreting the middle-aged woman and her family or significant others as a social system; potential social stressors may be related to lack of adaptation to the environment, non-integration of the parts, or inadequate/improper decision-making about methods used to carry out the allocation of resources.

Stevenson (1977) uses Role Theory to refer to dyadic interpersonal relationships. Role concepts are used to describe the location of people and their activities in the four major areas of the life space -- work and leisure, community, family, and self. Role relationships are important to the development of humans as they live out their lives in social systems. Four dimensions that are inherent in every role dyad are: task, authority, affect, and deference.

A task is defined as "division of chores or jobs between members of the dyad (Stevenson, 1977; p. 50). Authority refers to the more powerful person in the relationship, while affect refers to the way in which the members feel toward each other. Deference is defined as "whose needs take precedence" (Stevenson, 1977; p. 51).

These four dimensions cover the range of potential conflicts that may occur in dyadic relationships as individuals occupy roles related to work, leisure, family life, and community participation. These dimensions therefore constitute significant issues to consider in understanding perceived social stressors of middle-aged individuals, particularly women and their relationships with spouse and children.

In summary, Stevenson's conceptual framework for midlife provides a relevant perspective for understanding the perceived social stressors of middle-aged women. Potential social stressors are reflected in developmental tasks, role relationships, and the family as a social system.

In the next section, nursing theory and nursing process will be discussed as a framework for examining the relationship between perceived social stressors and barriers to dietary compliance of middle-aged hypertensive women. Implications for nursing practice will also be presented.

#### Theoretical Framework for Nursing Process Model

Imogene King's (1981) theory of goal attainment provides a theoretical framework for the nursing process. This theory can be used to identify the perceived social stressors and barriers to dietary compliance of the middle-aged

hypertensive woman and to facilitate control of the client's blood pressure through goal-setting to decrease stressors, decrease barriers, and enhance dietary compliance.

An overview of King's theory will be presented. This overview will include a description of the conceptual framework from which her theory is derived, a definition of "man", health, nursing, and the theory of goal attainment. Last, the implications of this theory for nursing as applied to the study variables will be presented.

King (1981) suggests that a theory for nursing must include a way to study human beings interacting with their environment and an awareness of the complex dynamics of human behavior. To this end, King (1981) organizes a conceptual framework for nursing that serves as a building block for the development of her nursing theory.

Humans, groups of humans and their interaction with each other and with the environment, are the main foci of King's conceptual framework and theory. King (1981), therefore, utilizes a systems approach to study and understand human interaction. In her theory, King (1981) relates human beings and nursing to personal systems, interpersonal systems, and social systems (see Figure 6). She identifies and defines concepts within each of these three interacting open systems and specifies their relevance for nursing. A discussion of only the two concepts that apply to this study will be presented -- personal systems and

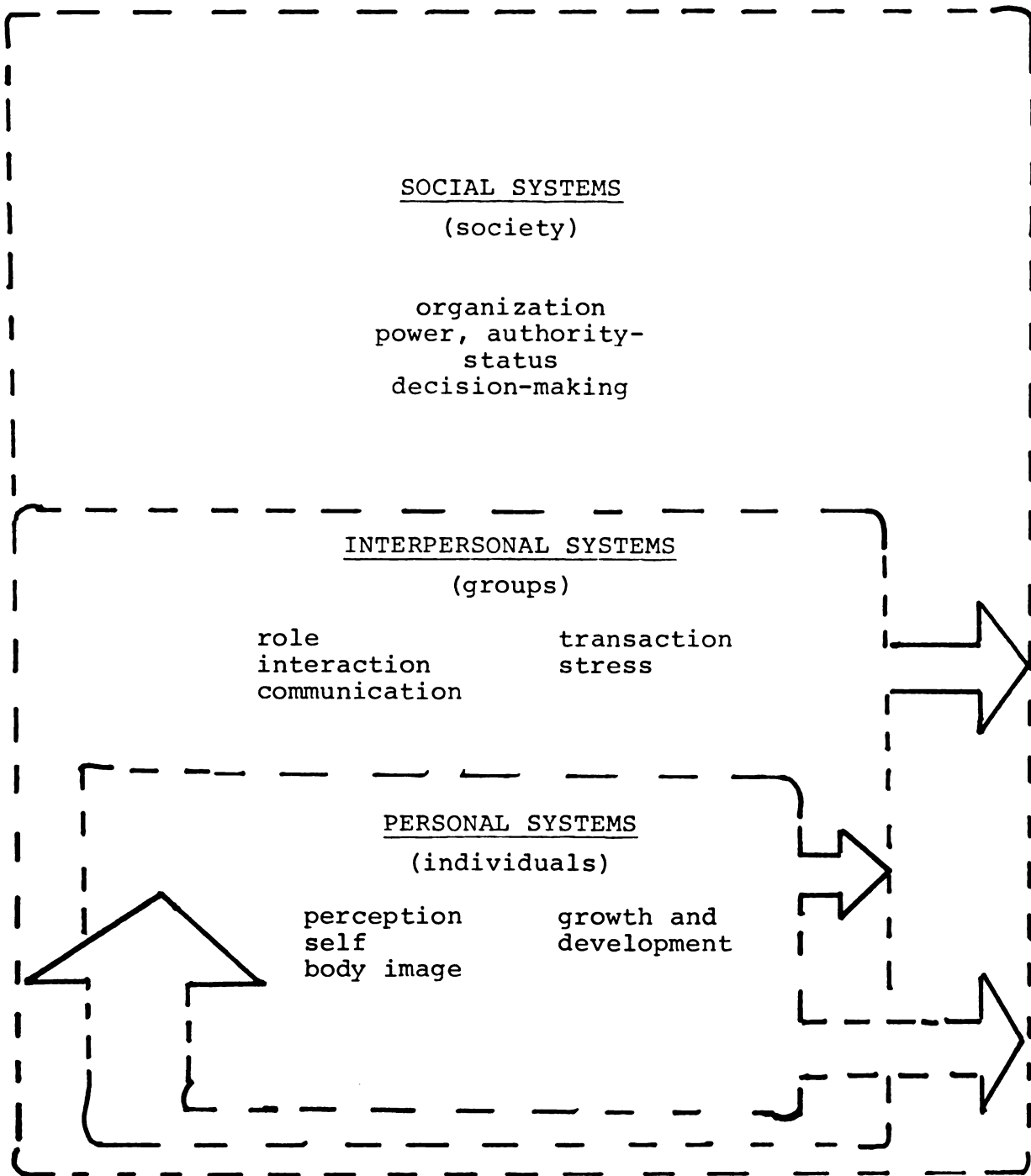


Figure 6. A conceptual framework for nursing: Dynamic interacting systems. (Adapted from: King, Imogene, A Theory for Nursing, New York: John Wiley and Son, 1981, p. 11.)

interpersonal systems.

King (1981) uses the frame of reference of personal systems to describe her assumptions about human beings as individuals and to help nurses understand humans as persons. King (1981) assumes that humans are social, sentient, rational, reacting, perceiving, controlling, purposeful, action- and time-oriented beings (p. 143). The concepts that King (1981) defines and uses to facilitate understanding of individuals as personal systems are perception, self, body image, growth, and development.

A perception is "each person's representation of reality; an awareness of persons, objects, and events and is related to past experience, concept of self, biological inheritance, education and socioeconomic group" (King, 1981; p. 20). Perception can further be defined as "a process of organizing, interpreting, and transforming sensory data and memory; it is a process of human transactions with the environment and gives meaning to one's experience and influences one's behavior" (King, 1981; p. 24).

Understanding the client's perceptions, according to King, is important to nurses because the client's perceptions serve as a basis for gathering and interpreting information and explain the person's behavior and interaction with others, i.e., behavior is an outcome of perceptions (King, 1981; p. 47).

King describes the concept of self as a "composite of

thoughts and feelings that constitute a person's awareness of his/her individual existence; it is the conception of who and what he/she is" (King, 1981; p. 27). Self is a dynamic, goal-oriented, open system. Identity crises arise when interference with self occurs.

Growth and development is a function of genetics, meaningful and satisfying experiences, and an environment conducive to helping individuals move toward maturity (King, 1981; p. 31). Involving cellular, molecular, and behavioral changes, maturity is the manner in which a person grows and develops and is influenced by other people in the environment. Growth and development represent processes that take place throughout people's lives and help them move from potential capacity for achievement to self-actualization (King, 1981; p. 31). Growth and development influence the concept of self.

Body image is a component of growth and development that in turn influences concept of self. Body image is defined as "a person's perception of his own body, reactions to appearance, and is a result of other's reactions to self" (King, 1981; p. 33). Crises in an individual's life, such as a diagnosis of chronic illness or an identity crisis, may disturb the person's perception of self and body image. Nurses need to be aware of perceived threats to body image, and how a person perceives his/her own body.



King emphasizes dyadic interactions between client and nurse and, therefore, focuses on human beings functioning in interpersonal systems, i.e., two or more people interacting in concrete situations (King, 1981; p. 59). Concepts that are essential to understanding interpersonal systems are communication, interaction, transaction, role, and stress.

Communication is verbal and non-verbal, situational perceptual, transactional, and irreversible (King, 1981; p. 169). It is the means used to share information and express goals and values. All behavior is communication; communication is the informational component of human interactions (King, 1981; p. 80).

Interactions are the acts of two or more persons in mutual presence and can reveal how one person thinks and feels about another (King, 1981; p. 85). Interactions are a process of perception and communication between persons and environment and between person and person represented by verbal and non-verbal behaviors that are goal-directed (p. 145). Interactions consist of two human beings collaborating to achieve a common goal (p. 85). The purpose of an interaction, therefore, is to help clients cope with a health problem, and it is during the interaction that interpersonal relationship between the nurse and the client are established.

Transactions are the process of interaction in which

humans communicate with the environment to achieve goals that are valued. Transactions are therefore goal-directed human behavior (p. 82; 147). Transactions are valued by an individual because the individual perceives the goal to be meaningful and worth achievement.

Role is a set of expected behaviors and is a relationship with one or more individuals interacting in a specific situation for a purpose. The role of the nurse is to use knowledge, skills, and judgment to identify goals and help the patient achieve goals (King, 1981; p. 93).

Stress is defined as a "dynamic state whereby a human interacts with the environment to maintain balance for growth and development and performance which involves an exchange of energy and information between person and environment for the regulation and control of stressors" (King, 1981; p. 98). Stress is the body's response to stressors. Nurses help patients to cope with stressors through the use of assessment tools to measure stressors in order to provide accurate information about what is happening to the patient. Also, nurses intervene with strategies to assist the individual to deal with the stressors.

King (1981) defines nursing as "perceiving, thinking, relating, judging, and acting vis-a-vis the behavior of individuals who come to the nursing situation" (p. 2). A nursing situation is "the immediate environment, spatial

and temporal reality, in which nurse and client establish a relationship to cope with the health states and adjust to changes in ADL if the situation demands adjustment" (King, 1981; p. 2). The nursing process (assessment, planning, implementation, evaluation) is used in the nursing situation.

King further defines nursing as a process of action, reaction, interaction, and transaction whereby nurse and client engage in purposeful communication, share perceptions, identify problems and specific goals, and agree to the means to reach the goals; the ultimate result is goal attainment (p. 2). Nursing is a process of human interaction between nurse and client.

The goal of nursing is to help individuals maintain their health so they can function in their roles (King, 1981; p. 4). The domain of nursing includes maintenance, promotion, and restoration of health, care of the sick and injured, and care of the dying. Nurses are concerned with helping individuals and groups of individuals attain, maintain, and restore health (King, 1981; p. 13). The functions of nursing are to teach, guide, and counsel individuals to maintain health and to help clients use their potential abilities to function as human beings (pp. 8-9).

Health is defined by King (1981) as the "dynamic life experience of a human being which implies continuous adjustment to stressors in the internal and external

environment through optimum use of one's resources to achieve maximum potential for daily living" (p. 5). Implicit in this definition is the manner in which an individual copes with the stresses of growth and development -- maturational crises and transitions. King's definition of illness has relevance for this study because she defines it as a "deviation from normal; an imbalance in the biological structure, psychological make-up, or conflict in a person's social relationships" (King, 1981; p. 5).

King's (1981) theory of goal attainment was derived from the conceptual framework of interpersonal systems. The nurse-client dyad is one type of interpersonal system and utilizes the concepts of interaction, perception, communication, and transaction as defined in her conceptual framework.

The basic assumption of King's theory is that client and nurse come together as an interpersonal system in a nursing situation and communicate information, set goals, and take action to attain goals. King's theory is therefore applicable to the variables in this study. This application of King's theory will be described in the next section (see Figure 7).

### Implications for Nursing

The nurse and client (middle-aged hypertensive female) come together in a dyadic/interpersonal system in a nursing

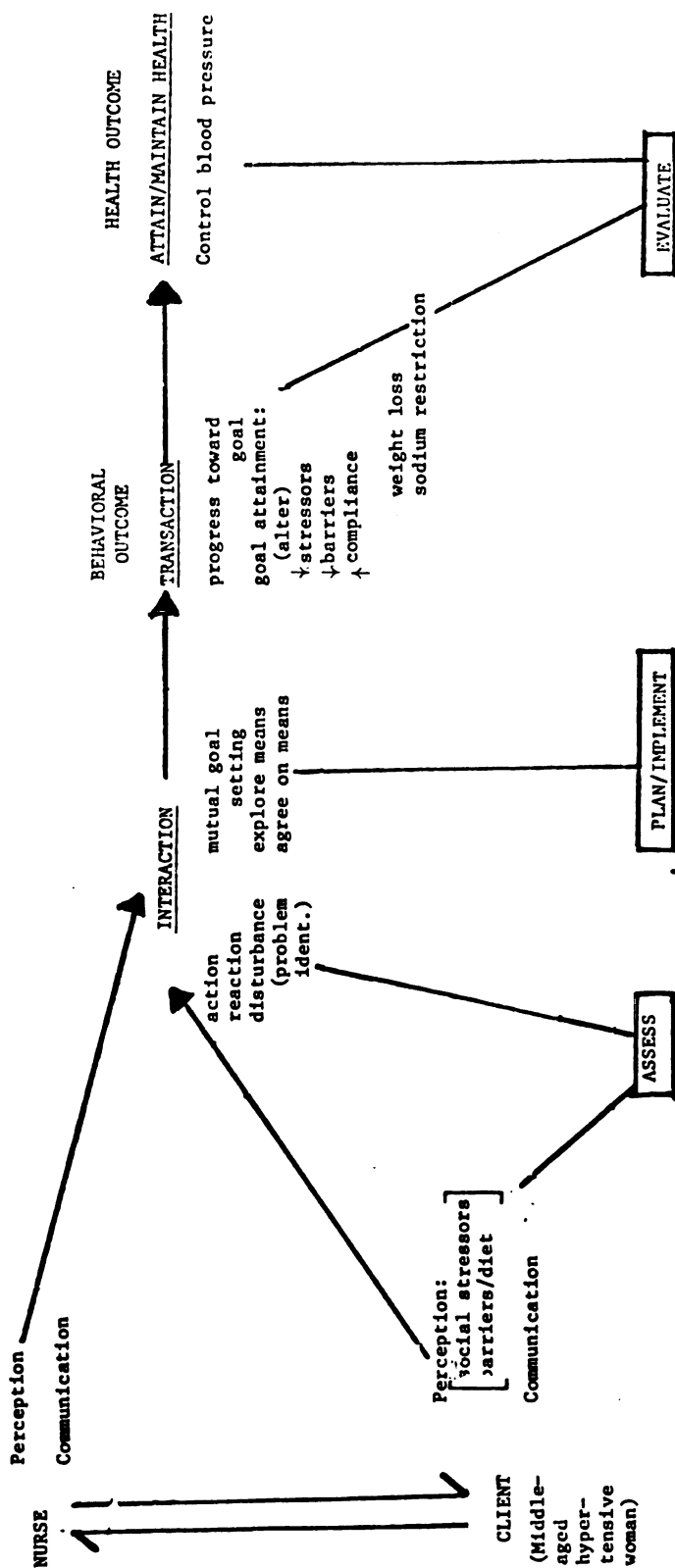


Figure 7. Nursing process model. (Modified from: King, Imogene, A Theory for Nursing, New York: Wiley and Sons, 1981, p. 145)

situation. The client is viewed and assessed by the nurse as a personal system. The nurse assesses the interaction of nurse and client using the framework of interpersonal system.

Both the nurse and the client bring their perceptions to the situation, i.e., their representation of reality, subjective world of experience, and method of organizing and processing information. Their perceptions influence their interactions with each other. The nurse gathers data relative to the client's perceptions regarding social stressors and barriers to diet; this assessment must be done before movement to the interaction phase. Mutual goal-setting depends on the perceptual accuracy of client and nurse and it is therefore necessary for the nurse and the client to share their perceptions with each other.

The role of the nurse in the nursing situation is to use the nursing process to help the patient attain/maintain health through facilitation of compliance and, therefore, control of hypertension. The nurse clarifies her role to the patient; there must be congruence between role expectations and role performance as perceived by the client and nurse in order to move to the interaction phase.

The client and nurse communicate with each other via verbal and non-verbal language and information is exchanged and interpreted. They share their frame of reference thereby paving the way for mutual goal-setting. Thus, the nurse

gathers information about the client's personal system: her perceptions, growth and development (tasks, roles), and concept of self. Information is given by the patient to help the nurse identify problems/concerns and the client and nurse share information that assists the individual in making decisions that lead to goal attainment.

In the interaction phase of the nursing situation, synthesis of perception and communication between nurse and client occurs and is represented by verbal and non-verbal behaviors that are goal-directed. The problem is identified and a nursing diagnosis is made on the basis of the nurse's assessment of the patient's perceived social stressors and barriers to dietary compliance.

In the interaction phase there is mutual goal-setting. Based on the client's perception of stressors and barriers the nurse assists the patient to set goals relative both to decreasing/managing stressors and to decreasing barriers, thereby enhancing dietary compliance to control hypertension.

The nurse and client explore means to achieve the goal, agree on the means to achieve the goals, and action is taken to implement the plan. The nurse may facilitate goal-setting and the means to achieve the goal through education, counseling, and anticipatory guidance. In the interaction phase, it is essential for the nurse and client to establish an interpersonal relationship in order

to facilitate goal attainment.

Once the nurse and client have identified problems based on the patient's perception, shared information through communication, have mutually set goals, and explored and agreed on the means to achieve the goals, transaction results. A transaction occurs when the goal is attained or progress is made toward achievement of the goal, that is, when expected outcomes are met. A transaction thus provides the nurse with a measure of the effectiveness of nursing care. If the goal is achieved - that is, stressors are managed, barriers are decreased, dietary compliance is facilitated, and hypertension is controlled - the nurse has helped the client attain and maintain health and achieve maximum potential for daily living. The client has been assisted to adapt to the stressors in the external environment, a dimension of health as defined by King (1981).

As stressors related to middle-age are identified and managed through education, counseling, and anticipatory guidance, the developmental process is enhanced and the client moves from potential capacity for achievement to self-actualization. As the goal is attained, patient satisfaction is increased, and learning, problem-solving skills, and coping abilities on the part of the patient are enhanced, thereby decreasing stress.

As applied to this research study, King's theory has several limitations. First, it is not clear where the



implementation portion of the nursing process occurs; this researcher has interpreted it to occur during both the interaction and transaction phases. Second, King includes the concepts of action and reaction in her theory of goal attainment model, but does not clearly define these terms or describe how they fit into the interaction phase. Last, King does not specifically relate the steps of the nursing process to her "process" for nursing which includes communication, interaction, and transaction. In Figure 8, this researcher has applied elements of King's theory to the steps in the nursing process.

In summary, the implications of King's theory for nursing as it relates to the variables addressed in this study are that nurses can identify the perceived social stressors and barriers to dietary compliance of the middle-aged hypertensive woman. By assisting the woman and her family to recognize developmental transitions and to manage those areas identified as social stressors, nurses can reduce the impact of the stressors related to middle-age and use the stressors to provide impetus for growth and change.

Nursing interventions may include counseling for marital conflicts, parenting, or job-related stress and collaboration with other health care providers. Through collaboration, nurses can assist other providers to be aware of the stressors associated with middle-age transitions.

NURSING PROCESS

KING'S THEORY

ASSESSMENT:

Nursing Diagnosis  
Perception of social stressors  
Perception of barriers to diet  
Developmental stage/tasks  
related to middlelence  
Concept of self (identity crisis?)

Communication  
Interaction-problem  
identification

PLANNING:

Set goals:  
↓ stressors  
↓ barriers  
↑ compliance  
Plan strategies to achieve goals

Interaction-  
mutual goal-setting  
explore means  
agree on means

IMPLEMENTATION:

Nurse educates, counsels patient  
and family  
Client and nurse implement means  
to achieve goals  
Nurse assists client to achieve  
goals

Interaction

EVALUATION:

Evaluate progress made toward goal;  
were outcomes achieved?

Transaction  
progress made toward  
goal or goal attained

Figure 8. Application of King's theory to Nursing Process.

Nurses may assist women to see the relationship between perceived social stressors and barriers to dietary compliance, as well as educating them regarding the importance of compliance for control of hypertension. By helping clients to problem-solve and set goals relative to removing barriers to dietary compliance, nurses assist clients to participate in the management of their chronic illness. In addition, nurses can enable other providers to recognize those factors that affect compliance (stressors and barriers), variables included in a Health Belief Model for chronic illness behaviors.

Attention turns in Chapter III to literature and research relevant to the perceived social stressors of middle-aged women, the applicability of the Health Belief Model to chronic illness behaviors, and barriers to dietary compliance.

## CHAPTER III

### REVIEW OF THE LITERATURE

#### Introduction

The literature review includes research studies and scholarly papers relevant to the major study variables: barriers to dietary compliance, middle-aged women, and social stressors. Research pertaining to the related concepts, the Health Belief Model and middle-agescence, will also be included. This literature review will identify major research findings and opinions of specialists relative to these concepts, as well as point out the limitations of the studies examined. The literature review will be presented in five sections: the Health Belief Model, barriers to dietary compliance, middle-agescence, middle-aged women, and social stressors.

#### Health Belief Model

Numerous studies have used components of the Health Belief Model to predict various health and illness behaviors and a sizeable body of literature exists concerning the

origins, limitations, and relevance of the model. This literature review therefore will be limited to a brief overview of Health Belief Model research and will focus on aspects of the model relevant to the variables addressed in this study. These relevant aspects include perceived barriers, and applicability of the Health Belief Model to chronic illness behaviors.

### Overview

The Health Belief Model is based upon Lewin's psychosocial theory of motivation (Maiman and Becker, 1974). This theory has proven useful in predicting the likelihood that an individual will engage in health-related behaviors.

Research studies using one or more of the variables included in the Health Belief Model have been done to predict specific types of health and illness behaviors which range from participation in screening programs (Haefner and Kirscht, 1970; Rosenstock, 1975), participation in immunization programs (Cummings, 1979), taking medication and keeping appointments (Becker, et al., 1972; Becker, et al., 1974; Hershey, et al., 1980; Nelson, et al., 1978), and use of medical and pediatric services (Becker, et al., 1977; Kirscht, et al.), to following a diet regimen (Becker, et al., 1977; Kirscht and Rosenstock, 1977).

The four components of the Health Belief Model which

are used as major variables in predicting these various behaviors are: 1) perceived susceptibility to the disease, 2) perceived severity of the disease, 3) perceived benefits of taking the health-related action, and 4) perceived barriers or costs of taking the action. Health Belief Theory (Rosenstock, 1966; 1974) postulates that the probability that a person will take a health-related action is a function of the person's perception of these four variables. Perceived susceptibility is the patient's perception of the likelihood of experiencing a particular illness and/or related complications. Perceived severity is the person's perception of the seriousness of the illness and related complications and the impact of these complications on his/her life should they occur. The individual also evaluates the proposed health-related behavior in light of the benefits of action which is the person's estimate of the health action's potential for decreasing susceptibility and/or severity and the barriers or costs of the action, which is the individual's estimate of problems related to engaging in the health-related behavior including financial costs, time, effort, inconvenience, pain, and side effects.

Several research studies have been conducted which have demonstrated the relationship between these four components of the Health Belief Model and various health-related behaviors. An overview of the studies involving

the variables of perceived susceptibility, severity, and benefits will be presented. Perceived barriers will be presented in a separate section.

Perceived susceptibility has been shown to be positively related to behaviors such as X-ray and check-up for tuberculosis, cancer, and heart disease screening (Haefner and Kirscht, 1970), medication-taking and appointment-keeping (Becker, et al., 1972; 1974), use of medical and pediatric services (Becker, Nathanson, et al., 1977; Kirscht, et al., 1976), and compliance with diet regimen (Becker, Maiman, et al., 1977; Kirscht and Rosenstock, 1977). Two studies demonstrated no relationship between susceptibility and taking medication (Hershey, et al., 1980; Taylor, 1979).

A positive relationship has been demonstrated between perceived severity and medication-taking and appointment-keeping (Becker, et al., 1972; 1974; Becker, et al., 1978; Nelson, et al., 1978; Taylor, 1979), check-up and X-ray for tuberculosis, cancer, and heart disease screening (Haefner and Kirscht, 1970), use of medical and pediatric services (Becker, Nathanson, et al., 1977; Kirscht, et al., 1976), and following a diet regimen (Becker, et al., 1977; Kirscht and Rosenstock, 1977). Hershey and associates (1980), in a retrospective study of 132 hypertensive patients, found no relationship between perceived severity and medication taking.

Perceived benefits have been found to be positively

related to check-up and X-ray for tuberculosis, cancer, and heart disease screening (Haefner and Kirscht, 1970), medication-taking and appointment-keeping (Becker, et al., 1972, 1974), use of medical services (Kirscht, et al., 1976), and following a diet regimen (Becker, Maiman, et al., 1977; Kirscht and Rosenstock, 1977). No relationship between perceived benefits and taking medication was found in studies by Becker and associates (1978), Taylor (1979), and Hershey and associates (1980).

### Perceived Barriers

Originally defined as the financial and psychological cost of taking a health-related action (Rosenstock, 1966; 1974), perceived barriers have not been measured as frequently as the other three components of the Health Belief Model. Operational definitions of perceived barriers have varied from study to study, depending on the specific outcome behavior being measured. Such behaviors have included taking medication, complying with a diet, keeping appointments, taking preventive actions, or utilization of a service.

Definitions of barriers have varied and have been operationalized as side effects of medication (Haynes, et al., 1976; Kirscht and Rosenstock, 1977; Nelson, et al., 1978), complexity of regimen (Haefner and Kirscht, 1970;



Haynes, et al., 1976), monetary cost of utilizing a service (Becker, et al., 1978), monetary cost of medication (Cummings, et al., 1982), pain, inaccessibility, and inconvenience (Becker, Nathanson, et al., 1977; Kirscht and Rosenstock, 1977), safety (Becker, Maiman, et al., 1977; Taylor, 1979), long duration of treatment (Haynes, et al., 1976), and family problems and social situation (Becker, Maiman, et al., 1977; Becker, et al., 1974).

Most studies utilizing barriers as a variable have found a negative relationship between perceived barriers and the dependent variable, the health-related action. For example, Becker, Maiman, and associates (1977) found a negative relationship between safety of a dietary regimen and mothers' adherence to a diet prescribed for their obese children. Taylor (1979), in addition, in an experimental study utilizing 128 male steel workers, found safety and side effects of medication to be negatively related to pill counts and patient self-reports as measures of medication compliance. Similarly, Nelson and associates (1980) interviewed 142 hypertensive patients attending the medical clinic of an urban hospital to evaluate their compliance with a treatment regimen and to obtain information on variables potentially related to compliance. Using patient self-report of medication-taking as a measure of compliance, Nelson and associates found distress experienced from side effects of medication to be a significant predictor of

non-compliance. Limitations of this study are that severe hypertensives were over-represented and self-report measures of compliance are subject to recall problems and questionable validity.

The negative relationship between side effects and safety of the treatment regimen to compliance was supported in a retrospective study by Hershey and associates (1980) of 132 hypertensive patients. This study used log linear multi-variate analysis and showed barriers to be one of three variables contributing independently to medication compliance. No relationship was found between patient compliance to antihypertension medication regimen and side effects of medication in a study by Kirscht and Rosenstock (1977).

Inaccessibility and inconvenience as barriers were found to have a negative relationship to mothers' use of pediatric clinic services for their children in a prospective study of 240 black women by Becker, Nathanson, and associates (1977). Compliance behaviors were defined as utilization of pediatric clinic services for a three-year period after health beliefs of the mothers were measured. Because the sample in this study was composed of black mothers of low socioeconomic status, generalizability is questionable. Inconvenience was not related to adherence to medication and diet in a study involving 132 hypertensive patients by Kirscht and Rosenstock (1977).

Becker and associates (1978), in a study of 111 low income mothers' medication compliance for the children's asthma, found the barrier of monetary cost negatively related to administration of the prescribed drug. Limitations of this study include the composition of the sample (low income mothers), and the fact that the mothers were interviewed while their children were being treated for an episode of acute asthma -- an acute situation may have affected the mothers' health beliefs. Monetary cost of medication as a barrier to compliance with medication-taking was also found in a group of hemodialysis patients in a study by Cummings and associates (1982).

Family problems and adverse social situation have been shown to be negatively related to compliance. Becker and associates (1972), using interviews with a random sample of 125 female adults (mothers or grandmothers) accompanying children being treated for otitis media with a 10-day regimen of oral antibiotics, described noncompliant mothers as reporting difficulty getting through the day, with few people to help or support them. Becker, Maiman, and associates (1977) evaluated Health Belief Model variables in terms of their ability to explain and predict 199 mothers' compliance with a diet prescribed for their obese children. Becker and associates also conceptualized barriers in this study and family problems and ease/difficulty of getting through the day. Results of this study showed family

problems and difficulty of getting through the day have a curvilinear relationship to compliance with diet; that is, having fewer difficulties at home has an enabling effect on compliance during the first few months of the diet, but decline in influence as the regimen continues.

Cummings and associates (1982) in a study of 116 hemodialysis patients' compliance with diet and medication, found that perceived barriers were the most significant predictors of most measures of compliance used in the study. Barriers were defined as lack of money (medications) and no time to prepare special foods (diet). Difficulty preparing special meals, being away from home, and food cravings were additional diet barriers reported by the patients in the sample. Cummings and associates also reported that perception of family problems was a significant predictor of compliance, but did not define family problems as a barrier per se.

In summary, consistent operational definitions of barriers were not used in the research studies reviewed. A need exists, therefore, to define barriers more consistently, and to examine other factors that may constitute barriers. Some of the variables studied in relation to compliance meet the criteria for definition of a barrier (such as impact on lifestyle), but were termed modifying or enabling factors and not barriers per se. This serves to confuse the conceptual usage of the term "barrier".

Also, barriers are defined differently for preventive behaviors, behaviors associated with acute or short-term treatment regimens, and behaviors associated with long-term compliance behaviors. There is a need to refine such variables as family problems, impact on lifestyle, and other psychosocial factors for inclusion into the category of "barriers." Lousteau (1979) suggests that the need to give up pleasurable activities constitutes a significant barrier to diet that has not been investigated to date. No studies were found that correlated specific types of stressors with barriers to compliance.

#### Applicability of the Health Belief Model to Chronic Illness

Many studies have utilized the Health Belief Model in focusing on preventive behaviors or illness behaviors related to treatment regimens of short duration. The Health Belief Model is limited in its utility for predicting behaviors associated with chronic illness and Kasl (1974) has stated the need to reformulate the model to make it more relevant for long-term compliance behaviors. According to Kasl (1974), empirical evidence for understanding chronic illness behaviors has not accumulated and the model omits such variables as social environment.

The classification of health, illness, and sick-role behavior included in the Health Belief Model is not particularly relevant to chronic illness behaviors. The

reason for this, according to Kasl (1974), is that it does not take into consideration the following factors related to chronic illness: 1) the "at-risk" status of individual -- the person feels well, but knows risk factors are present and this therefore falls between health and illness behaviors, 2) staying in treatment and complying with the regimen to decrease risk requires sick role behavior from a person who does not feel sick, requires medication even though no changes in health status are taking place, and requires being in treatment indefinitely, 3) prescription of treatment consists of alteration of personal habits; and 4) the treatment is less obviously medical and physician authority is more marginal. Further, different aspects of compliance may have different determinants (Kasl, 1974).

Expanding on the features of the "at-risk" role, Baric (1969) points out the characteristics of the role which are in contrast to the sick role: The "at-risk" person is not institutionalized, has only duties and no privileges, is at-risk for an indefinite time span, lacks continuous reinforcement, and lacks feedback provided by a decrease in symptoms or changes in health status. Agreeing with this view, Monahan (1982) further describes the person in the "at-risk" role as being continually threatened by decreasing function, having no hope of cure or recovery, needing to recognize that the complications of illness are undesirable,

having an expressed desire to comply with treatment, and remaining "at-risk" even while complying with treatment. Based on these points, then, the Health Belief Model variables would need to be expanded in order to understand factors related to modification of behavior to decrease risks associated with chronic illness.

Compliance with long-term therapeutic regimens takes on importance when applying the Health Belief Model to chronic illness behaviors. Compliance is defined as "the extent to which a person's behavior (in terms of taking medication, following a diet, and executing lifestyle changes) coincide with medical or health advice" (Haynes, Taylor, Sackett, 1979, p. XV). Unlike sick role compliance behavior which involves activities undertaken for the purpose of getting well, chronic illness compliance behavior requires actions that may involve modification of lifestyle and personal habits, requires these modifications indefinitely, and will result not in a cure, but in a decrease in the risk of complications.

The search for pertinent variables to include in the Health Belief Model as predictors of compliance with a treatment regimen for chronic illness has been attempted by some researchers. Kasl (1974) suggests that the relevant Health Belief Model variables are the threat components (perceived susceptibility and severity) and expected net benefit minus barriers. Few chronic illnesses, however,

have been utilized in the studies conducted thus far. These chronic conditions include obesity (Becker, Maiman, et al., 1977), hypertension (Andreoli, 1981; Hershey, et al., 1980; Kirscht and Rosenstock, 1977; Nelson, et al., 1978; Taylor, 1979), end-stage renal disease (Cummings, et al., 1982), and asthma (Becker, et al., 1978).

In a prospective experimental study to predict mothers' adherence to a diet prescribed for their obese children, Becker, Maiman, and associates (1977), revised and expanded the Health Belief Model from its original form. The Model was modified in the following ways: The category "health motivation" was added to represent differences in the degree of concern about health matters, and more general measures of vulnerability to and worry about illnesses were created to tap broader perceptions of health threat (susceptibility and severity). In addition, concepts of "feelings of control over health matters," "trust in doctors and medical care," and "intension to comply," were included. Demographic, structural, and enabling factors found to be predictive of compliance in other studies also were included as mediating variables in the revised model. Structural modifying factors included perception of the regimen's safety, complexity, cost, access, duration, and difficulty. These variables were previously defined as barriers in other studies. Also, family problems were conceptualized in Becker's study (1977) as a modifying



factor; this variable was not used in the Health Belief Model prior to this time.

While obesity is not considered to be a chronic illness per se, it is a health problem that represents risks to the individual and requires long-term modification in behavior and habits; thus it is relevant to include a study of obesity in the literature review of the Health Belief Model's applicability to chronic illness.

Using 182 subjects, a study by Becker, Maiman, and associates (1977) was conducted in a large ambulatory pediatric clinic at a major teaching hospital. Mothers of children newly identified by clinic physicians as obese were referred to the clinic dietician for nutritional counseling. After the physician diagnosis and counseling with the dietician, a one-hour interview was conducted with each mother. Data was gathered on general- and obesity-specific attitudes, health motivations, illness threat, benefits of diet, barriers to compliance, and control over health matters. Compliance behavior, the dependent variable, was defined as changes in the child's weight over a two-month period (ratio of weight change between visits to weight on initial visit every two weeks for two months for a total of four visits), and the mother's appointment-keeping behaviors.

Data from this study showed that the Health Belief Model variables of susceptibility, severity, and benefits

were positively correlated with the child's weight loss, and barriers were negatively correlated with compliance to the diet regimen as reflected in weight loss. These dimensions were shown to account for substantial amount of variance in the study's measures of dietary compliance and appointment keeping.

Limitations of Becker and associates' study (1977) included the fact that compliance was assessed via the child's weight loss over a two month period; two months is a relatively short period of time to study compliance behavior related to weight loss. It was also assumed that the mothers' health beliefs determined compliance; the children ranged in age from 19 months to 17 years, and the older children's health beliefs were not assessed. Finally, compliance was measured for only four visits; there was no follow-up on whether long term alteration in eating habits occurred, and there was not a follow-up or outcome assessment of health beliefs after the end of the four visits. Therefore, there is questionable application of Becker and associates' findings to long-term compliance behavior associated with chronic illness.

Becker and associates' (1977) study does, however, make a unique contribution to the literature on chronic illness. Their study expanded the Health Belief Model to include new variables more relevant to long-term compliance behaviors. Further, it provided a more convincing

type of correlational data because of its prospective nature, i.e., health beliefs were measured prior to the assessment of compliance. According to Becker, Maiman, and associates (1979) the data from the 1977 study show whether health beliefs precede compliance, thus providing a stronger indication of causality. Also, this was one of the first studies to examine factors associated with dietary compliance.

The conclusions reached in Becker, Maiman, and associates (1977) study was not supported by Taylor (1979). In a prospective study of hypertension patients, Taylor measured the health beliefs of individuals for whom the treatment regimen was prescribed for the first time and before the initiation of treatment began. Health beliefs were then compared with subsequent compliance. Taylor used a random sample of 128 male steel workers employed at a foundry whose diastolic BP was  $\geq 95$  mm Hg at their most recent company medical exam and on two subsequent BP readings. The interview, assessing patient perceptions of susceptibility, severity, and benefits of treatment, attitudes toward drug-taking, medical history, symptoms, and family and social relationships, was conducted during the screening phase before the diagnosis of hypertension was made and before medication-taking was initiated. Interviews were repeated six months after the patients were referred to the physician for treatment. Compliance was

assessed six and twelve months after initiation of treatment using pill counts and patient report. Pre-treatment health beliefs were then correlated with six and twelve month compliance with medication. Results showed that perceived severity was positively related to compliance, and that barriers were negatively related to compliance. No relationship between compliance and perceived susceptibility and benefits was found. More specifically, health beliefs that were assessed before the initiation of drug treatment did not predict compliance six and twelve months later. Health beliefs expressed six months after the initiation of treatment, however, were found to be consistent with compliance measures at the same point in time and also predictive of subsequent (twelve month) compliance.

Based on these data, Taylor (1979) found support for the hypothesis that health beliefs, instead of preceding and determining compliance behavior, develop along with compliance behavior as a result of experience with treatment gained by patients in the early weeks and months of treatment. Taylor concludes that assessment of health beliefs at the beginning of treatment is not likely to be helpful in predicting compliance.

Taylor's study has some limitations. The subjects were all male and the author acknowledges that the results may be peculiar to the treatment of an asymptomatic disease

rather than cure of an acute sickness. Taylor mentions family and social relationships as variables measured in the study but does not report findings on them. The study, however, did show changes in health beliefs developing with compliance behaviors, and the twelve month time frame is more applicable to chronic illness behaviors.

Kirscht and Rosenstock (1977) studied the relationships of health beliefs to compliance with medication and dietary regimen for treatment of hypertension. Using 132 patients of private physicians, the investigators interviewed the subjects to assess beliefs about susceptibility, severity, benefits, and barriers to taking medication and following diet. The age range of the sample was 50-59 years. Compliance was defined in this study as completion of follow-up appointments, report of side effects, and following the medical regimen as outlined with self-reports of medication and diet. Chart information regarding the filling of prescriptions was also used as a compliance measure. Kirscht and Rosenstock found that susceptibility and severity were positively related to compliance, while benefits and barriers showed mixed results -- negative or no relationship to compliance. Other variables such as reliance on physician and inability to control one's life events were negatively related to compliance.

Kirscht and Rosenstock concluded that, for the sample studied, the health belief measures utilized helped to

explain the current levels of compliance. The investigators acknowledged that theirs was a preliminary report of a long-term study. The researchers also stated that the patients' social situation was important in decisions to follow medical advice, but did not give data on assessment or operational definition of social situation.

In reporting on barriers, Kirscht and Rosenstock gave data on side effects, number of medications, and reported difficulty in following doctor's advice, but did not report on barriers related to diet such as convenience factors or effort required. Thus, a limitation of this study is that barriers related mostly to medication. Only half of the patients in the sample were following a diet (N = 60), so the sample is small. In addition, dietary compliance was assessed by self-report only and therefore subject to all the limitations associated with self-reporting. The sample was middle-aged, so generalizability of the results is questionable. Finally, since the study was retrospective, casality was not established.

Using 18 Health Belief Model dimensions as independent variables, Nelson and associates (1978) examined the relationship between the model variables and compliance with medication. Trained interviewers interviewed 142 patients selected from the outpatient department of an urban teaching hospital who were being treated for hypertension. Compliance was defined as blood pressure control, self-reported

medication-taking, and appointment-keeping. The results of this retrospective study showed that perceived severity and benefits of treatment, as well as impact of hypertension on lifestyle, made independent contributions to compliance.

This study expanded the Health Belief Model to include variables relevant to long-term compliance behaviors such as quality of life without hypertension, impact of hypertension on lifestyle, and anxiety level. The operational definition of compliance as blood pressure control is a more objective measure than those used in other studies. Nelson and associates (1978) concluded that the findings of their study support Kasl's (1974) contention that different aspects of compliance may have different determinants, i.e., in this study self-reported medication taking was correlated with perceived severity and age, whereas appointment-keeping was correlated only with age and employment status.

Nelson and associates acknowledge the following limitations of their study: 1) severe hypertensives were over-represented, 2) the interview was conducted by persons affiliated with the source of care (bias may have been introduced), 3) self-report data on medication-taking is subject to recall error and distortion and 4) retrospective design of study indicates data on patient perceptions was collected after compliance patterns were established.

An expanded version of the Health Belief Model was also used by Hershey and associates (1980) to analyze self-reported medication taking compliance behavior of 132 patients with high blood pressure. The Health Belief Model included variables similar to those used by Nelson and associates (1978). Subjects were randomly selected from a weekly hypertension program at a large urban hospital. The subjects were already under care in a hypertension program and had been prescribed one or more anti-hypertension medications. The patients were seen by nurse providers -- nurse practitioner or nurse in expanded role. Patients were interviewed by trained investigators and the interviews were conducted while patients were waiting to be seen by their nurse providers.

Demographically, half the sample was unemployed, with over one-half reporting family incomes less than \$5,000.00 annually; the average age of the subjects was 52. The study revealed that control over health matters was positively related to compliance, while dependence on providers, perceived barriers, duration of treatment, and others' non-confirming experience (knowledge of others with experience which did not confirm continued compliance) were variables negatively related to compliance. Log linear multivariate analysis revealed that control over health matters, perceived barriers, and duration of treatment contributed independently to patient compliance.



This study added new dimensions to the Health Belief Model; the researchers used the same variables (concern about health matters, vulnerability to illness) as Becker, Maiman, and associates (1977), and a few variables from the model proposed by Nelson and associates (1978) such as control over health matters, and support given by family. New variables such as dependence on providers, duration of condition, duration of treatment, satisfaction with providers, others' nonconfirming experience, and support given by providers were added.

The composition of the study sample, however, limits its generalizability; the subjects were middle-aged, with over one-half of the sample unemployed and low income. Also, 121 of the 132 patients were black. The effect of receiving care from nurse providers may have influenced the results. The health beliefs and compliance rates of patients being treated by nurse providers may be different from those of patients receiving care from physician providers.

A study to identify the psychosocial correlates of adherence to medication, diet, and limiting fluid intake was conducted by Cummings and associates (1982) on 116 hemodialysis patients between the ages of 21 to 76 years. This retrospective study was conducted in two outpatient hemodialysis clinics with patients who had received hemodialysis treatment for a minimum of three months. Interviews were

conducted by trained interviewers while the patients received their dialysis treatment at the clinics. The interviews assessed perceived susceptibility to the sequelae of noncompliance as well as compliance with taking phosphate-binding medications, dietary restriction, and fluid intake limitations. Perceived benefits to following diet and taking medication, barriers associated with following diet and taking medication, knowledge of regimen, complexity of regimen, support from family and friends, support from staff, and family problems were also assessed. Compliance was measured using patient self-report of the degree to which they were following the diet, taking medications and limiting fluid intake, and chart information regarding blood chemistry and weight gain between dialysis treatments.

Results of this study showed that for the self-report measures of compliance, beliefs about benefits, barriers, and reported family problems (extent to which patients viewed their illness as disruptive to family life) were the most consistent predictors. For medical chart information, predictive factors were less consistent. Situational factors seemed to be the major contributor to adherence. These findings support the assumption by Kasl (1974) and Nelson and associates (1978) that different aspects of compliance have different determinants.

The data from Cummings and associates (1982) do not

support the assumption inherent in the Health Belief Model that an individual decides to comply with a treatment regimen based on beliefs about probabilities of disease occurrence, severity of disease, and benefits of treatment. The investigators concluded that the situational aspects of compliance, i.e., barriers or costs of the action, may override the patient's knowledge and beliefs. This has great significance for chronic illness behaviors as it lends credence to the view that barriers may be the most significant factor related to compliance behaviors.

Limitations of this study by Cummings and associates (1982) include the fact that the patients in the sample were more obviously ill than hypertensive patients, their regimen has more limitations, and is more structured. Further, the health beliefs of people awaiting a kidney transplant may be different from those of people without "hope" of discontinuing dialysis.

Andreoli (1981) found no relationship between medication-taking and perceived susceptibility, severity, and benefits in a study of 71 male hypertensive patients enrolled in a hypertension clinic affiliated with a university school of medicine. Compliance was defined in terms of the patient's clinical record of diastolic blood pressure and clinic nurses' interpretation of the patients' status of compliance over a one-year period. Patients were categorized as compliers or non-compliers based on these measures.

Results of Andreoli's study showed no statistically significant difference in the scores on Health Belief Model variables between compliant and non-compliant patients. This study is limited by the fact that the sample was composed of male patients, 75% of whom were black. Also, the Health Belief Model variables used were those pertinent to predicting and explaining sick role behavior. Barriers were not measured, nor were other variables included such as family problems. The Health Belief questionnaire was developed by the investigator, who may have defined the concepts differently than other researchers.

Finally, the Health Belief Model was tested in a research study examining compliance with a medical regimen for asthma by Becker, Radius, and associates (1978). This prospective study utilized 111 mothers from a low income clinic population who brought their children to a pediatric emergency facility for treatment of acute asthma episodes. The children's ages ranged from nine months to seventeen years. The interview dealt with the mother's general health motivations and attitudes, and views about various aspects of asthma and its consequences. The Health Belief Model variables assessed were general health motivation, perceived illness threat, and benefits and barriers to compliant behavior. Two measures of compliance were used: laboratory verification of the drug's presence in the patient's blood, and self-report of the mother. Becker

and associates found that the mothers' perceptions of threat of illness (child's susceptibility to the illness and severity of illness) and difficulties associated with administration of medication were substantial predictors of adherence.

Limitations of this study include the composition of the sample -- subjects were mostly low-income and black. The interviews were conducted prior to the treatment for acute asthmatic episodes and the acuteness of the situation may have influenced the mothers' health beliefs. Also, the Health Belief Model was conceptualized in a different way than in the studies by Nelson (1978) and Becker, Maiman, and associates (1977). Lastly, this study measured the mother's health beliefs, even though there were older children in the sample (ages ranged from nine months to seventeen years -- adolescent patients' health beliefs would seem to have some influence on compliance).

In summary, the research studies utilizing the Health Belief Model to show a relationship between compliance behaviors in chronic illness and the various dimensions in the model have focused on only a few different types of chronic illness, with hypertension the most frequently studied disease. The model has been conceptualized in different ways in the various studies, with no two studies examining the exact same variables. Two of the studies concerned mothers' health beliefs relative to compliance

behavior in caring for obese or asthmatic children. Only two studies involved dietary compliance and no long-term studies were conducted to show how health beliefs change over time. Of the studies reviewed, three were prospective and four were retrospective; no convincing evidence exists, therefore, to show causality between health beliefs and subsequent compliant behavior.

The most significant predictors of compliance seem to be perceived barriers, susceptibility and severity. No studies were found that examined the relationship between specific stressors and compliance, although stress may have been implied in those studies that included variables such as family problems, and difficulty getting through the day. A need exists, therefore, to study other variables, particularly social-interactive variables to explain long-term compliance behaviors that are unique to the characteristics of chronic illness. Further, a need exists to continue to revise the Health Belief Model to make it more pertinent to the "at-risk" role. Finally, the samples in many of the studies were primarily black and low-income subjects. Two of the studies utilized female subjects only, and four studies had samples which were exclusively male. There have been no comparisons between male and female health beliefs.

Summary of the Literature Review of the Health Belief Model

According to Mikhail (1981), the empirical adequacy of the Health Belief Model, or the degree of agreement between theoretical claims and empirical outcomes, must be kept in mind when the results of studies that have utilized components of the model are interpreted. Past research has been inconsistent in reports of reliability and validity of the measures of the Health Belief Model variables (Cummings, et al., 1978; Maiman, Becker, et al., 1977). In addition, most studies to date have been subexperimental in design; correlations can be detected, but a causal nature cannot be estimated. That is, it cannot be determined which came first -- the beliefs or the compliance behavior. The prospective studies have generally not found correlations between health beliefs at the beginning of the treatment regimen and subsequent compliance as strong as correlations between health beliefs and concurrent compliance. Also, the relationship among the various health beliefs has not been fully explored. In addition, there has been no consistency in defining and measuring the Health Belief Model variables or in defining and measuring the dependent variables, compliance behaviors.

Perceived barriers is the Health Belief Model component most relevant to this study. It has been defined in a variety of ways in previous studies, depending on the

compliance behavior being examined; i.e., medication-taking, following a diet, or keeping follow-up appointments. Barriers have been conceptualized in a variety of ways in the Health Belief Model structure. Barriers have been conceptualized as enabling and modifying factors, as core perceptions, or as the likelihood of taking an action. The place of barriers in the Health Belief Model framework has depended on whether the Health Belief Model was used to explain preventive health action, illness behavior, sick role behavior, or chronic illness behavior. There is a need to define barriers more consistently and to examine other factors that may constitute barriers. A few studies have identified family problems and social situations as barriers, but there have been no studies found by this researcher that correlate social stressors with barriers.

Most of the studies have found a negative relationship between perceived barriers and compliance behavior; Cummings and associates (1928) concluded from their data that the situational aspects of compliance (barriers) may even be strong enough to override the patient's beliefs and knowledge.

The Health Belief Model has been limited in its usefulness for predicting long-term behaviors associated with chronic illness. Researchers have begun to address this important area, but few studies have been done. The chronic illness most consistently studied is hypertension.



One study has examined behaviors related to obesity and one study has utilized patients with end-stage renal disease. Three of the studies (Becker, et al., 1977; Hershey, et al.; 1980; and Nelson, et al., 1978) used an expanded version of the model to include more relevant variables related to chronic illness compliance behaviors. The variables of the model however, were not defined or conceptualized in the same manner.

Most of the studies of the Health Belief Model defined compliance as medication-taking and appointment-keeping; only two studies (Becker, Maiman, et al., 1977; Kirscht and Rosenstock, 1977) dealt with predictors of dietary compliance. Two studies by Becker and associates (1977; 1978) dealt with mothers' health beliefs related to compliance for regimens prescribed for their children. No long-term studies involving chronic illness behaviors have been done to assess stability or change of Health Beliefs over time.

Finally, the Health Belief Model needs to incorporate factors relative to the "at-risk" role since this role has characteristics vastly different than the sick role. Social-interactive variables need to be addressed and incorporated into the Health Belief Model to make it more relevant to long-term behaviors associated with chronic illness. This researcher found no studies relating social stressors to compliance behaviors. With the exception of Andreoli (1981) there is a dearth of research studies conducted

by nurses utilizing the Health Belief Model.

Future research related to the Health Belief Model, therefore, needs to establish validity of the measures, study the effects of time (prospective versus retrospective studies), and address other factors that may influence compliance behaviors such as coping style (Mikhail, 1981), interaction of family and friends (Davis, 1968), demands and stresses in the social environment (Kasl, 1975), impact of treatment of lifestyle (Nelson, et al., 1978), and degree of behavioral change (Haynes, 1976).

#### Barriers/Determinants of Dietary Compliance

Most research has focused on the measurement and determinants of compliance with medication. As the therapeutic value of dietary modification becomes increasingly important, particularly in the control of hypertension and reduction of risk factors associated with cardio-vascular disease, diabetes mellitus, and chronic renal failure, and because dietary non-compliance is thought to be higher than non-compliance with medication regimen (Glanz, 1980; Haynes, 1976), predictors of dietary compliance should become more prominent in research efforts.

This section will be presented in two parts: determinants of dietary compliance and barriers to dietary compliance. Recent studies which have used the Health Belief Model to predict dietary compliance will be discussed.

### Determinants of Dietary Compliance

Glanz (1980) in a review of the literature on dietary compliance, summarizes areas that have been studied as determinants or predictors of adherence to dietary recommendations. These predictors are: 1) demographic features of the patient, 2) features of the disease and treatment regimen, 3) social and psychological features of the patient, and 4) social and family influence. The review of the literature will be presented within the context of these four categories of predictors.

Demographic features of the patient have not been shown to be consistently associated with compliance or non-compliance (Haynes, 1976; Stone, 1961). Features of the disease and regimen, such as long duration, and alteration of personal habits, are precisely those factors cited in the compliance literature as being predictive of non-compliance (Becker, 1979; Haynes, 1976). More specifically, Glanz (1980) suggests that poor dietary compliance rates are due, in part, to the unique features of dietary regimens which differ from regimens for acute conditions in that they are: 1) restrictive -- the patient must incorporate new behaviors and alter or delete long-standing behaviors and habits, 2) dietary regimens control rather than cure, 3) dietary regimens continue indefinitely, and 4) the medical community is reluctant to manage nutritional disorders and therefore the patient does not receive

the ongoing support necessary to enhance compliance.

Becker and associates (1977) further contend that compliance with weight reduction diet is unusual in the class of health behaviors because: 1) the threat posed to health is not immediate but rather future-oriented, 2) a-proprate action may be taken for non-health related reasons such as body image and social acceptance, 3) even when identified as a health problem, obesity may not be regarded as an illness.

Longer duration of the disease and regimen has been associated with non-compliance among diabetics (Hulka, et al., 1975) and hemodialysis patients with end-stage renal disease (Agashua, et al., 1981). Several investigators have concluded that the extent to which a treatment regimen requires a change in a person's personal habits and lifestyle may affect his/her compliance level (Becker, 1979; Glanz, 1980; Haynes, 1976). Therefore, because adhering to a diet regimen necessitates altering habits and lifestyle, it may be assumed that this feature of the regimen is predictive of difficulties in compliance.

Social and psychological features of the patient which are related to dietary compliance include the patient's knowledge level, attitudes, and motivation. There is conflicting evidence regarding the relationship of level of knowledge about a treatment regimen to dietary compliance. Increased knowledge has been associated with increased

compliance in some studies. For example, Morse and associates (1979) used the Health Belief Model as a framework for studying mothers' compliance with physician's recommended feeding practices. One hundred thirty-one first-time mothers having only one infant under fifteen months of age participated in the study. The findings of this study showed the mother's nutritional knowledge was positively correlated with compliance scores for bottle-feeding mothers but not for breast-feeding mothers.

No relationship between level of knowledge and dietary compliance was found in a group of hemodialysis patients (Cummings, et al., 1982) and Kirscht and Rosenstock (1977) found in a group of 132 hypertensive patients that although a patient's understanding about the disease was not related to adherence to medication and diet, his/her awareness of the purpose of the regimen was.

Attitudinal and motivational features of patients with regard to dietary compliance have been studied using the Health Belief Model as a conceptual framework. The Health Belief Model has been successful in predicting mother's compliance with infant feeding practices (Morse, et al., 1979). Morse and associates employed the revised formulation of the Health Belief Model as utilized by Becker and associates (1977). Using self-reported compliance measures, Morse and associates found the attitudes "nutrition is important" and "concern for health" were more significantly

related to the compliance score than were the attitudes regarding illness susceptibility and vulnerability. This study utilized a sample of young mothers with healthy infants and instead of measuring compliance in terms of patients following a specific treatment regimen for a specific disease, it was the promise of immediate health and well-being for the infant as a result of following certain feeding practices which formed the basis for the pattern of responses.

Health Belief Model variables were predictive of mothers' compliance to diet for their obese children in a 1977 study by Becker and associates. Becker found positive correlations between compliance as measured by the child's weight loss and the mothers' perception of the child's susceptibility to illness, severity of the child's condition and future complications, and benefits of following the dietary regimen. Negative correlations were found between the mothers' perceived barriers to following the diet and compliance. In this study, dietary compliance was measured as the child's weight loss over a two-month period; weight was assessed every two weeks for two months for a total of four visits. To achieve standardization across patients, the study's major dependent variable was the ratio of weight change between visits to weight on initial visit.

Becker and associates' study (1977) measured mothers' health beliefs and followed the mothers and children for

two months only. There was no follow-up to determine if the weight loss continued until the child reached the recommended weight or if health beliefs changed over time, thereby permanently altering the child's eating habits. The children ranged in age from nineteen months to seventeen years, but there was no assessment of the health beliefs of older children and how these related to the mothers' health beliefs. Of the 182 adult women (mothers and grandmothers) who participated, all but eleven were black. The clinic from which the sample was drawn served a predominantly low income population, limiting the generalizability of the results.

Kirscht and Rosenstock (1977) utilized Health Belief Model variables to predict hypertensive patients' compliance to a low sodium, low calorie diet. These investigators reported initial findings from a long-term study. For a sample of 132 patients being treated by a private physician for hypertension, Kirscht and Rosenstock measured compliance with medication-taking and following a therapeutic diet. Dietary compliance was measured as the patient's self-reported ability to follow dietary recommendations. Of the 132 patients in the sample, only 44% (N = 60) were on dietary modification for hypertension. Collecting data via personal interviews with the patients, the investigators found a positive relationship between perceived susceptibility, severity, and benefits and dietary compliance,

but no relationship between perceived barriers and compliance. Feelings of dependence on the physician and a sense of personal control were other variables found to be related to a lesser degree to adherence. Persons who found it difficult to comply for "personal reasons" also exhibited a lesser degree of compliance. The researchers acknowledge that the compliance of patients in following dietary advice was less marked than was compliance in taking medication.

Kirscht and Rosenstock's study is limited in its findings regarding predictors of dietary compliance. The study was primarily concerned with medication compliance and only 60 patients were on a therapeutic diet, thus composing a small sample. Dietary compliance was measured via patient self-report and thus subject to all the limitations of such measures. In addition, many of the patients were under treatment for more than one condition and the majority had been diagnosed as hypertensive for more than five years. The retrospective nature of the study makes it difficult to determine causality relative to health beliefs and compliance.

Hemodialysis patients with end-stage renal disease were the subject of a recent study by Cummings and associates (1982). Using 116 hemodialysis patients from two out-patient hemodialysis clinics, the researchers interviewed the participants during the hemodialysis treatment about their health beliefs, knowledge, social support,



personal characteristics, and adherence to medication, diet, and fluid intake aspects of the regimen. Dietary compliance was measured using patient self-report and information obtained from the patient's medical chart regarding blood chemistry. Weight gain between dialysis treatment was used as an indirect measure of compliance with fluid restrictions. The patient's serum potassium level (SPL) was averaged over a period of two to three weeks. Six measures were obtained, three before, and three after, the interview. SPL was assessed routinely each time the patient came for dialysis. As part of the interview, patients were asked to rate the degree to which they usually comply with instructions about their diet and between-dialysis fluid limitations. Patients rated the direction and degree of their compliance on a seven-point rating scale, with responses ranging from "poor" to "excellent" compliance.

Cummings and associates' results showed that the magnitude of the relationship between predictors and compliance measures varied, depending on the method used to measure adherence. For self-reported measures of dietary compliance, beliefs concerning benefits of the behavior and barriers to the behavior, along with reported family problems, proved to be the most consistent predictors. (Family problems were defined as effects of the patient's illness on family life.) For the medical chart information (SPL and weight

gain), predictive factors were less consistent. The data showed a moderate correlation between perceived benefits and patients' serum potassium level. Perceived benefits of limitation of fluid intake were unrelated to the patients' between-dialysis weight gain. Knowledge of the purpose of the treatment regimen was unrelated to both the patient report and medical chart measures of dietary and fluid limitation compliance. The researchers interpret these results as an indication that adherence is a complex and multi-dimensional phenomenon with different factors predictive of different measures of compliance.

Cummings and associates (1981) acknowledge that medical chart assessment of serum potassium has the advantage of being unaffected by human judgments; serum potassium, however can be influenced by factors other than dietary compliance such as the degree of adequacy of the hemodialysis treatment. Self-report of the degree of dietary compliance is subject to sources of potential invalidity such as desire to report "good" behavior and difficulty of recalling instances of noncompliance. In addition, the features of the dietary regimen for hemodialysis patients are unique; patients with end-stage renal disease are in a more immediately life-threatening situation than hypertensive patients and the dietary regimen is more restrictive. Also, 28 patients in the sample expected to have a kidney transplant and their beliefs about benefits and

barriers to diet may have been different from those patients not expecting a transplant.

Bower (1982) also utilized Health Belief Model variables to predict dietary compliance of 40 hemodialysis patients during a six-month period. Using sodium, potassium, weight, and blood pressure as measures of dietary compliance, Bower's findings are in contrast to those of Cummings and associates (1982). Bower found that for this sample of hemodialysis patients, health beliefs did not contribute significantly to the physiological measures of compliance.

Glanz (1979), utilizing the Health Belief Model as part of a larger conceptual framework, conducted a pilot study to examine the effect of dietician's counseling on patient compliance with diet. Observational and interview data were collected on nine dieticians and twenty clients who were being counseled for normal and therapeutic diets in a variety of institutional settings. At the end of the counseling session, patients were questioned about health beliefs, the need for social support, and satisfaction with the counseling session. The counseling sessions were observed by the investigator and the dieticians and patients were independently asked to predict rates of compliance.

One month after the patient had seen a dietician for counseling, follow-up phone calls to the dietician and patient were made to assess dietary compliance, health

outcome, and health beliefs, and the patients were encouraged to talk about problems with their diet at this time. Dietary compliance was measured by patient self-report or the dietician's estimate of patient behavior, as well as by health outcomes such as weight loss and decreased blood pressure. The compliance measures were individualized because the patients were following a variety of regimens; a set of questions was developed which was adapted to each patient's regimen. Of the twenty patients, thirteen were on a weight reduction diet, and some were on two or more dietary regimens.

A unique feature of Glanz' study is that she measured the dietician's background, attitudes, and behavior. This is the only study found by this researcher which incorporates characteristics of the provider. Glanz found that dieticians with higher OSI (orientation to social influence, i.e., an awareness of changes that can occur in one person through the action of others) used more influence strategies, involved patients in counseling sessions more, and tended to have patients with more appropriate health attitudes and behaviors. Glanz interprets this finding as evidence of the importance of patient-provider interaction in influencing dietary compliance.

Glanz also found that patient disclosures of dietary non-compliance varied, depending on the questions asked and concluded that simple "yes" or "no" answers are

inadequate for clinical assessment of compliance and that interviewing skills and careful probing are necessary. The study, however, has limitations that are acknowledged by the researcher. The sample size is small, and the attitude and behavior measures at one month follow-up could be explained by experience with the regimen. Further, the question remains whether following the diet affected health beliefs or vice versa. In addition, Glanz did not report on the Health Belief components related to dietary compliance. Patients were categorized as either "high" or "low" on health beliefs and thus the health beliefs were not reported in a manner similar to other studies that have used Health Belief Model variables related to dietary compliance.

Other determinants of dietary compliance cited in the literature are social influence and behavior modification. With reference to social influence, most studies have examined the positive value of groups in changing eating behaviors (Templeton et al., 1978). The importance of the family in patients' dietary compliance has been supported (Becker and Green, 1975; Donabedian and Rosenfeld, 1964; Haynes, 1979). In an early study, Davis (1968) concluded that patient compliance was modified by interaction with family and friends. That is, stability in the family and home environment was positively correlated with dietary compliance, while family discord was correlated with

decreasing compliance levels. A more recent study by Cummings and associates (1982), however, found that measures of support from family members and friends were not related to compliance measures.

Behavior modification has proven useful in weight reduction regimens (Abramsen, 1973; Stuart, 1967). According to Glanz (1980), however, most research has added little to the understanding of compliance rates or determinations of dietary compliance. Interventions based on psychological and group methods yielded compliance rates ranging from zero to twenty-eight percent (Strunkard, et al., 1970).

#### Barriers to Dietary Compliance

Barriers to dietary compliance is defined in this study as the expressed beliefs and attitudes of patients concerning the financial, social, or psychological cost of following a provider's advice regarding dietary recommendations (Sackett and Haynes, 1976). Barriers to diet are therefore those problems the patient perceives as preventing him/her from complying with diet (Rosenstock, 1974).

There is inconsistency in the definitions and measurements of barriers to dietary compliance. Glanz (1979) suggests barriers to diet may be defined as interference with family habits, cost of food, lack of access to proper food, and the skill, time and effort necessary to prepare food. Glanz, however, does not operationalize these dimensions

in her study.

Kirscht and Rosenstock (1977) defined barriers as factors related to economics, convenience, side effects, and efforts necessary for compliance. Kirscht and Rosenstock's study dealt with medication and dietary compliance and the barriers related mainly to medication compliance. Becker and associates (1977) defined barriers to dietary compliance for mothers of obese children as safety of the regimen, difficulty in affecting the child's weight, prior experience with diet, ease of diet compared to others, family problems, and ease or difficulty in getting through the day. Cummings and associates (1982), in defining barriers to diet for hemodialysis patients, operationalized barriers to following diet as no time to prepare, craving for foods not allowed in diet, being away from home, and difficulty in preparing special meals. Barriers to fluid restriction included "too strict", getting thirsty, and problems with always having to measure the amount of fluid one can drink.

Barriers were negatively related to dietary compliance in studies by Becker, Maiman, and associates (1977) and Cummings and associates (1982). Cummings and associates (1982) reported that perceived barriers were the most significant predictors of most measures of compliance to diet. These findings are not supported by Kirscht and Rosenstock (1977) who found no relationship between dietary compliance and barriers.

While a few studies have addressed family problems and personal problems as barriers (Becker, et al., 1977; Cummings, 1982) no studies were found that correlated social stressors and barriers to dietary compliance.

#### Summary of Literature Review of Determinants/Barriers to Dietary Compliance

Knowledge and sociodemographic characteristics of patients have not been found to be consistently related to dietary compliance. More reliable determinants of compliance are features of the disease and treatment regimen with changes in lifestyle and personal habits being predictive of non-compliance. Health Belief Model variables of perceived susceptibility, severity, and benefits are positively correlated with dietary compliance, while perceived barriers are negatively correlated with dietary compliance. One study (Kirscht and Rosenstock, 1977) showed no relationship between barriers and dietary compliance, and one study (Bower, 1982) showed no relationship between any of the Health Belief Model variables and dietary compliance. Family problems were negatively correlated with patient compliance in two studies (Becker, Maiman, et al., 1977; Cummings, et al., 1982) and no relationship was found between support from family and friends and compliance in a study by Cummings and associates (1982). Characteristics of the patient-provider interaction was



related to compliance in a recent study by Glanz (1979). It seems that attitudinal and motivational features of the patient are most significant in predicting dietary compliance.

There has been no consistent definition and measurement of barriers to dietary compliance in the studies reviewed and the place of barriers in the Health Belief Conceptual Model has varied. While barriers have been shown to be negatively related to compliance, few of the studies have examined family problems and other social-interactive variables. No studies were found that correlated social stressors and barriers.

In general, few studies have been conducted that have analyzed the determinants of dietary compliance. A need exists to examine the sociobehavioral determinants of dietary compliance, to expand the definition of barriers, and to ensure the consistency of the definition and measurement of barriers across studies. Such consistency may be difficult, however, because the barriers for the various types of dietary regimens may be different.

Dietary compliance is such a problem because people must relinquish undesirable patterns of behavior as well as learn new ways of eating. As Hertzler and Owen (1976) contend, studies have not succeeded in explaining how and why food habits change, and the study of food habits should be placed within the context of family relationships. Glanz (1980) agrees that a promising approach is

one that takes into account social and family influences.

According to Glanz (1980) much of the data regarding dietary compliance is of poor quality and difficult to interpret. There is a noticeable lack of data on dietary compliance in published reports of chronic illness behavior. Different methodologies and criteria for dietary compliance may account for the lack of good quality, meaningful data.

There have been differences in the measurement and quantification of dietary compliance. Both direct measures such as biochemical determinations of blood or urine (Cummings, et al., 1982) and indirect measures based on health outcomes such as weight loss (Becker, Maiman, et al., 1977) have been used. Glanz (1980) states this inconsistency in measuring dietary compliance stems from variations among dietary regimens for different conditions and individuals, as well as problems of objectivity.

Patient self-report is yet another method that has been used to determine dietary compliance (Kirscht and Rosenstock, 1977). Patient self-report is a measure acknowledged by some investigators to grossly exaggerate compliance (Gordis, 1976). A few researchers, however, contend that valid assessments of dietary compliance can be obtained through patient self-report, depending on what questions are asked and how they are asked (Glanz, 1979; Kirscht and Rosenstock, 1977). Cummings and associates

(1982) reported the magnitude of the relationship between predictors and compliance measures varied, depending on the method used to measure compliance.

The statistical reliability of measurement tools used in assessing dietary compliance has been questioned by Glanz (1980); she recommends development of standardized regimen-specific criteria and scoring procedures to achieve a more unified approach to dietary compliance, thereby increasing comparability.

Finally, there is a lack of nursing literature related to dietary compliance. Nursing literature has dealt mainly with educational approaches to enhance patient knowledge related to diet (Grim and Grim, 1981; Hill, 1979; Linde and Janz, 1979) even though research has shown no consistent relationship between patient knowledge and dietary compliance.

### Middlescence

For the purposes of this study, Middlescence is defined as a developmental phase in the adult life cycle encompassing ages 35-65 inclusive. This definition is based on an adaptation of the definitions of middle-age by Havighurst (1972) and Stevenson (1977). "There is no single definition of middle-age that is used throughout the theoretical, empirical, or popular work on middle-age" (Targ, 1979; p. 377).

Relatively little research has focused on middle-age as compared to the other age groups. However, increasing attention is being placed on this stage of adult development due to: 1) increased longevity and the decreased proportion of one's life being spent in parenthood, and 2) the recognition that the phase of adult development from ages 30-60 is unique in its own right with its own problems, transitions, and challenges (Medinger and Varghese, 1981).

A general overview of the stressors and transitions that usually occur in middle-age will be presented for the purpose of placing in context the issues that are most pertinent to middle-aged women. This section will describe two conceptual models of middle-age, as well as the "marker" events and developmental tasks that generally occur during middle age.

#### Conceptual Models of Middle-Age

According to Rossi (1980), two perspectives can be identified in the life-span framework of adult development. These two perspectives are the normative-crisis/transition model and the timing-of events model. This section will place these two views of adult development in the context of middle-age, discussing empirical works and papers presented to illuminate each model.

The normative crisis/transition model proposes that stress is inherent in developmental transitions and that

each transition has the potential for crisis. Several authorities in adult development hold this view, pointing out that there can be alternating periods of crisis and stability throughout middle-age (Levinson, 1977; Lowenthal, et al., 1975; Sheehy, 1976; Stevenson, 1977).

Using the biographical method to study 40 men in the "mid-life" decade (ages 35-45), Levinson (1977) identified the Mid-Life Transition as a stage occurring in the lives of all men. Levinson interviewed each man in his sample five to ten times for a total of ten to twenty hours. The aim of the interviews was to view the subject's life patterning at a given time as well as over time. Men were selected from four occupational categories and the sample varied greatly in life situations.

Levinson also drew a secondary "sample" of men whose lives were described in biographies, autobiographies, plays, and novels. Levinson utilized professionals in psychiatry, sociology, and psychology to collaborate in constructing the study, thereby utilizing a multidisciplinary approach.

Based on the concept of individual life structure, Levinson's work refers to the patterning of the individual's life at a given time. The life structure has three aspects: 1) sociocultural world, 2) roles in the sociocultural world, and 3) aspects of self, both expressed and inhibited. Levinson viewed adult development as the evaluation of the life structure which goes through a sequence

of alternating stable periods and transitional periods. According to Levinson, stable periods, lasting six to eight years, relate to the time when the primary developmental task is "to make certain crucial choices, build a life around them, and seek to attain particular goals and values" (Levinson, 1977; p. 100).

The primary developmental task of the transitional periods, which last four to five years, is to "terminate the existing structure and to work toward the initiation of a new structure; this requires a man to reappraise the existing life structure, to explore various possibilities for change in the world and self, and to move toward the crucial choices that will form the basis for a new life structure in the ensuing stable period" (Levinson, 1977; p. 100).

The results of Levinson's study indicate that there is a major transitional period in adult development -- the Mid-Life Transition, which starts at age forty and lasts four to six years. This transition serves as a developmental link between early and middle adulthood. For about 80% of Levinson's subjects, this period "evokes tumultuous struggles within self and with the external world -- it is a time of moderate or severe crisis, but a great opportunity for change and growth" (Levinson, 1977; p. 107).

Levinson suggests that the required work of middle adulthood is different from youth in the following ways:

there is greater responsibility, perspective, and judgment in middle-age along with the care of older and younger adults, and there is decreased biologic capacity and increased psychosocial capacity to contribute to the maintenance and development of culture.

Levinson's research results are limited in generalizability by sample characteristics - all male, white, and middle-class - and by size. Levinson narrowly defined middle-age as the years between 35 to 45. The terms used by Levinson are rather abstract and difficult to understand, particularly components of the life structure. According to Rossi (1980) Levinson proposes a highly specified timetable as a general characteristic of men's lives; this timetable represents a close articulation between men's psychological development and chronological age, and individual differences in development are not addressed.

Levinson's study does make a contribution to adult developmental theory and has implications for understanding women's development during middle adulthood. More research is needed to determine if women's Mid-Life Transition occurs at the same period, whether a woman's career may affect her transitions, and if married, how her husband's Mid-Life Transition affects her.

Building on Levinson's work, Layton and Siegler (1978) contend that there are external and internal events working simultaneously that impinge upon the developmental

transitions in mid-life. External events are the "marker" events of middle-age such as the last child leaving home and care of aging parents. Internal events refer to Levinson's concept of the individual life structure -- the gradual unfolding of the individual's internal state. Layton and Siegler theorize that the following elements are necessary for understanding mid-life transition: 1) identity (organized set of self-conceptions), 2) efficacy (competence and mastery which leads to self evaluation, marker events sometimes acting as stimuli) and 3) evaluation through comparison (comparison of present state to past and expected states).

According to Layton and Siegler, mid-life is especially susceptible to evaluation through comparison. That is, marker events characteristic of middle-age, such as the last child leaving home, may be the stimulus that leads to one's self-evaluation of role change and comparison of present state (no longer an "active" parent) with past states ("active" parent) and expected states ("nothing to do" or "freedom to do many things"). Layton and Siegler assert that it is the assessment of efficacy (self-evaluation leading to a sense of competence and mastery, or lack thereof) which is of greatest importance in generating a crisis in middle-age.

Sheehy (1976), using a method similar to Levinson (i.e., conducting interviews on biographies of 115 lives),



concludes that there is a predictable period of depression, disequilibrium, and stagnation as men and women enter the transition to mid-life (35-45 years). Sheehy believes women's stages occur at different times than men's and this time difference may cause a crisis in relationships. Sheehy also believes the mid-life woman picks up personality parts that were earlier suppressed and outgrows parts that no longer fit. Sheehy's study must be interpreted with caution since she is a journalist and her study is considered to be lay literature rather than a scholarly effort. Because her sample included both men and women, however, and because her data were collected through open-ended interviews, the study does make a contribution to the understanding of changes that occur through the adult life course.

Some authors hold the view that middle-age is a crisis because of the individual's perception and interpretation of the events in middle-age (Pruett, 1980) and that these crises may affect the individual's health (Diekelmann and Galloway, 1975). Medinger and Varghese (1981) contend that the stress and crisis of middle-age results from "the need to integrate newly differentiated aspects of experience which cannot be integrated within an existing cognitive system of beliefs and values" (Medinger and Varghese, 1981; p. 247). This view is in agreement with that of Levinson (1977), Layton and Siegler (1978) and with

Sheehy's (1976) statement that women pick up personality parts that were earlier suppressed and outgrow parts that no longer fit.

Mid-life will be a crisis if several problems occur at once (Brim, 1976) or if an event occurs which is "off-time" in terms of age, such as early widowhood for example (Neugarten, 1976).

In contrast to the normative-crisis model of middle-age, the timing-of-events model postulates that it is the timing of events in the life cycle which is important. Neugarten (1976) is the main proponent of this model. She contends that "off-time" events are more likely to cause stress and crisis than those events which are "on-time". The reason for this, according to Neugarten (1976) is that there is more likely to be anticipatory socialization for "on-time" events. Chronological age is not a time marker; middle-aged people should look to their positions within different life contexts (physiological changes, career, family) for the primary cues in clocking themselves.

Barnett and Baruch (1978) support the timing of events model, especially for women. The variations in women's lives, particularly with respect to new and changing roles, make it unlikely that chronological age should be viewed as the central variable.

"Marker Event"/Developmental Tasks of Middle-Age

This section will address events and changes that are characteristic of middle-age. A discussion of developmental tasks will be presented, followed by an overview of the marker events of middle-age related to marital relationships, parenting, self-concept, and life satisfaction. A more in-depth analysis of these events will be discussed relative to women's experience in the next section.

Developmental tasks for middle-age have been theorized by several authors. Havighurst (1972) defines a developmental task as the prescriptions, obligations, and responsibilities that are thought to produce healthy, satisfactory growth in our society. Generally, development tasks for middle-age have been identified as: concern in establishing and guiding the next generation, and basic acceptance of the meaningfulness of one's life (Erikson, 1968); anticipation and adjustment to physical and mental changes, development of new satisfactions with spouse, finding new occupational satisfaction, increasing social and civic responsibility, and making satisfying and creative use of leisure time (Stevenson, 1977; Pikunas, 1968).

Specific marker events or transitions that occur in middle-age affect the marital relationship. There is conflicting evidence in the literature relative to marital satisfaction. Pineo (1968) via interviews with 1,000 couples who had been married 20 or more years, found

decreased satisfaction and adjustment within the marital relationship. Glenn (1975), in contrast, found middle-age or postparental couples rated this time period in their marriage as equally satisfactory to or more satisfactory than marital life in the parental years. Rollins and Feldman (1970) obtained data from 799 middle-class couples and concluded that for men, marital satisfaction was influenced by events before and after children, while women were more influenced by the presence of children.

A role reversal takes place during the middle-age years. Men become more sensual and affiliative and less interested in mastery than in personal satisfaction and fulfillment; females become more assertive and aggressive (Neugarten, 1968a; Lowenthal and Chriboga, 1972; Lowenthal, et al., 1976; Levinson, 1977). Zube (1982) reviewed research on changes in middle-age that may affect marital harmony. She concluded that different directions are taken by men and women relative to their goals, values, and patterns of social interactions. These divergent directions produce the potential for conflict between husband and wife which can be buffered by reliance upon each other for companionship and love and increased interest in affective bonds as work roles are lost and reduction of family size and responsibilities occur (Lowenthal, et al., 1975). Some couples grow further apart in middle-age if shared interest in children has been their only bond (Hess and

Waring, 1978). Thus, new roles and relationships in marriage during middle-age could lead to either conflict or increased satisfaction.

Relative to parenting, there is some disagreement in the literature regarding the quality of life in the post-parental or "empty nest" period that has come to characterize middle-age. Early research found this stage when the last child leaves home to be an unhappy period (Deutscher, 1968), while more recent literature has viewed it as a happier, freer time (Glenn, 1975; Palmore, 1979; Troll, Miller, and Atchley, 1979).

Self-concept and personality undergo changes in middle-age. New perceptions of self occur with role changes (parent to grandparent, for example) and there is a structuring and restructuring of experience (Neugarten, 1968a). Middle-age persons tend to become "self"-oriented rather than "other"-oriented (Diekelmann, 1975), develop an increased self-awareness and engage in introspection, and "stock-taking" (Neugarten, 1968a). In addition, middle-age is a time when people become more tolerant of self and others (Gould, 1975; Medley, 1980; Neugarten, 1968b) and changing their perception of time, viewed it as time "left to live" (Medley, 1980; Neugarten, 1968a).

There have been contradictory findings regarding life satisfaction in middle-age. On the positive side, middle-age has been viewed as a time of: 1) new personal freedom

and increased control over one's personal and social environment (Neugarten, 1968b; Sheehy, 1976), 2) expanding family networks and social roles such as grandparenthood (Neugarten, et al., 1965) and 3) increased income and work status (Medley, 1980; Neugarten, et al., 1965).

On the negative side, middle-age has been viewed as a period of: 1) increased financial responsibility for, and intergenerational conflict with, one's adolescent children and aging parents (Vincent, 1972; Smith, 1979), 2) declining physical stamina and youthful glamour (Rosenberg and Farrell, 1975), 3) attainment of the final plateau of one's career with consequent boredom, disappointment, and frustration (Bardwick, 1975), and 4) increased emotional losses -- children leaving home, friends dying, and one's spouse and aging parents dying (Desmond, 1964).

A study which concludes that these various "marker" or transitional events in middle-age need not be a crisis was conducted by Palmore and associates (1979). This study analyzed the effects of major life events (retirement of self and spouse, widowhood, departure of last child, and major medical event) and three types of resources (health, social, and psychological) on the physical and social adaptation of 375 men and women, 45 to 70 years of age. Data were collected at four points between 1968-1976. This longitudinal study showed that the subjects' own retirement had the most significant social-psychological effects and

major medical events had the most impact on physical adaptation. Widowhood, the last child leaving, and retirement of spouse had less impact. Palmore concluded that many potentially stressful events have less serious long-term outcomes than a "crisis" orientation would suggest; "fearful" events in middle-age may represent transition, not crisis, for those with good physical, psychological, and social resources.

The generalizability of Palmore's study is limited because his subjects were white, middle-class and basically healthy. Further, Palmore neither described his data collection method nor the reliability and validity of his instruments. His data, however, suggest that transitions in middle-age do not represent a crisis for everyone, and that individual coping resources must be considered. This is an aspect that Levinson (1977) did not address.

#### Summary of Literature Review on Middlecence

Literature on middle-age has focused primarily on two perspectives: the normative-crisis model and the timing-of-events model. There appears to be more empirical evidence to support the normative-crisis model, which proposes that a certain amount of stress is inherent in developmental transitions and that these transitions have the potential for producing a crisis. Whether the transition produces a crisis depends on the individual's perception of the

events. This perception is related to the person's overall life situation, self-concept, support systems, and general coping ability. Research has not focused on the mediating factors of coping or support systems and how these affect the perception of the marker events. Thus, although the middle-age period has the potential for crisis, it can be a period of growth, adaptation, and learning new coping strategies. The individual's perception and the timing of events would seem to determine whether middle-age is a transition or a crisis.

There are inconsistencies in the literature with regard to the positive or negative aspects of the "marker" events or transitions associated with middle-age. The view that the marital relationship and the postparental stage are more positive than previously assumed is supported by more recent literature. Self-concept and personality in middle-age undergo well-documented changes such as changing time perspective and increased introspection. Conclusions in the literature are contradictory as to whether overall life satisfaction in middle-age is increased or decreased, compared to one's younger years.

Borland (1982) in a critique of research conducted on middle-age, cites several general limitations of the empirical findings: 1) middle-age research has been treated as an auxiliary research topic rather than the main focus of attention, 2) most of the research is based on small,



local samples, 3) there have been various nonspecific definitional labels concerning middle-age, i.e., "middlescence", or "postparental", and 4) there is no agreement in the literature as to the operational definition of middle-age -- whether chronological age or stage of family development should be used.

Finally, research on middle-age has not considered class and cultural differences and has focused primarily on roles and events related to marriage and children. Further, single individuals have generally not been included in the samples. With the exception of Diekelmann and Gallo-way (1975) no nursing literature was found that focused on middle-age.

#### Middle-Aged Women

Reviewed in this section will be literature concerning the transitions of middle-age as they affect women. These transitions may represent potential sources of social stress for middle-aged women and thus have relevance to this study. More specifically, this section will examine whether or not middle-aged women are at risk for stress and crisis as a result of the "marker" events/transitions associated with middle-age. The potential areas of stress which will be discussed include: marital relationship, role changes/role strain, parenting, work, unemployment, changes in self-concept and life satisfaction, menopause,

and retirement. Two general studies involving middle-aged women will first be discussed.

In a descriptive study designed to identify commonly perceived stressors, mediating factors, and coping patterns in women 25 to 65 years of age and to examine correlates of these factors with physical and emotional symptoms, Griffith (1981) attempted to answer the question: "Do women in different age groups experience unique stressors?" On the basis of a self-administered questionnaire completed by a convenience sample of 579 women in a midwestern town in 1980, Griffith categorized stressors in six areas: 1) love, 2) personal success, 3) physical health, 4) parent-child relationship, 5) personal time, and 6) social relationships.

Griffith found that, for this sample, predominant factors that influenced women's health were love relationships, personal success, physical health, and parent-child relationships. These were mediated by age, marital status (married women were the most satisfied group; separated women were the least satisfied group and used the most unhealthy coping patterns), education, and income.

The findings of this research study are limited in that the sample, although large, was predominately white and middle-class. Almost half of the sample (42%) was between the ages of 25 to 34 years, with underrepresentation of middle-aged subjects. Griffith did not report how the

stressors were mediated by age; i.e., she did not report data on the predominant stressors in each age group and therefore did not answer her research question. Finally, although she reported pilot testing the questionnaire and establishing content validity through factor analysis, she did not report tests of reliability on the instrument.

Cited frequently in the literature is a study by Lowenthal, Thurnher, and Chiriboga (1975). They studied men and women at four life stages: high school seniors, young newlyweds, middle-aged parents, and pre-retirement people. The subjects were interviewed an average of eight hours with open-ended and structured questionnaires, and rated and compared on the basis of their responses in six categories: 1) lifestyle, 2) family, 3) friends, 4) self-concept, 5) well-being, and 6) responses to stress and perceived stress.

Lowenthal and associates' (1975) middle-aged sample was composed of 27 men (mean age 52) and 27 women (mean age 48). As a result of this cross-sectional study, the investigators reached some general conclusions about middle-aged women: of the four age groups, middle-aged women expressed the greatest marital dissatisfaction, the most negative and conflictive self-concepts, they were the second lowest (to high school seniors) on subjective sense of well-being, and reported more stressful experiences than middle-aged men, but could not account for their malaise or

unhappiness. Middle-aged women were the most preoccupied with stress of all the groups. However, the researchers did find that middle-aged women were looking forward to the "empty nest" or postparental stage.

Additionally, Lowenthal and associates found that middle-aged women used familial roles, familial affect and feminine self-concept as buffers for stress. Three major sources of stress for their sample were: health, work-related problems of husband, and familial relationships, especially the problems of their children. The researchers noted that for middle-aged women, significant others are the focus of stress; that is, stresses suffered by significant others may have as much impact on the woman as if it were her own stressor.

Lowenthal and associates demonstrated that the middle-aged women who exhibited the most acute signs of desperation -- with themselves, their husbands, and their marriages -- had a more complex lifestyle. That is, they were engaged in many roles and activities. Lowenthal did not explain this finding, but it would seem to indicate that role strain may have been a factor.

Lowenthal and associates concluded that middle-aged women were the most distressed of the four groups, reporting that they had poorer self-concepts, were lowest in life satisfaction, were the most pessimistic, the highest in existential despair, and the most negative toward their

spouses. The researchers explained these findings by suggesting that they might be reflective of Freud's view of adult women in the "menopausal" years. Freud viewed adult women as frequently suffering from unresolved, recurrent Oedipal conflicts and perceived most women as rigid and "worn-out" developmentally because of their early, difficult psychosocial development. Barnett and Baruch (1978), in a critique of research on women in middle-age, conclude that a major limitation of Lowenthal, Thurnher, and Chiriboga's (1975) study is this evidence (referring to Freud's view of adult women) of outmoded and inadequate explanations and interpretation of their empirical findings. Also, Lowenthal and associates doubted the self-reports of the middle-aged women who were looking forward to the post-parental stage; they suggested the women's anxiety and despair must be too deep to be tapped. Again, Barnett and Baruch (1978) contend this demonstrates the researchers' bias that marriage and children are crucial to a woman's well-being.

Further limitations of this study include the fact that the sample size was small, and only married women with children were included. The variable of work/career was not addressed. However, this study is unique in that it is cross-sectional, comparing four different stages of adult development and also comparing men and women on the study variables.

Examination of findings related to specific areas of potential stress for middle-aged women will now be presented. These areas are marital relationship, role change/role strain, parenting, self-concept and well-being, employment, menopause and retirement.

### Marital Relationship

Most research has examined the marital relationship within the context of the post-parental or "empty-nest" stage when the last child has left home. There is conflicting evidence as to whether there is more or less marital satisfaction in the postparental years as compared to the other life stages. Pineo (1968) concluded from a study of 1,000 couples that marital satisfaction and adjustment, intimacy, and marital interaction decrease as compared to the earlier years of marriage. This view is supported by the findings of Lowenthal and associates (1975). Glenn (1975), however, found marital happiness to be generally higher for both males and females during middle-age. Rollins and Feldman (1970) concluded that men and women differ in their subjective affective states with reference to their marriage; women are more influenced by the presence of children (women had high levels of negative feelings from marital interactions during the child-rearing years). Men, in contrast, are more influenced by events before and after children. Rollins and Feldman

concluded that marital satisfaction is associated with stages of the family life cycle.

Role reversal for men and women occurs in middle-age and may be a potential source of conflict, thereby affecting marital satisfaction. Men become more affiliative and less dominant, while women become more aggressive and see themselves as less dependent (Neugarten, 1978a; Lowenthal and Chiriboga, 1972; Lowenthal, et al., 1975). The wife expresses a desire for more personal growth and self-expression (Neugarten 1968a) and the woman's trajectory away from the family at the very time the husband turns toward the family with increased interest may create conflicts (Lowenthal and Weiss, 1977; Zube, 1982).

Patterns of social interaction and emotional support for men and women may also bear upon the quality of the marital relationship. There is evidence that people maintain a stable pattern of social interaction and intimacy throughout life and that many of the middle-age and late life differences noted between men and women are actually life-long differences (Maas and Kuypers, 1974; Zube, 1982). Sources of emotional support may be lost or changed; a gradual decrease in the degree of social involvement often occurs in middle-age (Neugarten, 1972). Lowenthal and associates (1975) found middle-aged and older people more likely to report social interaction problems, perceiving people to be annoying and irritating.

Intimate and close interpersonal relationships appear to be of greater significance to women than to men. Friendships are more important to women than to men (Hess, 1979; Lowenthal and Weiss). Women tend to maintain family contacts more than men and have greater emotional involvement in the family (Lowenthal, et al., 1975; Lowenthal and Weiss, 1977). Hess (1979) suggests older women have greater social sensitivity than men, and Troll, Miller and Atchley (1979) suggest that women are socialized to be more "tuned-in" to people. These differences between men and women can influence the marital relationship and marital satisfaction.

#### Role Changes/Role Strain

Role strain has recently been studied as a significant stressor for middle-aged women. Although this concept is not addressed or measured in this study, it is important to make note of recent findings, as they may be a consideration in the interpretation of the results of this study.

Kin-keeping role strain refers to the fact that middle-aged women are often the principal care-givers to the aged while also caring for their own children and perhaps holding down a full-time job outside the home. They are confronted with the dual responsibility of parent-caring and child-caring (Hill, 1970; Smith, 1979; Troll, Miller and Atchley, 1979). Brody (1981) sums up the dilemma by saying



new roles of paid worker plus caregiving daughters and daughters-in-law to older people compete with the traditional role of wife, homemaker, and mother.

Smith (1979) in a study to examine the nature and extent of kin-keeping role strain experienced by a group of middle-aged women and the impact of this strain on life satisfaction, interviewed 24 women aged 40 to 69 years. These women were white, middle-class, and from a rural area. One-half of the women in the study provided high levels of unreciprocated help to both their offspring and aged parents. Results of the study showed women with moderately low life satisfaction showed evidence of kin-keeping role strain and respondents with the lowest life-satisfaction scores stated their children were a major source of life stress.

Limitations of this study acknowledged by the researcher included the small sample size and the rural background in which high contact and responsibility to parents is the norm. Smith did not report on the manner in which kin-keeping role strain was operationally defined.

Another area of stress for middle-aged women concerns role changes throughout life. Throughout the life cycle there is greater inconstancy of roles and demand for flexibility required for women than for men (Kline, 1975; Sinnott, 1977). Women experience a variety of roles such as mother, grandmother, care-giver to parents, homemaker, employee, etc. Women are now faced with changing values

in society related to women's roles and, middle-aged women also face role changes created by divorce, widowhood, or retirement (Block, et al., 1981). Because middle-aged women have "outlived" their culturally defined role as wife and mother, they may face these role changes with conflict over their identity and purpose (Block, et al., 1981). Some authors suggest, however, it is this very role inconsistency which, while producing more stress for women, is the source of women's adaptiveness and resiliency which provides women with greater opportunities for growth and change than men (Kline, 1975; Prock, 1975).

### Parenting

Most research relative to parenting in middle-age has focused on the "empty nest" or postparental stage, i.e., the stage in the family life cycle when the last child has left home. Whether this period represents "freedom" or "emptiness" is still debatable. Early research studies indicated that the postparental stage is a negative time, a reflection perhaps of the bias that a woman's sole function was wife and mother. Bart (1975) stated that women who have accepted the traditional family role and have invested themselves in their children and who have not created alternative roles for themselves are likely to experience the "empty nest" stage as negative. Loss of children with a concomitant sense of purposelessness and

malaise is the reason the postparental stage was viewed in crisis terms in earlier research (Desmond, 1964; Deutscher, 1968; Lurie, 1974).

Neugarten (1968b) was an early researcher who concluded that women desire personal growth and expansion after children are "launched." Troll, Miller, and Atchley (1979) agree with this view, suggesting that women look forward to alternatives in education, paid work, and volunteer work. Lowenthal and Chiriboga (1972) interviewed middle-aged men and women whose youngest child was about to graduate from high school and found that they perceived the postparental stage as "promising" because child care responsibilities would be decreased. This positive view of the postparental stage is supported by Neugarten (1976) in a study of 100 women between the ages of 43 to 53. Utilizing five to six hours of interviews during which self-concept, life satisfaction, and anxiety were measured, Neugarten found "coping with children at home was more taxing and stressful than having children married and launched into adult society" (Neugarten, 1976; p. 18). Similarly, Palmore (1979) found that the event of the last child leaving home produced positive effects on physical and social adaptation in his study of 375 men and women.

The notion that having children living at home is more stressful than the postparental stage is supported by Lowenthal and associates (1975) and Radloff (1975).

Lowenthal and associates (1975) found that women with children still at home had less positive self-concepts, expressed more self-pity and were more easily hurt than women whose children were "launched".

Glenn (1975) raises an interesting point relative to the research studies reporting positive views of the "empty-nest" syndrome. Glenn asserts that the positive generalizations are inherent in the composition of the research samples; women in the samples are still married and not alone during the postparental period.

Borland (1982), in summarizing and critiquing research on the "empty nest" syndrome, contends that there is little support in the research findings for the negative view of the postparental stage. None of the studies, according to Borland, have taken into account the changing views regarding women's roles, and the notion that each generation of women lives with a different ideology of what constitutes "women's roles". Borland analyzed historical and societal roles of white, black, and Mexican-American women. Based on this historical review of the differences in sex roles and values, Borland theorized, "there may be one cohort of white women whose unique combination of social circumstances may have fostered the development of the "empty nest" syndrome, a unique social phenomenon not experienced to the same degree by women of other cohorts or ethnic groups" (Borland, 1982; p. 127).

Self-Concept/Life-Satisfaction

The negative view of the middle-aged women's self-concept and sense of well-being was reported in an early study by Gurin, Veroff, and Feld (1960). This study indicated that women in general have poorer self-concepts than men, and feel more inadequate as parents. This view is corroborated by Lowenthal and associates (1975). In this study, the researchers found that middle-aged women had the poorest self-concepts of the four age groups studied. The instrument used by the investigators was a 70-item adjective rating list; the women rated the adjectives according to whether they were perceived as like or unlike self or in-between. For the same sex (women), adjectives differentiated each age group from the others. Whereas high school women described themselves as "jealous" and "warm", middle-aged women described themselves as "absent-minded" and "unhappy". Pre-retirement women (mean age 58), in contrast, described themselves as "assertive" and "intelligent". Lowenthal and associates concluded that the middle-age group of women (mean age 48) tended to emerge more negatively than the other groups and that pre-retirement women "hit their stride", saw themselves as more independent and held a more positive self-image than the middle-aged group. Zube (1982) attributes this finding to the fact that the pre-retirement women have acquired new roles within, and/or outside, the home and are involved

in activities to achieve personal growth.

Block and associates (1981) suggest that one explanation of middle-aged women's generally poor self-concept may be conflict over identity as women's roles and circumstances change due to divorce or children leaving home. Block contends also that the cultural denigration and stereotyping of middle-aged women as inactive, unhealthy, asexual, ineffective, depressed, and passive, contributes to the middle-aged woman's poor self-concept, particularly in a male and youth oriented society.

Campbell (1976) examined life satisfaction of men and women and found no evidence that women's lives are any less rewarding than men's. This view is also supported in a study by Medley (1980) concerning overall life satisfaction of men and women. Medley found relatively high life satisfaction scores for both men and women during each of the four stages studied. Medley interviewed 2164 men and women in four stages of adulthood which included early adulthood (ages 22-34), early middle age (35-44), late middle-age (45-64), and late adulthood (65 and over). The purpose of the study was to examine the effect of financial situation, health, standard of living, and family life upon life satisfaction. Medley found that for females, life satisfaction remained relatively constant (high across the four stages. A major finding in this study was that sources of life satisfaction differ for men and women in middle-age.

For women, family life was the greatest source of life satisfaction, with health and standard of living ranking second and third, respectively. For men, health was the most powerful predictor of life satisfaction, with family life ranking second and standard of living ranking third.

Medley's study is one of the few studies to broaden the definition of middle-age in terms of chronologic years and to categorize middle-age into early and late middle-age. In addition, the sample size is large and this study represents a cross-sectional approach similar to that of Lowenthal and associates (1975).

Birnbaum (1975) showed that life satisfaction for middle-aged women was related to their level of occupation and career commitment. That is, professional women were more satisfied and had higher self-esteem than did the women who had lived out traditional role patterns. This is one of the few studies addressing the variable of work/career commitment in looking at life satisfaction and self-concept of women.

### Employment/Career

Research on middle-aged women generally has not addressed the variable of work and career commitment. Middle-aged women have been viewed almost solely in terms of their family roles of wife and mother. Barnett and Baruch (1978) contend that this omission of work and career as a

study variable related to middle-aged women is a reflection of out-moded assumptions and biases. Barnett and Baruch further assert that paid employment has not been conceptualized as central to the lives of women: "they are not expected to function as economic providers nor to derive self-esteem and identity from this role." (Barnett and Baruch, 1978; p. 191). Also, when working women are included in studies, and work is dealt with as an important variable, relevant differentiations among workers are rarely made, i.e., physicians and salesclerks, the career-committed and those who prefer to be at home, are generally treated as one group, according to Barnett and Baruch (1981).

As mentioned earlier, Birnbaum (1975) conducted a study which is one of the few (perhaps the only) studies to compare life satisfaction and self-esteem of middle-aged women (ages 35-50) in comparable groups of married professionals with children, single professionals, and homemakers (women who had not worked since the birth of their first child). Birnbaum concluded from the data that aspects of work status, such as level of occupation and commitment appear to have a profound effect upon women's lives, particularly in middle-age. The results of Birnbaum's study showed that both groups of professional women were more satisfied and had higher self-esteem than did the women who had not worked outside the home.

For women who are married and have children, the work



role has generally been viewed as a source of conflict and stress (Hall and Gordon, 1973). Jacobsen (1981), in discussing the psycho-social stresses of working women, focused on stressors associated with work which are particularly relevant to middle-aged women. Jacobsen addressed the interaction of stresses of working with the developmental tasks of mature women such as physical signs of aging and the psychological sense that "time for fulfillment is running out."

Jacobsen (1981) suggests that the middle-aged woman must deal with her culturally assigned function of care of home, and care of retired husband and aging parents, regardless of whether she is working outside the home for personal fulfillment or economic need to maintain a standard of living. Indeed, the circumstances under which a middle-aged woman decides to enter the work force may constitute her first psycho-social job stress. If employment is mandated by divorce or death of a spouse, work stresses are combined with the stress of lost identity, status, aloneness, personal feelings of rejection, and even panic (Jacobsen, 1981; Prock, 1975).

Block and associates (1981) suggest that the work environment itself can be a source of stress for middle-aged women. Generally, middle-aged women are in jobs of a service or clerical nature where time pressures, work overload, and conflicts with supervisors constitute the major stressors. Kanter (1975) supports this view and contends

that the structural conditions of employment such as low occupation level, lack of power, and tokenism are related to low career aspirations and commitment and low self-esteem. These components of the work situation which may affect satisfaction and self-esteem and which therefore constitute a source of stress, have been overlooked in most studies dealing with younger and middle-aged working women.

In contrast, Barnett and Baruch (1978) in their critique of research on middle-aged women, contend that another limiting assumption regarding women and work is that the work role has been viewed largely as a source of conflict and stress and the beneficial, stimulating, health maintenance aspects of combining roles has been overlooked in research.

### Unemployment

A recent study by Warren (1980) examined the stresses of unemployed women. The sample consisted of 770 men and women who represented the entire socio-economic range in the Detroit area and included blue collar women, white collar women, and their male counterparts. One purpose of the study was to compare the work-status groupings on indicators of stress. Stress was defined in the study as the composite average of three types of self-reported indicators of stress: psychosomatic indices, depression-withdrawal measures, and subjective health measures.

The findings of this study revealed that unemployed women reported almost four times more stress than unemployed men, that unemployed women reported 50% more stress than housewives and 100% more stress than employed women. Warren concluded from the data that unemployment posed a more severe threat for women than for men in terms of reported stress symptomatology, mental and physical health.

The study was a preliminary analysis of data documenting the reaction to women's employment. The researcher did not report on validity and reliability of the instruments and did not report findings on sociodemographic variables.

### Menopause

While the existence of the changes associated with menopause is not being assessed or addressed in this study, menopause is cited as an extraneous variable that may affect the results of the study. Menopause is a significant issue in literature related to middle-aged women. Therefore, a very brief overview of the literature is worthy of mention. Menopause is less stressful than has been commonly believed, and postmenopausal women may even view this biological change as a positive event (Neugarten, 1968c; Lowenthal, et al., 1975).

Lowenthal and Chiriboga (1972) studied 27 middle-aged women (average age 48); the findings of this study did not support the notion that women view the menopause stage

as more negative than other developmental changes. This finding was supported in a study by Neugarten (1976) of 100 married, healthy women ages 43 to 53, with at least one child. Neugarten concluded from five to six hours of interviews during which self-concept, life satisfaction, and anxiety were measured, that the subjects minimized the significance of menopause and had higher levels of satisfaction than generally assumed.

### Retirement

The issue of adjustment to retirement for middle-aged women has largely been neglected, partially because of the assumption that the primary role of the woman is that of wife and mother and that retirement would represent a chance for the woman to leave her work role and return to her primary occupation (Block, et al., 1981). Contributing to this assumption is the stereotype about women that, for them, work is not meaningful or a source of identity and self-esteem.

Retirement represents a crisis for men because it involves giving up a primary role; whereas for most women, retirement does not mean giving up a primary role (Palmore, 1965). Also, there is the expectation that the working woman may be eager to retire because of the demand and stresses associated with combining work and home obligations

(Coyle and Fuller, 1977).

Contradictory evidence does exist, however, that suggests the importance of work to women and the impact of retirement. Atchley (1976) in a study of retired teachers and telephone company retirees, found no significant sex differences in the importance of work. Women are less likely than men to be positively oriented toward retirement (Jacobsen, 1974) and are more likely than men to express apprehension and display high anxiety about the effects of retirement (Atchley, 1976, Streib and Schneider, 1971). Palmore (1979) studied the impact of five major events on 375 men and women in middle-age; his results showed that an individual's own retirement had the most negative psychosocial effects.

Women have a harder time than men adjusting to retirement and are more likely to report psychiatric symptoms compared to men, such as loneliness, depression, and low self-esteem (Atchley, 1976). Economic concerns associated with retirement often contribute to a woman's poor adjustment. In addition, many female retirees are widows and the withdrawal from the work force means decreased social contacts. Retirement, then, constitutes a significant stressor for older women (Block, et al., 1981).

The differences in the impact of retirement on women have have satisfying jobs and those who perceive high levels of stress and conflict associated with work needs

to be studied further. For some women, retirement may represent a crisis; for others, it may indeed represent a "relief".

#### Summary of Literature Review of Middle-aged Women

Research on middle-aged women, according to Barnett and Baruch (1978) is limited by biases, stereotypes, and assumptions such as the crucial nature of marriage and children to a woman's well-being, and the omission of work as a study variable. Single middle-aged women and married middle-aged women without children have not been the main focus of attention in most research. The various role patterns of middle-aged women (such as employed parent) have not been addressed, and socioeconomic and ethnic variables have not been examined. Research has primarily focused on white, middle-class women. No studies were found that addressed social stressors (as defined in this study) of middle-aged women.

The marital relationship may be affected by the different trajectories of men and women during middle-age. Role reversal, may be a potential source of conflict in the marital relationship. Interpersonal relationships mean more to women than to men and during middle-age the women expresses a desire for personal growth outside the home at a time when the husband turns toward the family and expects more of his wife's time as the children are leaving

home. These changes can also be a source of stress in the marital relationship.

Whether marital satisfaction is actually increased or decreased during middle-age is open to debate. Some research studies show a decrease in marital satisfaction during middle-age as compared to earlier years (Pineo, 1968; Lowenthal and Chiriboga, 1972; Lowenthal, et al., 1975). Other studies have found an increase in marital satisfaction during middle-age (Glenn, 1975) and Rollins and Feldman (1970) concluded that marital satisfaction for women is more influenced by the presence of children, while men's perception of marital satisfaction is more influenced by events before and after children.

Role strain is a source of stress in middle-aged women. Role strain results from the dual responsibilities of parent-caring and child-caring, and may be exacerbated by the responsibility of outside employment. Role changes throughout life also generate stress for the middle-aged woman; these role changes may cause conflicts over her identity and purpose. These role changes, however, can also be an opportunity for positive coping, adaptation, and personal growth.

Most research on parenting in middle-age has focused on the "empty nest" syndrome, particularly for women. Early research characterized this stage as "empty" with a sense of purposelessness (Desmond, 1964; Deutscher, 1968).

Barnett and Baruch (1978) have asserted that researcher bias that relegated women's function solely to that of wife and mother contributed to the negative view of the post-parental stage.

More recently, a positive view of the postparental stage has been supported by empirical research. The "empty nest" has been found to be a time of freedom and personal growth (Neugarten, 1976; Palmore, 1979) and having children living at home is more stressful than the empty nest stage (Lowenthal, et al., 1975; Radloff, 1975). Borland's (1982) analysis of differences in sex roles of white, black, and Mexican-American women reveals that there may be a cohort of white women whose unique combination of social circumstances fostered the development of the "empty nest" syndrome.

Research evidence tends to show that middle-aged women have a negative self-concept (Gurin, et al., 1960; Lowenthal, et al., 1975). Block and associates (1981) suggest that contributing factors to this poor self-concept are the conflict over women's changing roles, and cultural denigration of middle-aged women. Lowenthal and associates (1975), however, did report that "pre-retirement" women in their study (mean age 58) had a more positive self-concept than the women in other stages of their lives.

In terms of life-satisfaction, Campbell (1976) found no evidence that women's lives were any less satisfying



than men's lives, and Medley (1980) found relatively high life satisfaction scores for both men and women during middle-age. Medley did find that the sources of life satisfaction differ for women and men; for women, family is the primary source of life satisfaction, while for men, health was the most powerful predictor of life satisfaction.

Research on middle-aged women has generally not addressed the variable of work/career. With the exception of a study by Birnbaum (1975) in which work is identified as an important variable, relevant differentiations among the workers are rarely made; the career-committed and those who prefer to be at home are treated as one group. Birnbaum's (1975) study showed that level of occupation and commitment have an effect on women's lives in terms of satisfaction and self-esteem.

For women who are married and have children, the work role has generally been viewed as a source of conflict and stress (Hall and Gordon, 1973). For middle-aged women, the conditions under which the work force is entered may constitute significant psychosocial stress; if widowed or divorced, the stress of work is combined with the stress of lost identity and status (Prock, 1975; Jacobson, 1981). Barnett and Baruch (1978) suggest that there needs to be research on the beneficial, positive aspects of combining work roles with parenting and marriage.

Menopause is less stressful than has been assumed. There is considerable research evidence that women minimize

the significance of this event and may even view it as positive (Neugarten, 1968c; Lowenthal, et al., 1975; Neugarten, 1976).

The issue of the impact of retirement on middle-aged women has been largely neglected in research. Retirement is considered an issue for older women (over 65) and, thus, is not included in the literature on middle-age. Whether retirement represents a "relief" and a chance to return to the primary role of wife and mother (Palmore, 1965) or whether retirement is indeed a source of stress resulting in loneliness and depression (Atchley, 1976) needs to be further researched and clarified. The impact of retirement is influenced by many variables such as marital status, financial situation, and level of career commitment.

There is very little nursing literature focusing on middle-aged women. No empirical studies on middle-aged women were found in the nursing literature with the exception of a few studies that focused on the single issue of menopause.

### Social Stressors

Two sources of social stressors have been identified in the literature: life events and ongoing social relationships. In this study, social stressors are defined in terms of ongoing social relationships. The term "social

stress" in the literature is often used to describe both life events and ongoing social relationships. For this reason, a brief overview of the concept of life events will be presented, followed by a literature review of the concept central to this study, social stress relative to ongoing relationships.

### Life Events

Life events are conceptualized as actual events experienced by the individual; they are discrete in nature, the impact is generally short-lived, they produce some stress in the individual, and they require adaptation, or readjustment (Holmes and Rahe, 1967). Life events research has focused on the stressful life event as a precipitating factor in physical and mental symptomatology (Brown, 1972; Dohrenwend and Dohrenwend, 1974; Rahe, 1975) and on the measurement of the amount of stress or behavioral change associated with the event (Dohrenwend, et al., 1967; Homes and Rahe, 1967). Holmes and Rahe (1967) interpreted stress in terms of the adaptive behavior required by the occurrence of the life event; a major assumption of their research is that this adaptive behavior, or readjustment, can be measured to provide an index of the life stress experienced. Holmes and Rahe's Social Readjustment Rating Scale sums stressful life events to yield a measure of readjustment behavior.

Two approaches to studying life events have been developed. Life events have been studied in relationship to undesirability and life change. Dohrenwend (1973) contends that stressfulness should be viewed as life change; this opinion is supported by Holmes and Masuda (1974) who define life events as, "events whose advent is either indicative of, or requires significant change in, the ongoing life patterns of the individual (Holmes and Masuda, 1974, p. 46). These authors suggest that some life events are negative or socially undesirable, and some are positive or socially desirable. Holmes and Rahe (1967) postulate that a cluster of life events contributes to the etiology of disease and is related in time to the onset of disease.

Vinokur and Selzer (1975) subscribe to the notion that the undesirability of life events relates to the onset of illness or psychiatric symptomatology. In a study examining the relationship between positive and negative life changes and self-ratings of stress measures of depression, anxiety, tension, and suicidal tendencies, Vinokur and Selzer (1975) found that only undesirable life events bore a significant relationship to several of the stress measures. The researchers concluded, ". . . it appears that the contributions of life events to psychological impairment is mediated by stress that is evoked by some undesirable aspect of the events rather than by change per se" (Vinokur and Selzer, 1975; p. 334).

Limitations of the life events research approach have been cited by several authors. Rabkin and Streuning (1976) criticize life events research as focusing on a linear relationship between the independent variable (life event) and dependent variables such as physical illness, without controlling for mediating factors. Inconsistent operational definitions of the independent and dependent variables also limit the value of life events research according to Rabkin and Struening (1976). This view is supported by Mechanic (1975) who suggests that the Social Readjustment Rating Scale is limited because it does not address the issue of what type of change (positive or negative) affects the onset of illness.

Miller (1981), in a review and critique of life events scaling, contends that life event scales "may represent a plateau in a process at a point when the individual gives up, having lost control and is unable to maintain an internal locus of control; or, the person may be experiencing system failure in coping with stressful life events" (Miller, 1981; p. 319). Miller states the need for life events research to address variables affecting the events, especially the person's sociocultural world, i.e., social class, participation in specific roles such as husband, father, or worker, and the life event relationships to those roles such as marriage and retirement.

Finally, Ilfeld (1976a) asserts that the life events

view is too narrow; life events are discreet events that measure only a small portion of stress in a person's everyday life. Further, according to Ilfeld, 1976a, while life events are significant, they are infrequent and may have only short term effects. Ilfeld, therefore, supports an approach to stress research that examines an individual's ongoing social relationships.

### Social Relationships

Ilfeld (1976a) has examined ongoing social relationships as a source of stress and refers to these as social stressors. Based on open-ended interviews with 175 people to elicit specific, concrete stressors associated with various social roles, Ilfeld concluded that "the more common and ongoing stressors in everyday life are taking a significant toll in suffering in addition to and beyond the chance and often dramatic life crises" (Ilfeld, 1976a, p. 1234). Ilfeld defined social stressors as "those circumstances or conditions of daily social roles which are generally considered to be problematic or undesirable" (Ilfeld, 1976a; p. 1231). Ilfeld based his view of social stress on Vinokur and Selzer's (1975) assumption that it is the undesirability of events or situations that produces stress in the individual and bears a relationship to the onset of psychiatric or physical symptoms. In addition, Ilfeld (1977) suggests that the ongoing social relationship

aspect of social stress is a more relevant concept than the life events approach because social relationships are more amenable to change and therefore have greater therapeutic potential.

Ilfeld (1976a) studied perceived stress associated with ongoing social relationships in a cross-sectional study of 2,299 Chicago adults, ranging in age from 18 to 64 years. One purpose of his study was to assess the current social stressors prevalent in a normal population; that is, those social situations that are potentially problematic, tied to everyday roles, and are usually repeated experiences. Ilfeld used an instrument that he developed from the open-ended interviews with 175 people over a one and one-half year period. These stressor scales included in nine areas of potential social stress: job, marriage, parenting, neighborhood, financial, homemaking, singlehood, unemployment, and retirement. One individual from each household was interviewed for one and one-half hours and all items from a given stressor scale were asked of respondents who were participating in that social role.

Ilfeld's (1976a) study showed the relationship of the nine stressor scales to the major demographic variables using a multiple regression analysis; the demographic factors were the independent variables and each of the stressor subscales was a dependent variable. Ilfeld's analysis revealed there was little relationship between

marital, job, and singlehood stressors and demographic variables. Financial and neighborhood stressors, however, were more closely aligned with demographic factors (income, race). No single demographic variable predominated in predicting the several stressor areas. Ilfeld did find that parental stressors decreased with increased age.

Ilfeld's study is unique because it utilized a different conceptualization of stress (ongoing social relationships rather than life events), gathered a different order of data, and focused on retrospective accounts of the duration of social stress. Although the sample was large and composed of a socially diverse group, there were different numbers of subjects responding to each subscale. Friendships, loneliness, and social support were not addressed in the subscales as potential social stressors. Ilfeld reported that alpha coefficients of the nine stressor scales ranged from .69 to .89 but cautions that the scales were not developed with the idea of unidimensionality; the researchers were striving for a comprehensive review of any given social area. That is, having stress in one aspect of a social role does not indicate that there will be stress in another part of the social role.

Examining the stimulus aspects of stress, Ilfeld (1976b) related social stressors to psychiatric symptomatology, using data from the same sample of 2,299 Chicago adults. This data showed that social stressors predate



the psychiatric symptoms (defined as depression, anxiety, anger, and cognitive disturbance). This study, however, was cross-sectional rather than longitudinal, so causality has not been established.

Ilfeld (1977) also analyzed the relationship between current social stressors and depressive symptomatology, using the same sample of Chicago adults. The sample was categorized into five subgroups: 1) employed married fathers, 2) employed married mothers, 3) unemployed married males and females, 4) employed single men, and 5) employed single women. Ilfeld concluded from the data that current social stressors have a strong association with depressive symptoms. Marital stressors has the highest correlation with depression, while parenting, job, and financial stressors had an intermediate correlation with depressions. There was no correlation between neighborhood stressors and depression. In addition, employed married mothers were equally affected by parental and marital stressors. Ilfeld (1977) concludes that this study confirms his assumption that the greater the number of social stressors, the higher the psychiatric disorder; symptoms increased proportionately to the total number of stressor areas identified by each subject.

Pearlin and Schooler (1978) also studied ongoing social relationships as a source of stress; these investigators analyzed the stress and strain produced by day-to-day

conflicts in different role areas. Pearlin and Schooler utilized the concept of life strains and defined it as "the enduring problems that have the potential for arousing threat" (Pearlin and Schooler, 1978; p. 3). The researchers identified these life strains from unstructured interviews with 100 subjects. The researchers suggested that the life-strains they identified "do represent problems that are outstanding in the experiences of people in their roles as marriage partners, economic managers, parents, and workers" (Pearlin and Schooler, 1978; p. 4). Pearlin and Schooler's concept of "life-strain" is therefore similar to Ilfeld's definition of "social stressor."

The major purpose of Pearlin and Schooler's (1978) study was to examine the various coping factors thought to determine whether potentially stressful situations actually result in manifestations of stress. To do so, the investigators measured strain produced in various roles (parenting, etc.) and the coping responses used in dealing with these commonly experienced life strains.

Pearlin and Schooler used a sample of 2,300 Chicago adults who were interviewed in 1972. The researchers constructed the measures of strain by summing the scores that respondents had on various strain factors within each role; the measure represented the overall level of intensity with which people experienced problems in the role area. In this study, the independent variables were the strains

within a particular role, together with the coping responses used in that role. The dependent variables were the role stresses as measured by scores on factors eliciting marital stress, parental stress, etc. Pearlin and Schooler's approach therefore was to study the various coping factors that are thought to determine whether potentially stressful situations (role strain) actually result in manifestations of stress.

Pearlin and Schooler (1978) measured both role strain and stress response; the scales used to measure role strains are similar to Ilfeld's (1976a) social stressors in terms of content. Ilfeld's scales, however, are more comprehensive. Pearlin and Schooler reported only factor loadings on their items and did not report test of reliability for the role strain scales. Pearlin and Schooler's study supports Ilfeld's assumption that it is the veryday "strains" that have the potential for producing the stress response and that it is stress produced from ongoing relationships that are more significant than the infrequent, chance life events.

One confusing factor about Pearlin and Schooler's study (1978) is that they used the terms "life strain" and "role strain" interchangeably. "Role strain" is a different concept than "social stressor" as defined by Ilfeld (1976a).

In a later study, using data from follow-up interviews of the original sample, Pearlin and associates (1981) viewed

social stress as a part of the entire stress process. The investigators used data to observe how life events, chronic life strains (role strains/social stressors), self-concept, coping, and social support come together to form a process of stress. Pearlin and associates concluded from the data that the process of social stress combines three concepts: 1) source of stress (discrete life events or chronic life strains), 2) mediators of stress, and 3) manifestations of stress. The conceptual model used by Pearlin and associates (1981) depicts the process of stress by showing that life events affect/exacerbate chronic life strains which in turn erodes self-concept, which leads to manifestations of stress such as symptoms of depression. The researchers concluded therefore, that social stress is not a "happening" but a varied and complex process.

Pearlin and associates (1981) advance a more comprehensive view of social stress by examining mediating factors. The concept of life events, however, is again introduced as a factor that is necessary to produce role strain (chronic life strain). This confuses the issue somewhat, as previous studies (Ilfeld, 1976a; Pearlin and Schooler, 1978) have viewed life events and social stress as two independent concepts.

Jenkins and associates (1979) conducted a study which linked social stressors to mortality from hypertensive disease. The researchers studied the relationship of social

environment to excess mortality from diseases involving hypertension. The methodology of this study involved correlating demographic, social and economic data with standardized mortality ratios for hypertensive disease in 39 mental health catchment areas of Massachusetts. The data showed that family fragmentation, low education, and low occupational satisfaction were the most significant predictors of mortality from hypertensive disease. The investigators concluded that "the study gives weight to the hypothesis that social factors may somehow be involved in the development of hypertension and/or in its progression to a fatal outcome" (Jenkins, et al., 1979; p. 38).

Jenkins' study supports the view of Ilfeld (1976b) and Pearlin and Schooler (1978) that social stress leads to a stress response; in this case, physical symptoms. The study, however, does have several limitations. Social stressors were defined differently from the way they were by Ilfeld (1976a) or Pearlin and Schooler (1978). That is, Jenkins defined social stress relative to socioenvironmental variables such as household composition and size, social status, education, and income. Further, since the study was retrospective, causality is questionable. Finally, the investigators utilized census data, and included no assessment of the subject's duration of hypertension, family history, social support, compliance level, or other factors that may have affected the mortality rate.

### Summary of Literature Review of Social Stressors

Social stressors originating from discrete life events and ongoing social relationships appear to be related to physical illness and psychiatric symptomatology. There is more research support for the causal relationship between life events and symptoms than for the relationship between current social stressors and symptoms. Most of the research has focused on life events, with few studies using social stressors as a variable.

The concept of current social stressors as defined by Ilfeld (1976a) seems to be a more practical approach to include in the Health Belief Model as a factor influencing compliance. Also, because the sources of stress for women are often ambiguous and prolonged (Block, et al., 1981) and developmental transitions of middle-aged women may involve elements of undesirability, the concept of current social stressors would seem to be more appropriate than the life events approach in a study of middle-aged women.

There are no consistent definitions of social stress in the literature. The term has been used interchangeably with the concepts of life events, role strain, chronic life strain, and socioenvironmental variables. Therefore, no consistent definition of "social stressor" has been used in the various studies. This researcher has found no studies (except for Ilfeld, 1976a; 1977) utilizing Ilfeld's current social stressor scale, nor any nursing literature

utilizing the concept of social stress. Ilfeld's current social stressor scale seems to be more comprehensive and psychometrically more sound than Pearlin and Schooler's (1978) role strain (chronic life strain measures).

### Summary

The Health Belief Model is limited in its applicability to chronic illness compliance behaviors; features of the "at risk" role need to be incorporated into the model. Several researchers have suggested the need to expand the Health Belief Model to include social-interactive variables that may influence long-term behaviors. Family relationships, life situation, and other stressors have been suggested as variables that need to be studied relative to chronic illness behaviors. Few studies have been done using the Health Belief Model to study chronic illness behaviors and of the extant research, hypertension has been the disease studied most extensively. Thus, there is a need to conduct research utilizing other chronic illnesses.

Perceived barriers have been shown to be negatively related to compliance behavior. Barriers have been defined inconsistently in the literature and the relationship of barriers to other variables in the Health Belief Model has varied, depending on the compliance behavior and the disease being studied. Barriers have been the least

studied variable in the Health Belief Model and more recent findings are suggesting that barriers may be more significant predictors of compliance than has been previously assumed. There is thus a need to define barriers more consistently and to examine factors that may constitute barriers. The question of whether barriers are related to social-interactive variables needs to be explored. That is, do specific stressors constitute barriers?

Dietary compliance has not been studied as extensively as compliance with medication. Dietary compliance has been inconsistently defined and measured. Barriers to dietary compliance have also been defined in various ways and there has been little consistency relative to this concept in much of the previous research. Dietary compliance rates are generally low because of the unique features of the regimen, relinquishing undesirable eating patterns and establishing new ones. Therefore, there is a need to study variables affecting dietary compliance and past research has indicated that the most significant predictors of dietary compliance are related to the attitudinal and motivational features of the patient. No studies were found that correlated barriers to dietary compliance with specific stressors related to parenting, marriage, or employment.

Marker events or transitions of middle-age affect women by representing potential sources of social stress. The major potential sources of stress involve the marital relationship, parenting, employment, self-concept and life



satisfaction, and retirement. Research on middle-aged women has been limited by biases and stereotypes and the samples studied have primarily been composed of white, middle-class, married women. No studies were found that have assessed social stressors of middle-aged women as defined in this study.

Social stress has been defined in a variety of ways in the literature. Ilfeld's (1976a) definition of social stressors, derived from ongoing social relationships, is the approach used in this study. While a few other researchers have used the concept of social stress to examine the relationship between social sources of stress and a stress response (physical or psychiatric symptoms), none of the investigators have operationally defined social stress in the manner similar to Ilfeld. Ilfeld's concept of social stress would seem to be a more practical variable to include in the Health Belief Model as a variable affecting chronic illness compliance behaviors; moreover, social stress would appear to be more amenable to therapeutic interventions.

In conclusion, there are several implications for research from this literature review. The necessity for studying other variables in the Health Belief Model as factors influencing chronic illness behavior is evident. In addition, there is evidence that perceived barriers

may be such a factor and thus there is a need to more consistently define barriers and to further examine factors that may constitute barriers. Perceived social stressors is a concept that looks promising as a factor related to barriers to compliance, and this concept could be incorporated as a variable, thereby making the Health Belief Model more applicable to chronic illness behaviors. Dietary compliance has not been a focus of research efforts. Because dietary compliance rates are generally low, research needs to be directed toward studying variables that are predictive of dietary compliance. Again, perceived barriers would seem to be a promising approach to be included in research efforts.

In Chapter IV, the operational definition of the variables, the characteristics of the sample, the data collection procedure, data analysis methods, instruments and scoring, and hypotheses will be presented.

## CHAPTER IV

### METHODOLOGY AND PROCEDURE

#### Overview

This study was designed to identify the perceived social stressors and perceived barriers to dietary compliance of middle-aged hypertensive women. Results of this study will identify and describe the selected sources of social stress of middle-aged hypertensive women, as well as the relationship between perceived stressors and barriers.

The data for this study were collected as part of a federally funded research project, "Patient Contributions to Care -- Link to Process and Outcome," Grant #5R01 NU00662-03, B. Given and C. W. Given, co-principal investigators. The project was funded by the Public Health Service, Division of Nursing.

The data were collected in 1980-81, using voluntary participants who responded to a self-administered questionnaire. Data for this thesis were derived from the intake or pre-test phase of a controlled field experiment prior to the random assignment of the subjects to experimental or control groups. The sample for this study

consists of 71 middle-aged hypertensive women with an established diagnosis of essential hypertension. These women are part of the larger sample of hypertensive patients who participated in the research project and were selected from a population at family practice centers in Lansing, Grand Rapids, Kalamazoo, and Saginaw.

In this chapter, the study variables will be operationally defined, the extraneous variables will be identified, and the hypotheses will be stated. This presentation will be followed by a description of population and sample characteristics, data collection procedures, instrumentation, scoring, and data analysis techniques. Because the data for this study were collected as part of the research project, "Patient Contributions to Care -- Link to Process and Outcome," the description of population and sample characteristics, as well as data collection procedures, will pertain to those used in the research project.

#### Operational Definition of Variables

Perceived social stressors are defined in this study as those circumstances or conditions of daily social roles which the individual generally considers to be problematic or undesirable (Ilfeld, 1976a). Stressors are tied to a social role and are usually repeated experiences rather than discrete events.

Perceived social stressors will be measured using

an adaptation of Ilfeld's Current Social Stressors Scale -- the Life Situation instrument. This instrument measures nine areas of potential social stress: work, finances, homemaking, a combination of homemaking and job, parenting, marriage, singlehood, unemployment, and disability/retirement.

Perception refers to an individual's representation of reality (King, 1981). It is the individual's views and feelings about social stressors that are being measured. Items are worded in such a way to measure perception: "I have more work than I can handle;" "my co-workers treat me in an unfriendly way."

Perceived barriers to dietary compliance are the expressed beliefs and attitudes of the individual concerning the financial, social, or psychological costs of following the therapeutic diet prescribed, or suggested by, the health care provider in order to improve the patient's health status (Sackett and Haynes, 1976). Barriers to dietary compliance are those difficulties the person perceives he/she must encounter before he/she can take actions regarding dietary modifications (Rosenstock, 1974).

Perceived barriers to dietary compliance will be measured using a subscale of the Beliefs about Hypertension instrument. The subscale that measures barriers is Barriers to Following Diet.

The instrument is designed to measure the individual's perception or expressed beliefs, views, and attitudes

regarding barriers to dietary compliance. Items are therefore worded to measure perception: "My personal life does not interfere with my diet;" "It has been difficult following the diet prescribed for me."

Middlescence, or middle-age is a developmental stage in the adult life cycle for which specific crises, transitions, and developmental tasks can be identified (Stevenson, 1977; Neugarten, 1968; Erikson, 1959). In this study, middle-age includes the chronologic ages 35-65. Because there is no agreement in the literature on the chronologic ages encompassed in the middle-age, this definition is based on those of Havighurst (1972), and Stevenson (1977), and judgment by the researcher.

Middlescence will further be divided into two stages for the purposes of this study. Middlescence I will encompass ages 35-50, and Middlescence II will include ages 51-65. These definitions are adapted from Stevenson (1977) whose synthesis of literature on Middlescence identifies these two specific stages for which separate and distinct transitions and developmental tasks can be identified. The Sociodemographic instrument used in this study can be used to identify the individual's chronologic age and thus determine whether she is in Middlescence I or II.

Middle-aged hypertensive woman is defined for the purposes of this study as a female, age 35-65 inclusive, with an established diagnosis of essential hypertension whose treatment regimen includes a therapeutic diet such as low

sodium, low calorie, low cholesterol, or a combination of these restrictions. To be included in this study, the middle-aged hypertensive woman must: 1) have no other chronic illnesses, 2) have no evidence of stroke, cancer, blindness, end-stage renal disease, psychosis, or active pregnancy, 3) be literate, 4) speak and read English, and 5) have two blood pressure readings separated over time indicating either a systolic pressure of 160 mm Hg or above or a diastolic pressure of 95 mm Hg or above.

#### Extraneous Variables

Extraneous variables are those variables that may influence the results of the study (Polit and Hungler, 1978). Data was collected on the following variables which could affect study results: age, education, occupation, marital status, number of children, number of children living at home, race, income, and duration of hypertension. This information was elicited using the Sociodemographic instrument.

The relationship of the extraneous variables to the study variables was analyzed using a Pearson Product Moment Correlation. Correlation coefficients were computed for age, education, number of children, number of children living at home, income, size of household, and duration of hypertension.

Because the variables of occupation, race, and marital status were measured using a nominal scale rather than an ordinal scale, a one-way analysis of variance (ANOVA) was used to test for differences in the stress scores and barriers to diet scores accounted for by these variables.

Variables which may influence the results of the study but for which data was not collected include: the presence or absence of social support, the care of aging parents, stage of family life cycle, and the experience or non-experience of changes related to menopause.

### Hypotheses

The following hypotheses will be addressed in this study:

1. There is no relationship between total social stressor scores of middle-aged hypertensive women and their perceived barriers to diet scores.
2. There is no relationship between any one of the nine categories of scores of social stressors and barriers to diet score.

### Subhypotheses

- 2a. There is no relationship between job stressors score and barriers to diet score.
- 2b. There is no relationship between financial stressors score and barriers to diet score.
- 2c. There is no relationship between homemaking stressors score and barriers to diet score.



- 2d. There is no relationship between housewife/job stressors score and barriers to diet score.
  - 2e. There is no relationship between parental stressors score and barriers to diet score.
  - 2f. There is no relationship between marital stressors score and barriers to diet score.
  - 2g. There is no relationship between singlehood score and barriers to diet score.
  - 2h. There is no relationship between unemployment stressors score and barriers to diet score.
  - 2i. There is no relationship between retirement/disability stressors score and barriers to diet score.
3. There is no difference between the mean social stressor scores of women in Middlecence I and Middlecence II.

#### Procedure for Data Analysis

Both descriptive and inferential statistical techniques were utilized in the present study. The descriptive statistics computed included percentages, means, and standard deviations and were utilized to describe the sociodemographic characteristics of the study sample, as well as the scores on the social stressors scales and barriers to diet scale.

The inferential statistical techniques utilized in the present study were correlation and one-way analysis of variance. The inferential techniques were used to analyze the relationship between total social stressors score and

barriers to diet score, to analyze the differences between the mean social stressors score of women in Middlescence I and Middlescence II, and to analyze the relationship between the extraneous variables and the study variables.

A correlation indicates the extent to which two variables are interrelated. Correlation does not prove causation. The present study was designed to identify and describe the degree of relationship between total stress scores and perceived barriers to diet score and also between barriers to diet and each social stressor variable.

Correlation coefficients ( $r$ ) range from -1.00 to 1.00. A minus (-) sign preceding the correlation coefficient indicates that as scores on one variable increase, scores on the other variable decrease and thus indicate a negative relationship. A positive relationship is indicated when a minus sign is not present -- as scores on one variable increase, scores on the other variable also increase.

The magnitude of the relationship is indicated by the correlation coefficient. Correlations among the variables in the present study are interpreted from Borg and Gall (1979; pp. 513-514) as:

<u>Value of (<math>r</math>)</u>	<u>Strength of Relationship</u>
0.00 to 0.20	No significant relationship
0.20 to 0.35	Very slight relationship
0.35 to 0.65	Moderate to fair
0.65 to 0.85	Marked to fairly high
0.85 to 1.00	High to very high

Correlation coefficients are described as being statistically significant. The minimal level of significance which was acceptable in the present study is the .05 level. The null hypothesis was rejected if the correlation coefficient of the study variable exceeded the .05 significance level. Therefore, out of 100 cases, a true null hypothesis would be rejected five times.

A one-way analysis of variance (ANOVA) is a procedure used to test the significance of differences between means. The statistic computed in an analysis of variance test is the F-ratio. Analysis of variance, according to Polit and Hungler (1978), decomposes the total variability of a set of data into two components: 1) the variability resulting from the independent variable and 2) all other variability such as individual differences, and measurement unreliability. Variation between groups is contrasted with variation within groups, to yield an F-ratio. The F-ratio is compared with the value from a theoretical F-distribution, i.e., the upper limits of "probable" values for distributions with varying degrees of freedom. For the present study, the .05 probability level was chosen.

The hypotheses have been addressed by computing a mean item response for each subscale in the Life Situation instrument and for the Barriers to Diet subscale of the Beliefs about Hypertension instrument. A total score for each social stressor subscale, as well as a total Barriers

to Diet score were derived for each subject in the sample.

The total stress score for each subject was computed by deriving a mean item response for those items answered, as long as a minimum of ten items were answered. For each subscale on the Life Situation instrument, a mean item response was calculated if at least one-half of the items were answered. A total barriers to diet score was derived for each subject in the sample by computing a mean item response.

Hypothesis 1 was tested using a bivariate correlation technique. The Pearson Product Moment Correlation Coefficient was used to test the relationship between total social stressor scores of the sample and the perceived barriers to diet score. Hypothesis 2 and the subhypotheses were also tested by using the Pearson Product Moment Correlation Coefficient; a total score for each subscale was correlated with the total barriers to diet score.

Hypothesis 3 was tested by using a one-way Analysis of Variance, testing the differences between the mean social stress scores of subjects in Middlecence I and subjects in Middlecence II. Descriptive statistical techniques were used to determine if parenting, singlehood, homemaker/job and marriage constitute sources of social stress for middle-aged hypertensive women. Mean scores on the stress subscales were computed and compared to the range of possible scores (1-4). The researcher

arbitrarily set 2.75 as delimiting the high range for mean scores. That is, mean scores 2.75 or above were considered to be in the high range. Thus, if the mean score was above 2.75, it was assumed that this is an area of high stress as compared to the other categories.

The following section describes population and sample selection and characteristics, as well as procedures used to collect data for the research project Patient Contributions to Care -- Link to Process and Outcome. This federally funded controlled field experiment included both diabetic and hypertensive patients; this section will describe only that information pertinent to hypertensive patients.

### The Population

The selection of a population was carried out in three stages. First, a population of hypertensive patients was identified at four sites: Saginaw, Kalamazoo, Grand Rapids, and Lansing. The population was defined by two methods. One method was by means of computerized data contained in the health information systems in use at the three family practice residency training centers used as sites. The other method was by means of patient lists drawn up by the four private physicians (in two practices) who participated in the study.

Population criteria specified that the patients had to: 1) be between the ages of 18-65, 2) have an established diagnosis of essential hypertension, 3) be literate, 4) show no evidence of cancer, end-stage renal disease, stroke, blindness, psychosis (or present treatment for psychiatric problems), 5) show no evidence of active pregnancy or lactation, and 6) be on a prescribed dietary and/or medication regimen.

In the second stage of population selection, trained auditors (graduate students in the Family Clinical Nurse Specialist program at Michigan State University) screened the medical records of the patient population and abstracted data from records of those patients who met the criteria for inclusion into the study. The auditors screened the medical records for the following information: two blood pressure readings taken on two separate occasions indicating a systolic pressure of 140 mm Hg or above and a diastolic pressure of 90 mm Hg or above, name of medications and dosage and/or type of diet prescribed, and two weights taken on two separate occasions.

After the creation of the population, the principal investigators screened the data abstracted on each patient to determine eligibility for inclusion in the sample. An additional criterion for inclusion in the sample was that the subject's medical records had to indicate two blood pressure readings taken on two separate occasions indicating

either a systolic pressure of 160 mm Hg or above or a diastolic pressure of 95 mm Hg or above.

### The Sample

Male and female hypertensive patients who met the criteria for inclusion into the study were sent letters requesting their participation in the research project. One hundred fifty-eight patients consented to participate and be interviewed; of this number, 71 middle-aged women consented to participate in the research project. Therefore, the sample size for this study is 71.

### Data Collection Procedures

The data for the intake or pre-test phase of Patient Contributions to Care -- Link to Process and Outcome were derived from two sources: 1) structured self-administered and interviewer-administered patient questionnaires, and 2) patients' medical records. Data for this thesis were collected via the self-administered close-ended questionnaires. This section describes human rights protection, the procedure for collecting the data, and a description of the sites, patient interview, and training of interviewers.

### Human Rights Protection

The rights of the respondents were protected through adherence to established standard criteria set forth by the Michigan State University Committee on Research Including Human Subjects. All patients were sent a letter prior to being contacted by an interviewer. (See Appendix A for a copy of the letter.) The letter, signed by either the Medical Director of the health care center where the patient sought care or by the patient's private physician, described the study and its benefits, assured the patient of anonymity and confidentiality, and requested his/her participation in the study.

An interviewer initiated phone contact with patients who returned a postcard indicating a willingness to participate in the study, patients who requested more information about the study, and patients who did not return a postcard. During the phone conversations, the study was again described to the potential subject, questions were answered, and if the person indicated a willingness to participate, an appointment time was arranged to meet with the interviewer at the site.

At the time the interviewer met with a patient, he/she again described the study and told the subjects they had a right to refuse and that such a refusal in no way would affect their health care. Upon eliciting the patient's agreement to participate in the study, the interviewer



explained the content of the five self-administered questionnaires -- that they included questions about the person's background, beliefs, feelings, and opinions. The patient was asked to sign the consent form before proceeding with the interview. The consent form provided an explanation of the research area, the purpose, utilization of results, and assurance of anonymity and confidentiality. (See Appendix B for a copy of the consent form.)

#### Interview Procedure/Sites

The interviews were conducted at four Family Practice sites. Three of the sites (Lansing, Grand Rapids, Saginaw) were ambulatory care centers staffed by residents in training as family physicians. The fourth site (Kalamazoo) consisted of two offices shared by four internists in private practice.

Upon eliciting the person's written consent to participate in the study, the interviewer placed the individual alone in a room to complete the five self-administered questionnaires. The questionnaires included the two instruments used in this thesis study, the Life Situation instrument and the Beliefs about Hypertension instrument. The interviewer periodically checked the person's progress as he/she completed the questionnaires.

After the patient had completed the self-administered forms, which took approximately 30-45 minutes, the

interviewer collected the questionnaires, checked them for omissions, and returned them to project personnel for coding. The questionnaires were pre-coded with subject code number, site, and date of completion.

### Interviewers

With the exception of one site, all of the interviewers were lay people. The one exception was the Lansing Family Practice Center where three graduate nursing students from Michigan State University interviewed patients. (This researcher was one of the three interviewers.)

The lay interviewers were located by personnel at the centers and were interviewed by the research staff before they were hired. The interviewers received two days of training which included an overview of the research project, ethics of interviewing, and the responsibilities and techniques of interviewing.

After the competency of the interviewers was assured, each was assigned a list of patients to contact; each interviewer was responsible for accounting for each patient included on his/her list. Field supervisors for the research project debriefed the interviewers and spot-checked their work on a weekly basis to insure the quality of their work.

## Instruments

This section will describe the way in which the instruments were developed. In addition, scoring and data analysis techniques and reliability and validity will be discussed.

### Life Situation Instrument

Ilfeld (1976a) and Pearlin and Schooler (1978) have proposed that ongoing social relationships produce a great deal of stress, perhaps even more than that produced by major life events as measured by Holmes and Rahe (1967). An adaptation of Ilfeld's (1976a) Current Social Stressor Scale was used to collect data about each individual's perception of social stressors.

Ilfeld developed the scale from open-ended interviews with 175 respondents with socially diverse backgrounds. Ten areas with stress-producing potential were identified: neighborhood, job, financial affairs, homemaking, parenting, marriage, singlehood, unemployment, disability, and retirement.

The instrument used in collecting data for "Patient Contributions to Care -- Link to Process and Outcome" omitted the neighborhood stressors scale and added a subscale combining homemaking and employment. Wording of the questions was changed to make them clearer and more concise and to

adapt them for use with a Likert scale. All items of a given scale were asked of respondents who were participating in that social role. (See Appendix C for a copy of the instrument.)

The Likert scale is utilized in this instrument and is generally considered to be a reliable device for measuring attitudes and beliefs (Polit and Hungler, 1978; Crano, 1973). Wording varies for the choices on the scale, depending on the category and the question stem. Responses on the Likert scale utilized in this instrument include:

Almost always	Much of the time	Once in awhile	Never or almost never
Strongly agree	Somewhat agree	Somewhat disagree	Strongly disagree
Never	Once in awhile	Fairly often	Very often
A great deal	Some	Only a little	None

"Undecided" was not used as a response in order to force the respondent to make a decision. "Yes" or "No" questions are included in the Financial Situation subscale.

A possible limitation of the instrument is that participants responded to those sections of the instrument which pertained to those social roles in which they participate. Therefore, there are different numbers of subjects responding to the various subscales; a few of the

subscales such as Disability or Retirement have very few respondents. This small number of respondents makes statistical analysis and interpretation less meaningful.

### Scoring and Analysis of Life Situation Instrument

Scoring and statistical analysis was developed with the assistance of a psychometrician. A number value from one to four was assigned to each of the four possible responses on the Likert scale. The highest number (four) was assigned to that response indicating the highest stress.

Items were worded positively and negatively. A negatively worded statement was scored as follows:

"I am not appreciated for my work in the house."

Almost always	Much of the time	Once in awhile	Never or almost never
4	3	2	1

A positively worded statement was scored in this manner:

"I really enjoy the work that I do at home."

Almost always	Much of the time	Once in awhile	Never or almost never
1	2	3	4

The "Yes" or "No" questions in the financial situation section were scored as Yes (1) and No (4). The "No" response was considered to be the response indicating

high stress.

For each subscale (job, parenting, etc.) a mean item response was computed. This was derived by adding the number values for each response and dividing by the total number of items answered in the subscale. A total social stressor score was computed in this manner. For each subject in the sample, a total stressor score represents the total mean item response (addition of number values for all responses divided by total number of items answered in the questionnaire.)

Beliefs About Hypertension Instrument (Subscale-Barriers to Diet)

Perceived barriers to dietary compliance is a subscale of the Beliefs about Hypertension questionnaire and is represented by items 32-41. This instrument was designed for use in the research project Patient Contributions to Care -- Link to Process and Outcome, Grant #5R01 NU00662-03, B. Given and C. W. Given, co-principal investigators.

The instrument was developed through the collection of questions and statements that could be used to measure each of the dimensions of patient beliefs. Statements describing the patient's beliefs about hypertension and benefits of and barriers to medication and dietary compliance were developed from two sources. (This instrument was developed to measure the aforementioned dimensions;

from this point on, reference will be made to barriers to dietary compliance only, since it is the focus of this study.)

First, a convenience sample of 30 hypertensive patients was interviewed in depth to develop statements about barriers to dietary compliance. These patients were asked to talk about the major problems they encountered in remaining on their diets. From these interviews, statements describing possible barriers to dietary compliance were developed. A five point Likert scale ranging from "Strongly agree" to "Strongly disagree" was used to obtain responses to all belief statements.

The instrument was then administered to a sample of 154 hypertensive patients and their responses factor analyzed. For purposes of validation, the instrument was then administered to a second sample of 97 hypertensive patients. This sample was drawn from a population of hypertensive patients at eleven geographically distinct family practice residency training programs in the state. Criteria for inclusion in the sample was the same as for inclusion in the sample for the research project, enumerated in a preceding section.

Ninety-four of the 97 patients indicated they were on a special diet; from these 94 patients the Barriers to Diet subscale was determined (10 items).

Scoring and Analysis of Barriers to Diet

This subscale utilizes a Likert scale response ranging from "Strongly agree" to "Strongly disagree". Scoring ranges from one to five for each response. The number value assigned to each of the five possible responses depends on whether the statement is worded positively or negatively. An example of a positively worded statement and scoring is:

"Following my diet does not interfere with my normal daily activities."

Strongly agree	Agree	Undecided	Disagree	Strongly disagree
1	2	3	4	5

An example of a negatively worded statement and scoring is:

"I cannot understand what the doctor told me about my diet."

Strongly agree	Agree	Undecided	Disagree	Strongly disagree
5	4	3	2	1

A high score for an item indicates a barrier, or difficulty in adhering to the diet. Scores for each item were totaled and a mean was derived, thus giving a total Barriers to Diet score.



### Sociodemographic Instrument

This instrument was designed to elicit information regarding variables that may influence the subject's perception of social stressors and barriers to dietary compliance. This instrument was used for gathering data in the research project "Patient Contributions to Care -- Link to Process and Outcome." Assessment of the following items is included in this instrument:

Age	Yearly income
Sex	Work status/occupation
Race/ethnicity	Education
Marital status	Number of persons living in household
Number of children living at home	Duration of hypertension

### Reliability and Validity

Tests for reliability and validity have been conducted for these instruments. The results of the reliability estimate are presented in Chapter V. Included in this section will be a discussion of the concepts of reliability and validity and how these concepts relate to the Life Situation instrument and the Barriers to Diet subscale.

The degree of interrelatedness among items is the test of the scale's reliability (Cranon, 1973); this is the consistency with which the instrument measures the attributes it is intended to measure (Polit and Hungler, 1978). Internal consistency indicates a high degree of interrelatedness

among the items (Crano, 1973). Coefficient alpha is the method used to estimate the internal consistency for each category of the life Situation instrument and the Barriers to Diet subscale of the Beliefs about Hypertension instrument.

Ilfeld (1976a) reported the scales on his Current Social Stressors instrument were not developed with unidimensionality in mind, examining several dimensions within each role. They apparently tapped the common underlying dimensions, however, as evidenced by alpha coefficients ranging from .69 to .89. Pre-testing the Beliefs about Hypertension instrument on the sample of 97 hypertension patients yielded an alpha coefficient of .72 for Barriers to Diet.

Validity of a scale is defined by Crano (1973) as the "extent of correspondence between variations in scores on the instrument and variations among the respondents on the underlying attribute under investigation" (p. 249). Validity, therefore, is the degree to which an instrument measures what it is intended to measure. While there are several types of validity, content validity and construct validity are most pertinent to this study.

Content validity is concerned with the sampling adequacy of the content area being measured (Polit and Hungler, 1978). That is, how representative are the questions of all those which could be asked on this topic? Since there are no objective methods for measuring content validity

(Polit and Hungler, 1978) content validity can be judged to be adequate by examining the methods used to develop the questions on the instrument.

The Barriers to Diet subscale was developed from a pool of items gathered from open-ended interviews with hypertensive patients, literature review, pre-testing the instrument with two separate samples of patients, and judgment and experience of the co-principal investigators. Ilfeld (1976a) developed his Current Social Stressors scale from open-ended interviews with 175 people ranging in ages from 18 to 65. The interviews were conducted over a one and one-half year period and represented the experience and perceptions of a socially diverse group of respondents. The language used in the questionnaire was adopted from the interview subjects, with inquiry into specific, concrete events.

According to Polit and Hungler (1978) construct validity concerns the underlying attribute being measured; the question of the researcher becomes: What is this instrument really measuring? Construct validity of the Beliefs about Hypertension instrument (Barriers to Diet subscale) was approached using factor analysis with varimax rotation for each variable.

Threats to validity that are pertinent to this study include social desirability and extreme response sets. The respondents may have been influenced to respond in a

socially desirable way because it may have been difficult to express negative feelings about social roles or problems with diet. Also, the subjects may not have been aware of their true feelings and thus an element of denial would pose a threat to validity.

Extreme response sets, an additional threat to validity, indicates a subject's propensity to respond to the extreme qualifiers of the opinion scale. Items were worded both positively and negatively so individuals would not engage in a "response set" or tend to agree with all positively worded statements.

#### Summary

The operational definitions of the variables addressed in this study, extraneous variables, and hypotheses were discussed in Chapter IV. Also presented were the population and sample characteristics, data collection procedures, human rights protection, scoring and techniques for data analysis, and reliability and validity of the instruments. Chapter V presents the data and analyzes the results in relation to the research hypotheses and questions.

## CHAPTER V

### DATA PRESENTATION AND ANALYSIS

#### Overview

In this chapter, the study population will be described and data will be presented delineating the relationship between perceived social stressors and perceived barriers to dietary compliance for middle-aged hypertensive women. Data testing the differences between the mean social stressor scores of subjects in Middlecence I and Middlecence II also will be presented. Finally, a description of the mean scores of the sample in selected categories of social stress will be presented. A volunteer sample of 71 middle-aged hypertensive women ranging in ages from 35-65 who were following a therapeutic diet comprised the sample. Data elicited from these women were used to address the following questions:

#### Research Question 1

What is the relationship between the total perceived social stressor score of middle-aged hypertensive women and their perceived barriers to

diet score?

#### Research Question 2

Is there a relationship between any one of the nine categories of social stressors and barriers to diet for middle-aged hypertensive women?

#### Research Question 3

Is there a difference in the mean social stressor scores of women in Middlescence I and Middlescence II?

#### Research Question 4

For middle-aged hypertensive women, do parenting, singlehood, homemaker/job and marriage constitute sources of social stress?

### Hypotheses

The following hypotheses were developed to address Research Questions 1, 2, and 3.

1. There is no relationship between the total social stressor scores of middle-aged hypertensive women and their perceived barriers to diet score.
2. There is no relationship between any one of the nine categories of social stress scores and perceived barriers to diet score.

- 2a. There is no relationship between job stressors score and barriers to diet score.
  - 2b. There is no relationship between financial stressors score and barriers to diet score.
  - 2c. There is no relationship between homemaking stressors score and barriers to diet score.
  - 2d. There is no relationship between homemaking/job stressors score and barriers to diet score.
  - 2e. There is no relationship between parental stressors score and barriers to diet score.
  - 2f. There is no relationship between marital stressors score and barriers to diet score.
  - 2g. There is no relationship between singlehood stressors score and barriers to diet score.
  - 2h. There is no relationship between unemployment stressors score and barriers to diet score.
  - 2i. There is no relationship between retirement/disability stressors score and barriers to diet score.
3. There are no differences between the mean total social stressors scores of women in Middlecence I and Middlecence II.

### Descriptive Findings of the Study Sample

The study sample consisted of 71 English-speaking, middle-aged hypertensive females whose ages ranged from 35 to 65 years. The study sample is part of a larger study population of 152 hypertensive patients who participated in the research project Patient Contributions to Care -- Link to Process and Outcome, B. Given and C. W. Given, co-principal investigators. The sample population was obtained from ambulatory family practice settings in four locations in Michigan: Lansing, Grand Rapids, Kalamazoo, and Saginaw.

### Sociodemographic Variables

The sociodemographic variables examined in the present study were age, marital status, occupation, education, number of living children, number of children living at home, race, work status, income, living arrangements, size of household, and duration of diagnosed hypertension.

Sex. Only women participated in the study as the present study was designed to include only female subjects.

Age. The age of the study participants ranged from 35 to 65; this is congruent with the definition of middle-age utilized in the present study. The mean age of the subjects was 48.2 years. The ages were further categorized



into Middlecence I and Middlecence II. Middlecence I included ages 35 to 50 and the mean age for this group was 42.3 years. Middlecence II included ages 51 to 65 and the mean age for subjects in this group was 57.2 years. The age distribution and percentages are illustrated in Table 1.

Table 1. Number and Percentage of Subjects by Age  
(n = 71).

Age	Number of Participants			Percentage		
	B*	I <sup>+</sup>	II**	B	I	II
35-39	15	15		21.1	21.1	0.0
40-44	9	9		12.6	12.6	0.0
45-49	14	14		19.7	0.0	
50-54	14	5	9	19.7	7.0	12.7
55-59	9		9	12.6	0.0	12.6
60-65	10		10	14.0	0.0	14.0

\* Both age groups

<sup>+</sup>Middlecence I

\*\*Middlecence II

Marital Status. The distribution and percentage of middle-aged hypertensive women by marital status may be seen in Table 2. Over three-quarters (76.1%) of the middle-aged women in this study were married.

Table 2. Number and Percentage of Subjects by Marital Status (n = 71).

Marital Status	Number of Participants			Percentage		
	B	I	II	B	I	II
Married	54	34	20	76.1	47.9	28.2
Single, never married	1	1	0	1.4	1.4	0.2
Separated	3	2	1	4.2	2.8	1.4
Divorced	6	5	1	8.5	7.0	1.5
Widowed	7	1	6	9.9	1.4	8.5

Occupation. Only 32 subjects responded to the question asking that they describe what type of work they do. This number corresponds to the number of respondents who indicated they were currently employed. Hollingshead's Occupational Scale was used to code the occupational variables. The number and percentage of subjects according to occupation can be seen in Table 3. Of the 32 subjects who responded, over one-quarter (28.1%) were clerical and sales workers. Nearly one-fifth of the women (n = 6; 18.8%) were categorized as "lesser" professionals such as business managers. The remaining subjects were fairly evenly distributed within the other occupational categories.

Table 3. Number and Percentage of Subjects by Occupation  
(n = 32).

Occupation	Number of Participants			Percentage		
	B	I	II	B	I	II
Higher executive, major professional	3	3	0	9.4	9.4	0.0
Business manager, lesser professional	6	2	4	18.8	6.3	12.5
Administrator, minor professional	3	2	1	9.4	6.3	3.1
Clerical, sales	9	6	3	28.1	18.8	9.4
Skilled, manual	3	0	3	9.4	0.0	9.4
Semi-skilled	4	4	0	12.5	12.5	0.0
Unskilled	4	3	1	12.5	9.4	3.1

Education. Almost 41% (n = 29; 40.8%) of the sample were high school graduates. Almost one-quarter (23.9%) had less than a high school education and almost one-third (29.5%) had attended institutions of higher education. The number and percentage of the women by education can be seen in Table 4.

Number of Children. The number of living children was ascertained from each participant in the study. Approximately one-quarter of the subjects (n = 19; 26.8%) had two living children. Nineteen subjects (26.7%) had five or more children.

Table 4. Number and Percentage of Subjects by Education  
(n = 71).

Education	Number of Participants			Percentage		
	B	I	II	B	I	II
None or some school (less than 7 yrs.)	5	2	3	7.0	2.8	4.2
Junior high (completed 9 grades)	2	1	1	2.8	1.4	1.4
Some high school (completed 10th or 11th grade)	10	4	6	14.1	5.6	8.5
High school graduate	29	22	7	40.8	31.0	9.9
Technical, business, trade school	4	0	4	5.6	0.0	5.6
Some college (less than 4 yrs.)	13	8	5	18.3	11.3	7.0
College graduate	4	2	2	5.6	2.8	2.8
Post graduate or professional	4	4	0	5.6	5.6	0.0

Number of Children Living at Home. The number of children living at home was obtained from each subject in the study. The distribution and percentage of middle-aged women according to number of children living at home can be seen in Table 6. More than one-third (35.2%) of the sample had no children living at home.

Table 5. Number and Percentage of Subjects by Number of Living Children (n = 71).

Number of Children	Number of Participants			Percentage		
	B	I	II	B	I	II
0	2	1	1	2.8	1.4	1.4
1	7	5	2	9.9	7.0	2.8
2	19	13	6	26.8	18.3	8.5
3	12	8	4	16.9	11.3	5.6
4	12	5	7	16.9	7.0	9.9
5	9	4	5	12.7	5.6	7.0
6	2	2	0	2.8	2.8	00.0
7	5	3	2	7.0	4.2	2.8
9	1	0	1	1.4	0.0	1.4
10	1	1	0	1.4	1.4	0.0
13	1	1	0	1.4	1.4	0.0

Table 6. Number and Percentage of Subjects by Number of Children Living at Home (n = 71).

Number of Children Living at Home	Number of Participants			Percentage		
	B	I	II	B	I	II
0	25	4	21	35.2	5.6	29.6
1	19	13	6	26.8	18.3	8.5
2	17	16	1	23.9	22.5	1.4
3	3	3	0	4.2	4.2	0.0
4	4	4	0	5.6	5.6	0.0
5	1	1	0	1.4	1.4	0.0
6	2	2	0	2.8	2.8	0.0

Race. Race was ascertained for each participant in the study. Table 7 includes data on the number and percentage of subjects by race. The majority of participants in this study were white (n = 58; 81.7%).

Table 7. Number and Percentage of Subjects by Race (n = 71).

Race	Number of Participants			Percentage		
	B	I	II	B	I	II
White	58	33	25	81.7	46.5	35.2
Black	13	10	3	18.3	14.1	4.2

Work Status. Work status was obtained from each participant in the study. The distribution and percentage of women by work status can be seen in Table 8. Almost half of the subjects (n = 32; 45.1%) were currently working at a regular job outside the home for pay. One third of the sample (n = 26; 36.6%) were housewives.

Income. Yearly total family income was obtained from 67 subjects. The distribution and percentage of subjects according to income can be seen in Table 9. Over one-half of the subjects (n = 35; 52.3%) reported a yearly income above \$20,000.

Table 8. Number and Percentage of Subjects by Work Status  
(n = 71).

Work Status	Number of Participants			Percentage		
	B	I	II	B	I	II
Working	32	20	12	45.1	28.2	16.9
Unemployed or laid off	6	6	0	8.5	8.5	0.0
Retired	1	0	1	1.4	0.0	1.4
Disabled	4	2	2	5.6	2.8	2.8
Housewife	26	14	12	36.6	19.7	16.9
Other	2	1	1	2.8	1.4	1.4

Table 9. Number and Percentage of Subjects by Yearly Income (n = 67).

Income	Number of Participants			Percentage		
	B	I	II	B	I	II
Less than \$5,000	1	1	2	4.5	1.5	3.0
5,000-6,999	4	2	2	6.0	3.0	3.0
7,000-8,999	4	1	3	6.0	1.5	4.5
9,000-10,999	5	4	1	7.5	6.0	1.5
11,000-12,999	1	1	0	1.5	1.5	0.0
13,000-14,999	5	2	3	7.5	3.0	4.5
15,000-16,999	2	1	1	3.0	1.5	1.5
17,000-19,999	8	5	3	11.9	7.5	4.5
20,000-24,999	18	13	5	26.9	19.4	7.5
25,000 or more	17	11	6	25.4	16.4	9.0

Living Arrangements. Living arrangements were obtained for each subject in the study. Table 10 represents the distribution and percentage of participants by living arrangements. Almost one-half of the subjects ( $n = 35$ ; 49.3%) were married and living with spouse and children.

Table 10. Number and Percentage of Subjects by Living Arrangements ( $n = 71$ ).

Living Arrangements	Number of Participants			Percentage		
	B	I	II	B	I	II
Unmarried, living alone	8	1	7	11.3	1.4	9.9
Unmarried; living with relatives or unrelated persons	1	1	0	1.4	1.4	0.0
Single; living with children	5	5	0	7.0	7.0	0.0
Married; living with spouse and children	35	31	4	49.3	43.7	5.6
Married; living with spouse alone	15	2	13	21.1	2.8	18.3
Married; living with spouse, children, and other relatives	3	1	2	4.2	1.4	2.8
Married; living with spouse and other relatives	1	0	1	1.4	0.0	1.4
Other	3	2	1	4.2	2.8	1.4



Size of Household. Number of people living in the household was obtained for 70 subjects. One-fourth of the sample (n = 17; 24.3%) had two other people living in the household besides themselves, one-fourth (n = 18; 25.7%) had three other people in the household, and almost one-fourth (n = 16; 22.9%) had four other people living in the household. Table 11 shows the distribution and percentage of subjects by size of household.

Table 11. Number and Percentage of Subjects by Size of Household (n = 70).

Size of Household (Number of People Living in the Home Besides the Subject)	Number of Participants			Percentage		
	B	I	II	B	I	II
1	8	2	6	11.4	2.9	8.6
2	17	4	13	24.3	5.7	18.6
3	18	13	5	25.7	18.6	7.1
4	16	13	3	22.9	18.6	4.3
5	4	4	0	5.7	5.7	0.0
6	4	4	0	5.7	5.7	0.0
7	2	2	0	2.9	2.9	0.0
8	1	1	0	1.4	1.4	0.0

Duration of Hypertension. Duration of diagnosed hypertension was ascertained for 69 of the participants. Approximately one-quarter of the subjects (n = 18; 26.1%) had hypertension for three to five years. Twelve subjects (17.4%) had hypertension for 15 or more years. Table 12 depicts the distribution and percentage of women by duration of diagnosed hypertension.

Table 12. Number and Percentage of Subjects by Duration of Hypertension (n = 69).

Duration of Hypertension (years)	Number of Participants			Percentage		
	B	I	II	B	I	II
Less than 1 year	7	4	3	10.1	5.8	4.3
1-2 years	15	8	7	21.7	11.6	10.1
3-5 years	18	13	5	26.1	18.8	7.2
6-8 years	7	4	3	10.1	5.8	4.3
9-11 years	7	4	3	10.1	5.8	4.3
12-14 years	3	2	1	4.3	2.9	1.4
15 or more years	12	6	6	17.4	8.7	8.7

### Summary

The descriptive findings of the study population were presented in the previous section. The descriptions of the sample were presented according to the following

sociodemographic variables: age, marital status, occupation, education, number of living children, number of children at home, race, work status, income, living arrangements, size of household, and duration of hypertension. An examination of the descriptive statistics showed that the majority of subjects in the sample are white, married, middle class, and graduates of high school.

#### Reliability of the Instruments

The reliability of the Beliefs about Hypertension Instrument which includes the Barriers to Diet subscale was measured through computation of Cronbach's coefficient alpha. The reliability coefficient for the Barriers to Diet subscale was .69. This represents an adequate level of internal consistency.

The reliability of the Life Situation instrument (social stressors) was computed through the use of odd/even split-half correlations with Spearman-Brown correction. The reliability coefficient for the Life Situation instrument was .61. This measure of internal consistency is at the low end of acceptability.

#### Data Presentation for Research Questions and Hypotheses

Each research question and related hypothesis will be presented in this section along with the associated data.

The statistical technique for obtaining correlations among the study variables was the Pearson Product Moment Correlation. This correlation coefficient was utilized to calculate the degree and direction of relationship between the variables.

#### Research Question 1

What is the relationship between total perceived social stressor score of middle-aged hypertensive women and their perceived barriers to diet score?

Hypothesis 1: There is no relationship between total social stressor scores of middle-aged hypertensive women and their perceived barriers to diet score.

The correlation ( $r$ ) between total perceived social stressor scores of middle-aged hypertensive women and their perceived barriers to diet score was  $-.1783$  ( $p \leq .068$ ). The null hypothesis was not rejected. There is no significant relationship between the total perceived social stressor scores of middle-aged hypertensive women and their perceived barriers to diet score.

#### Research Question 2

Is there a relationship between any one of the nine categories of social stressor scores and barriers

to diet score for middle-aged hypertensive women?

Hypothesis 2: There is no relationship between any one of the nine categories of social stressors scores and barriers to diet score.

Subhypothesis 2a: There is no relationship between job stressors score and barriers to diet score.

The correlation between the job stressors score and barriers to diet score was  $r = .0620$  ( $p \leq .366$ ), with 33 subjects responding. The null hypothesis was not rejected; there was no significant relationship between job stressor scores and barriers to diet score.

Subhypothesis 2b: There is no relationship between the financial stressors score and barriers to diet score.

The correlation between financial stressors score and barriers to diet score was  $r = -.2406$  ( $p \leq .022$ ) and, therefore, the null hypothesis was rejected. There was a very slight negative relationship between the financial stressors score and barriers to diet score.

Subhypothesis 2c: There is no relationship between homemaking stressors score and barriers to diet score.

The correlation between homemaking stressors score and barriers to diet score was  $r = .4089$  ( $p \leq .015$ ). The null hypothesis was rejected. There was a moderate positive relationship between homemaking stressors score and barriers to diet score.

Subhypothesis 2d: There is no relationship between homemaking/job stressors score and barriers to diet score.

The correlation between homemaking/job stressors score and barriers to diet score was  $r = .2492$  ( $p \leq .081$ ) with 33 subjects responding. There is no significant relationship between homemaking/job stressors score and barriers to diet score. The null hypothesis was not rejected.

Subhypothesis 2e: There is no relationship between parental stressors score and barriers to diet score.

The correlation between parental stressors score and barriers to diet score was  $r = -.3149$  ( $p \leq .022$ ) with 41 respondents. There was a very slight negative relationship between parental stressors score and barriers to diet score. The null hypothesis was rejected.

Subhypothesis 2f: There is no relationship between marital stressors score and barriers to diet score.

The correlation between marital stressors score and barriers to diet score was  $r = -.0032$  ( $p \leq .491$ ) with 54 respondents. There was no significant relationship between marital stressors score and barriers to diet score. The null hypothesis was not rejected.

Subhypothesis 2g: There is no relationship between singlehood stressors score and barriers to diet score.

The correlation between singlehood stressors score and barriers to diet score was  $r = -.5670$  ( $p \leq .009$ ) with 17 respondents. There was a moderate negative relationship between singlehood stressors and barriers to diet. The null hypothesis was rejected.

Subhypothesis 2h: There is no relationship between unemployment stressors score and barriers to diet score.

The correlation between unemployment stressors score and barriers to diet score was  $r = -.5675$  ( $p \leq .092$ ) with four respondents. There was no significant relationship between unemployment stressors score and barriers to diet score. The null hypothesis was not rejected.

Subhypothesis 2i: There is no relationship between retirement/disability stressors score and barriers to diet score.

score and barriers to diet score was  $r = -.2651$  ( $p \leq .333$ ) with five respondents. There is no significant relationship between retirement/disability stressors score and barriers to diet score. The null hypothesis was not rejected.

Table 13 depicts the relationship between social stressors variables and barriers to diet.

Table 13. The Relationship Between Social Stressors and Barriers to Diet (Pearson Product Moment Correlation).

Social Stressors	Barriers to Diet (r)
Job	.06
Housewife/job	.25
Housewife	.41*
Unemployment	-.57
Retirement/disability	-.27
Finances	-.24*
Parenting	-.31*
Marriage	-.00
Singlehood	-.57**
Total Social Stressors	-.18

\* Significant at .05 level.

\*\* Significant at .01 level.



Research Question 3

Are there differences in the mean social stressors scores of hypertensive women in Middlecence I and Middlecence II?

Hypothesis 3: There are no differences in the mean social stressors score of hypertensive women in Middlecence I and Middlecence II.

The mean social stressors score of hypertensive women in Middlecence I was 2.7088. The mean social stressor score of hypertensive women in Middlecence II was 2.6575. An analysis of variance showed the differences between the two means were not significant ( $F(1,69) = 1.39$ ). The null hypothesis was not rejected. Differences between the mean social stressors scores of women in Middlecence I and Middlecence II can be seen in Table 14.

Table 14. Differences Between Mean Total Social Stressors Scores for Subjects in Middlecence I and Middlecence II (ANOVA).

Source Variance	Sum of Squares	Degrees of Freedom	Mean Square	F	P
Between Groups	.0447	1	.0447	1.39	.24
Within Groups	2.2230	69	.0322		
Total	2.2677	70			

Research Question 4

For middle-aged hypertensive women, do parenting, singlehood, homemaker/job, and marriage constitute sources of social stress?

4a. Is the mean stressor score for parenting in the high range?

The mean score for parental stressors was 2.99. The score is above 2.75 and is therefore in the high range.

4b. Is the mean stressor score for singlehood in the high range?

The mean score for singlehood stressors was 2.99. This score is above 2.75 and is therefore in the high range.

4c. Is the mean stressor score for homemaker/job in the high range?

The mean score for homemaking/job stressors was 2.26. This score is below 2.75 and is, therefore, not in the high range.

4d. Is the mean stressor score for marriage in the high range?

The mean stressor score for marriage was 2.80 and was considered to be in the high range.

The mean scores in selected social stressor categories are summarized in Table 15.

Table 15. Mean Scores, Number of Participants in Selected Social Stress Categories.

Social Stressor	Mean Score	Number of Participants
Parenting	2.9972	41
Singlehood	2.9918	17
Housewife/job	2.2615	33
Marriage	2.8037	54

In summary, the relationships among the study variables were identified and presented in this section. Hypotheses 1, 2a, 2d, 2f, 2h, 2i were not rejected, indicating there were no significant relationships between:

1. Total social stressors scores and barriers to diet score.
- 2a. Job stressors score and barriers to diet score.
- 2d. Homemaking/job stressors score and barriers to diet score.
- 2f. Marital stressors score and barriers to diet score.
- 2h. Unemployment stressors score and barriers to diet score.
- 2i. Retirement/disability stressors score and barriers to diet score.

Hypothesis 3 was not rejected, indicating there were no

significant differences between:

3. Mean social stressors scores of women in Middlescence I and Middlescence II.

Hypotheses 2b, 2c, 2e, 2g were rejected, indicating there were significant relationships between:

- 2b. Financial stressors score and barriers to diet score.
- 2c. Homemaking stressors score and barriers to diet score.
- 2e. Parental stressors score and barriers to diet score.
- 2g. Singlehood stressors score and barriers to diet score.

Mean scores in the high range on the parenting, marriage, and singlehood subscales indicate that these areas may constitute sources of social stress for middle-aged hypertensive women in the study population.

A correlation matrix showing the relationship among the study variables by age group is presented in Tables 19-21, Appendix D.

#### Extraneous Variables

The Pearson Product Moment Correlation technique revealed that there were no significant relationships between

the extraneous variables of age, duration of hypertension, education, number of children, number of children at home, income, and size of household and the major study variables of social stress and barriers to diet.

A one-way analysis of variance was computed for the extraneous variables of occupation, race, and marital status. Results of this test revealed that there are no differences in social stressor scores and barriers to diet scores accounted for by these variables.

Tables 16-17, Appendix D, display the data computed for the extraneous variables and the major study variables.

Further analysis of the extraneous variables was conducted to gain insight into the findings presented for the research questions and hypotheses. The continuous variables of social stressors and barriers to diet were translated into categorical variables, i.e., high and low barriers scores and high and low social stressor scores. A contingency table was constructed using selected extraneous variables and the high and low scores to determine if there were trends associated with the high and low scores.

From this descriptive analysis, some trends were associated with the variables of duration of hypertension, marital status, education, work status, and number of children at home. Of the 15 subjects who reported a duration of hypertension for 12 or more years, the majority

(60%) were in the low barriers to diet category. Also, 60% of these women with long duration of hypertension were in the high social stress category.

Almost two-thirds (62.5%) of the women with a college education or higher were categorized as having low barriers to diet. Two-thirds of the unemployed women (66.6%) were in the high barriers to diet category.

Of the 25 women with no children living at home, the majority (60%) were in the low barriers to diet category while 68% of them were in the low social stress category. Of women with three or more children at home ( $n = 46$ ), the majority (63%) had high social stress scores.

Last, of the subjects in Middlescence I, 58.1% had high stress scores compared to 42.8% of the women in Middlescence II who were in the high social stress category. In Middlescence I, 60% of the women were categorized as having high barriers to diet, compared to 35% of the subjects in Middlescence II in the high barriers to diet category.

Thus, for this sample, the descriptive findings show that the majority of people who had hypertension 12 or more years, who had a college education or more, and who had no children at home were in the low barriers to diet category. High barriers to diet were associated with the majority of women who were unemployed.

The majority of people who had hypertension 12 or

more years, who had a college education or more, and who had no children at home were in the low barriers to diet category. High barriers to diet were associated with the majority of women who were unemployed.

The majority of people who had hypertension 12 or more years, who were divorced, who had a college education, and who had three or more children at home were in the high social stress category.

Table 22, Appendix D, shows the number and percentage of subjects in the high and low categories of barriers to diet and social stress by sociodemographic variables.

#### Other Findings

Other significant findings that were not addressed in the research questions or hypotheses are presented in this section. Data for the combined groups of Middlecence I and Middlecence II revealed significant relationships between the following variables: unemployment and total stress score ( $r = .84, p \leq .001$ ), parenting older children and total stress score ( $r = .85, p \leq .01$ ), parenting younger children and total stress score ( $r = .49, p \leq .01$ ), and singlehood and total stress score ( $r = .67, p \leq .01$ ). This data is summarized in Table 19, Appendix D.

In Middlecence I, there were significant correlations between parenting young children and total stress score ( $r = .49, p \leq .01$ ), singlehood and stress ( $r = .81,$

$p \leq .01$ ), and singlehood and barriers to diet ( $r = -.70$ ,  $p \leq .05$ ). There was a moderate negative relationship between the total social stressor score and barriers to diet score ( $r = -.4330$ ;  $p \leq .002$ ), and a moderate negative relationship between parental stressor scores and barriers to diet score ( $r = -.4543$ ,  $p \leq .015$ ) for those women with older children. Table 20, Appendix D, shows the correlations for women in Middlecence I.

For women in Middlecence II, there was a significant relationship between parenting older children and total social stress score ( $r = .96$ ,  $p \leq .01$ ). Table 21, Appendix D, depicts the correlational data for women in Middlecence II.

Additional descriptive findings, summarized in Table 18, Appendix D, revealed that the highest mean scores in both Middlecence I and II were on the parental stressors and singlehood stressors subscales.

For women in Middlecence I, the mean parental stressor score for women with younger children (ages 6 to 15) was in the high range (mean = 3.04). Mean parental stressor score for those subjects with older children (ages 16 to 20) was also in the high range (mean = 2.83).

The highest mean scores for women in Middlecence I were parental stressors, younger children (mean = 3.04); parental stressors, older children (mean = 2.83); and singlehood (mean = 2.95).



The highest mean scores for women in Middlecence II were parental stressors, younger children (mean = 3.10); parental stressors, older children (mean = 3.21), and singlehood (mean = 3.04).

### Summary

In Chapter V data were presented that described the study sample, as well as the mean scores on selected social stressor categories. The Pearson Product Moment Correlation was utilized to identify the degree and direction of the relationship among the study variables. Last, additional findings not addressed in the hypotheses or the research questions were presented. Reliability indices for the instruments were also discussed.

In Chapter VI the data described in Chapter V will be interpreted and summarized. Conclusions and implications for nursing education, research, and practice will be discussed within the context of the conceptual framework of the research study.

## CHAPTER VI

### SUMMARY, INTERPRETATIONS, AND RECOMMENDATIONS

#### Overview

A summary and interpretation of the findings are presented in Chapter VI. This summary and interpretation includes a discussion of the sociodemographic characteristics of the study population and how these variables may have influenced the outcome of the study. Findings for the research questions and hypotheses are discussed within the context of findings of previous research studies. Limitations of the present study are cited and implications of the study for nursing practice, education, and research are presented.

#### Summary and Interpretation of Findings

##### Sociodemographic Characteristics of the Study Population

A summary of the sociodemographic characteristics of the study population and comparison of these characteristics to the general population, where applicable, will be presented. Sociodemographic characteristics of the subjects in this study may have affected the outcome of the study by their

influence on social roles and strategies the individuals used to cope with stressors and barriers to diet. The manner in which the sociodemographic variables could have influenced the results of the study will be presented in the discussion of findings for the research questions and hypotheses.

Age. The mean age of the study participants was 48.2 years with a range from 35-65 years. This range is consistent with the definition of Middlecence. Because of the broad definition of middle-age in the literature, Stevenson (1977) dichotomized middle-age into Middlecence I and Middlecence II. This dichotomization was carried out in the present study. The mean age for subjects in Middlecence I (ages 35-50) was 42.3 years; the mean age for subjects in Middlecence II (ages 51-65) was 57.2 years. The majority of participants (60%) were in Middlecence I. One-fifth of the sample (21.1%) was in the youngest age group (35-39) while 14.0% of the sample was in the oldest age group (60-65).

Sex. The inclusion of only female subjects was inherent in the study design. Therefore, the results of this study reflect female experience only, and the findings cannot be generalized to middle-aged men. The present study therefore differs from previous research on middle-age which has included only males (Levinson, 1977) or both males and females (Lowenthal, et al., 1975).

Marital Status. Three-quarters of the participants (76.1%) were married. The remaining 23.9% of the study population were widowed (9.9%), divorced (8.5%), separated (4.2%), or never married (1.4%). Because the majority of the participants were married, this is reflective of earlier studies on middle-age (Lowenthal, et al., 1975; Palmore, 1979) which included only married individuals.

The 1980 U.S. Census reports the following percentages of marital status categories for females over 18 years of age: single, never married, 17.0%; married, 63.1%, widowed, 12.8%, and divorced, 7.1%. Thus, the study sample has a higher percentage of married women and a lower percentage of women who never married in comparison to the general population.

Occupation. Thirty-two subjects indicated they were currently employed at the time the data were collected. Of these 32 respondents, over one-quarter (28.1%) indicated they were in clerical/sales positions and another one-quarter (28.1%) worked in a professional capacity.

Education. Almost 41% of the subjects were high school graduates and an additional 11.2% of the participants were college graduates or had post-graduate degrees. In the general population, for females 25 years of age and older, 40.5% are high school graduates, and 13.5% have four or more years of college (1980 U.S. Census). The study population is therefore fairly representative of the U.S.

female population in terms of educational level attained.

Number of Living Children. For the study population, the number of living children ranged from 0-13. One-fourth of the subjects (26.8%) had two children, while one-third (33.8%) had three or four living children. The mean number of children for the women in this sample was 3.5. The average number of children per white family in the United States is 1.72 while the average number of children per black family is 2.16 (U.S. Census Current Population Report, 1979). Therefore, the average number of children in this sample was higher than the national average.

Number of Children Living at Home. Twenty-five women (35.2%) had no children living at home. The remaining two-thirds of the sample (64.8%) reported they had children living at home. Nearly one-tenth of the sample (9.8%) had four or more children at home.

Race. The majority of women in the present study were white (81.7%). The remaining 18.3% of the participants were black and thus there was no representation by other racial groups.

According to the 1980 U.S. Census, 83.1% of the population is white and 11.7% of the population is black. Therefore, there is a larger proportion of blacks in the present study than in the general population.

Work Status. Almost half of the subjects (45.1%) were currently working at a regular job. Slightly over one-third of the sample (36.6%) identified themselves as housewives. Only one subject was retired, while 8.5% of the women were unemployed.

Income. Over one-half of the subjects (52.3%) reported a yearly family income above \$20,000. The median yearly family income for the subjects in the present study was \$22,000. Median family income in the United States in 1979 was 19,661 (1980 U.S. Census). Therefore, the median family income for the study population was higher than the median family income for the general population.

Living Arrangements. Almost one-half of the subjects (49.3%) were married and living with their spouse and children. Living with their spouse alone was reported by 21.1% of the sample. Slightly over one-tenth of the women (11.3%) reported living alone and 7.0% of the subjects indicated they were single parents, living with their children.

Size of Household. One-fourth of the sample (24.3%) had two other people living in the household besides themselves, while almost half of the study population (48.6%) reported three or four other people living in the household. Five or more other people in the household was reported by 15.7% of the sample.

For this sample, the average number of people per

household is 4.2. The average Michigan household size is 2.84 people (1980 U.S. Census Report). Therefore, household size in the study sample is larger than average.

Duration of Hypertension. In this sample, more than half of the subjects (57.9%) had hypertension for five years or less, while slightly over one-fifth (21.7%) had hypertension 12 or more years.

In summary, the study population covered an age range of 35 to 65 years, was comprised of only females, and included married and unmarried subjects. Most of the women were living with spouse and children or with spouse only. The participants included people currently working at a job, homemakers, and a small number of retired, unemployed, and disabled women. Half of the subjects had a high school education or higher. The number of living children ranged from 0-13 with the average number per woman in this sample being 3.5, which is higher than the national average.

Duration of hypertension for the subjects in the present study ranged from less than one year to fifteen or more years, with the majority of women having hypertension five years or less. Size of household for the participants in the present study was larger than the national average, and there was a greater proportion of black persons in the study as compared to the general population. Median family income for the sample was slightly higher than for the

general population.

Therefore, the sample in the present study was composed primarily of white, married women with children. This is similar to samples in other studies of middle-age and has been cited as a limitation of previous research by Barnett and Baruch (1978) and Borland (1978). That is, most studies concerning middle-age have excluded those subjects who are single or married without children, those who are of lower socioeconomic status, and those who are members of minority groups.

#### Extraneous Variables

Sociodemographic variables were cited as extraneous variables in the present study. The results of statistical methods that were applied to test for relationships between these extraneous variables and the major study variables will now be discussed.

Pearson Product Moment Correlation revealed that there were no significant relationships between the variables of age, duration of hypertension, education, number of children, number of children living at home, income, size of household, and the major study variables of social stress and barriers to diet.

A one-way analysis of variance (ANOVA) was computed for the variables of race, occupation, marital status, work status, and living arrangements. This analysis showed



that there were no differences in social stress scores and barriers to diet scores accounted for by these variables. Tables 16 and 17, Appendix D, show the results of the statistical analysis for the extraneous variables.

Further analysis of selected extraneous variables was conducted in an attempt to gain insight into the findings presented for the research questions and hypotheses. The continuous variables of barriers to diet and social stressors were translated into the dichotomous variables of high and low social stress and high and low barriers to diet. Table 22, Appendix D, shows the number and percentage of subjects in the high and low categories by number of children at home, income, education, marital status, duration of hypertension, occupation, work status, and ethnicity.

The results of this descriptive data did indicate trends relative to these variables. These trends will be discussed with the findings for the research questions and hypotheses.

Extraneous variables which may have affected the outcome of the study but for which data were not collected include stage of family life cycle, presence of menopausal syndrome, presence or absence of social support and care of aging parents. While various authors indicate that menopause is not as stressful as generally presumed (Lowenthal and Chiriboga, 1972; Neugarten, 1968c), the existence of menopausal symptoms in some subjects may have influenced their perception of social stressors.

The amount of social support a person received could help the individual "buffer" stress and overcome barriers to diet. Absence of social support, on the other hand, may render an individual incapable of marshalling effective coping strategies.

The care of aging parents and concomitant role strain (Brody, 1981) may have affected the women's perception of social stressors. That is, care of aging parents may have been a significant source of social stress and an important factor affecting barriers to dietary compliance.

#### Research Questions and Hypotheses

In the present study, seven null hypotheses regarding the relationships between the study variables were not rejected and four null hypotheses were rejected. The relationship findings will be discussed in the following section.

Hypothesis 1: There is no relationship between the total social stressors score of middle-aged hypertensive women and their perceived barriers to diet score.

No significant relationship was found between the total social stressors score and barriers to diet score. This finding appears to indicate that social stressors bear no relationship to perceived barriers for this sample of middle-aged women. No previous research has analyzed this

relationship and thus no studies exist either to refute or support this finding.

In the present study, social stressors were defined as those circumstances or conditions that the individual generally considers to be problematic or undesirable (Ilfeld, 1976a). The social stressors are tied to an individual's social role and are repeated experiences. Barriers to diet were defined as the financial, social, or psychological costs of following a therapeutic diet and therefore represent those difficulties a person encounters before action is taken to follow the diet (Sackett and Haynes, 1976; Rosenstock, 1974).

Following a dietary regimen usually involves changing one's lifestyle and habits. It might therefore be argued that those persons with many social stressors could find the changes in lifestyle difficult to execute. That is, role obligations would impede performance of compliance behaviors and persons who experience difficulty or stress in social roles would be devoting more attention and energy to these areas and be less concerned with compliance behaviors (Given and Given, 1982). Thus, it was anticipated that a high social stress score would be positively correlated with a high barriers to diet score; the more stressors an individual encounters, the more barriers to diet that exist. The finding that there was no significant relationship between social stress and barriers to diet was therefore an unexpected one.

There are several plausible explanations for this finding. Some explanations could be related to the sociodemographic characteristics of the study sample. The age range for women in this group was 30 years (35-65). This broad range of 30 years could account for multiple differences between the women in relation to their perception of social stressors. The wide variance in ages may mean that the subjects were socialized to women's roles at very different periods. That is, the women in the 35-39 age group could have very different perceptions of women's social roles than the women in the 55 to 65 age group (Borland, 1982). Thus, the Life Situation Instrument may not have measured the various types of social stress inherent in this sample.

Yet another explanation is that this group of middle-aged women may not have been experiencing much social stress per se. The majority of women in the sample were married, had an adequate amount of education, and had family incomes above the national average. The social support and socioeconomic status associated with marriage and an educational level sufficient to influence the type of coping strategies employed, could have influenced the amount and nature of social stressors perceived by this group.

It is possible, therefore, that this sample of middle-aged hypertensive women had adequate social support and coping skills to deal with their social stressors so that

the stressors did not constitute barriers to dietary compliance. Palmore (1979) suggests that the transitions associated with middle-age do not represent sources of stress for those individuals with good physical, psychological, and social resources. In support of this notion, Pearlin and associates (1981) concluded from their study that social stress combines three aspects: the source of stress, the mediators of stress, and the manifestations of stress. Thus, the mediators of social stress (social support, coping skills) are important variables that were not considered in the measurement of social stress in the present study.

Another possible explanation for the unexpected finding that social stressors are not related to barriers to dietary compliance may be that barriers for this sample were not tapped. Researchers have shown that longer duration of a disease and therapeutic regimen has been associated with noncompliance in diabetics (Hulka, et al., 1975) and hemodialysis patients with end-stage renal disease (Agashua, et al. 1981). The findings from these studies would seem to indicate that more barriers to compliance with diet exist the longer the duration of the chronic illness.

The descriptive findings of the 71 hypertensive women in the present study showed, however, that of the 15 subjects who had hypertension 12 or more years, 60% were in the low barriers to diet category. For this sample,

then, longer duration of hypertension would seem to be related to low barriers. Of the total sample, nearly one-half (49.3%) of the subjects were in the low barriers to diet category. Therefore, the instrument may not have tapped the barriers to diet perceived by this group and perhaps some of the women were not following their diet (did not see it as important) and therefore the barriers were not real to them.

Last, a possible explanation for this finding is that the reliability coefficient of the Life Situation Instrument was at the low end of acceptability (.61). While the instrument cannot be termed unreliable, this low reliability coefficient may account for the failure of the data to show a relationship between social stress and barriers to diet. According to Polit and Hungler (1978), "if data fail to confirm a research prediction, one possibility is that the measuring tools did not have high reliability and not necessarily that the expected relationships do not exist." (p. 432).

Hypothesis 2: There is no relationship between any one of the nine categories of social stressors and perceived barriers to diet.

There were significant relationships between the financial, homemaking, parenting, and singlehood stressor scores and barriers to diet score. There was a very slight negative relationship ( $r = -.2406$ ) between financial stressors

and barriers to diet. This finding is unexpected because a positive correlation between financial stressors and barriers to diet was anticipated. That is, in the present study, one aspect of the definition of barriers to diet was the financial cost of following the diet. If an individual was experiencing financial stressors, it might be assumed that he or she would experience difficulties in buying special foods.

One explanation for this finding is that there was only one item on the barriers to diet scale that tapped the financial cost of following a special diet. If there had been more items to tap this dimension, there may have been a different relationship between perceived financial stressors and barriers to diet.

Another plausible explanation for this negative relationship would be that having less money (more financial stressors) may mean the individual would try harder to stay healthy and therefore would make an effort to follow the diet (less barriers).

The negative relationship could also be explained by the fact that foods with low fat and low sodium content (chicken, for example) are less expensive than food such as beef. Therefore, if an individual were having money difficulties (more financial stressors) it would be easier to buy foods (less barriers) allowed on the low calorie, low sodium diet such as fresh vegetables and fish.

There was a moderate positive relationship between homemaking stressors and barriers to diet ( $r = .4089$ ). The stressors associated with homemaking which were measured in the Life Situation Instrument included such things as being too tired, lack of free time, and lack of enjoyment of housework. These stressors might be associated with the psychological and social cost of following a special diet such as lack of time and energy to prepare special foods and dislike of cooking.

Another explanation for this finding is that, for the study population, the size of household is larger than the national average. This could mean there is more housework associated with more people in the household. It may also be more difficult to prepare meals to please everyone in the household. Therefore, the preparation of food for a diet to control hypertension (low calorie, low sodium) could be problematic. Last, being home a great deal may predispose a person to "snack" whenever hungry or bored. This may constitute a barrier to dietary compliance for a homemaker.

A slight negative relationship was found between parenting stressors and barriers to diet ( $r = -.3149$ ). This was an unexpected finding, as a positive correlation was hypothesized to exist between these two variables for the following reasons. Parenting stressors could be associated with psychological and social costs of complying with a dietary regimen. That is, if an individual



is involved in coping with problems with their children, there is little energy for altering lifestyle and eating behaviors. Cummings and associates (1982) and Becker and associates (1977) support this notion by concluding that family problems were negatively correlated with dietary compliance. Also, many people cope with stress by over-eating (Abramson, 1973).

It must also be acknowledged that a little over one-third of the sample (35.2%) had no children living at home, while nearly two-thirds of the sample (64.7%) had children at home. This characteristic of the sample may have influenced the parental stress scores as some studies have shown that having children at home is more stressful than the postparental stage when the children are no longer living at home (Lowenthal, et al., 1975; Radloff, 1975).

Descriptive findings for the sample in the present study indicate that of the 25 women who had no children living at home, 60% were in the low barriers to diet category while over one-half (56.5%) of the women with children were in the high barriers to diet category. This would point to a positive relationship between parenting stressors and barriers to diet.

There are, however, a few plausible explanations for the unexpected finding of a negative relationship between parenting stressors and barriers to diet. There was only one item on the barriers to diet scale that addressed family problems as a barrier. This item used the term

"family problem" and did not identify parenting stressors per se.

Perhaps another explanation of the negative relationship between parenting stressors and barriers to diet would be the amount of social support an individual has available. The presence or absence of social support was not assessed in the present study; it might be hypothesized that for subjects with high parenting stress, social support for following a diet was provided by older children, spouse, or friends. Thus, high parenting stress may have been offset by adequate coping resources.

There was a moderate negative relationship between singlehood stressors and barriers to diet ( $r = -.5670$ ). This is also an unexpected finding as it was anticipated that a positive relationship would exist between these two variables. For single people, one could assume that sources of social support are diminished and this could intensify the person's perception of social stress and barriers to diet. Cummings and associates (1982) reported, however, that in their study there was no relationship between support given by family and friends and dietary compliance.

Only 17 subjects responded to the singlehood stressor subscale and this small number may not provide meaningful data. This finding remains unexplained.

There were no significant relationships between the social stressors related to job, homemaking/job, marriage, unemployment, retirement/disability, and barriers to diet.

There was a very small number of respondents on the retirement/disability and unemployment subscales (five and seven, respectively) and these numbers are too small to make the data meaningful.

For the homemaking/job stressors, role strain per se was not measured in the present study. Perhaps for the women in this sample, the combination of homemaking/job did not represent a stressor. The level of career commitment of these women was not assessed and, for many of the subjects, their level of job satisfaction may have influenced their perception of homemaking/job stressors. Birnbaum (1975) found that professional women (single and married with children) were more satisfied with life and reported fewer stressors than those women who did not work outside the home or had low level jobs. Barnett and Baruch (1978) suggest that the beneficial, health maintenance aspects of combining roles has been overlooked in research and that perhaps, for some women, the homemaker/job role is not a source of unmanageable stress.

An explanation of no relationship between job stressors and barriers to diet could be related to the subjects' level of career commitment and job satisfaction. As cited earlier, level of career commitment was not assessed for this sample, and no data on level of job satisfaction were collected. These two variables could have affected the respondent's perception of job-related stress. A woman working in a low-level job to survive financially

could have more job stress (or different job stress) than a career-committed woman who enjoys her work.

Associated with this explanation is the possibility that the Job Stressor Scale on the Life Situation Instrument did not explore the types of job stressors that pertained to this group of 71 women. Almost two-thirds of those employed (62.5%) were in clerical/sales or lesser occupations (skilled, manual semi-skilled, unskilled). The stressors associated with these types of jobs such as lack of power, conflicts with supervisors, and work overload (Block, et al. 1981), may not have been measured adequately in the Life Situation Instrument.

Job stressors for those women in the sample in higher level occupations such as business managers and administrators also may not have been measured adequately by the instrument. Thus, if the perceived job stressors for the sample were not tapped, then this may be an explanation for no relationship between job stressors and barriers.

Hypothesis 3: There are no differences in the mean social stressor scores of hypertensive middle-aged women in Middlecence I and Middlecence II.

An ANOVA showed there were no significant differences between the mean social stressor scores of these two groups. Since the between-group variance did not exceed the within-group variance, one cannot conclude that there was a

reliable difference between the means due to the independent variable, perceived social stressors.

It was anticipated that the ANOVA test would show significant differences between the mean social stressor scores of the two groups. A plausible explanation for this unexpected finding is that the two groups may have the same amount of stress, but different sources of social stress. The different sources of stress for women in Middlecence I and Middlecence II may be substantiated by the differences in the sociodemographic characteristics of the two groups.

The majority of the sample (60%) was in Middlecence I. Of the 43 women in Middlecence I, 11.6% were divorced, compared to 3.6% in Middlecence II who were divorced. Of the 28 women in Middlecence II, 21.4% were widowed while only 2.3% of the women in Middlecence I were widowed. Even though widowhood and divorce represent disruption of a marriage, these events may result in different types of stressors.

In terms of occupation, 30.2% of the subjects in Middlecence I had clerical/sales or lower level jobs while 25% of the women in Middlecence II had such jobs. Kanter (1975) and Block and associates (1981) have suggested that work overload, conflicts with supervisors, and lack of power are stressors for women with these types of jobs.

In Middlecence I, 23.2% of the women had three or more children living at home; in Middlecence II, there were no

subjects who had three or more children at home. In Middlescence I, 9.3% of the participants had no children living at home, compared to 75% of the women in Middlescence II who had no children living at home. Radloff (1975) has suggested that women experience more stress while children are living at home than during the post parental stage when there are no children at home.

There was a difference between the two groups on the variable of employment. For women in Middlescence I, 46.5% indicated they were employed and 32.5% said they were housewives. In Middlescence II, 42.8% of the group had outside jobs and 42.8% indicated they were housewives.

Thus, the women in Middlescence I would seem to have more complex lifestyles with more having children at home and more working outside the home. Lowenthal and associates (1975) have indicated that middle-aged women in their study who had more complex lifestyles (engaged in many roles) reported more feelings of stress and frustration. Role strain could be an important variable which would need to be analyzed in order to further examine the differences in social stress between women in Middlescence I and Middlescence II.

If the assumption is made that women in Middlescence I have more complex lifestyles, then it would be anticipated that they would have higher stress scores than women in the older age group. The distribution of subjects in Middlescence I and Middlescence II with high and low social

stress scores (see Table 24, Appendix D) showed that 58.1% of women in Middlecence I had high social stress scores compared to 42.9% of the subjects in Middlecence II with high stress scores. Based on this data, the women in Middlecence I would seem to have a higher level of social stress than women in Middlecence II.

This higher level of social stress for women in the younger age group may represent more conflict over changing roles for women. The largest number of subjects in Middlecence I were in the 35-39 age range; these women were socialized during a different period than the women in Middlecence II. The two groups may have perceived women's roles and the stresses associated with their social roles in very different ways (Borland, 1982).

Research Question 4: For middle-aged hypertensive women, do parenting, singlehood, homemaker/job, and marriage constitute sources of social stress?

Descriptive statistical methods were used to determine if the social stress scores for the above four categories were in the high range. Results of this analysis showed that the mean scores for the stressors related to parenting (2.99), singlehood (2.99), and marriage (2.80) were above 2.75 and therefore in the high range. The mean score for the homemaking/job stressors category was 2.26 and thus

was not considered to be in the high range.

Inasmuch as the scores for parenting, singlehood, and marriage were in the high range, it would appear that these are areas that represent high stress for this study population. It is statistically incorrect to say these areas represent more major sources of stress compared to other areas such as finances or retirement. Parenting stress is different from financial stress and thus meaningful comparisons cannot be made. The descriptive statistics can only be applied to this sample of middle-aged women and a plausible conclusion would be that parenting, singlehood, and marriage seem to be sources of stress for this group of 71 women.

Parenting has been discussed in the literature in two ways: while children are still living at home, and the postparental stage when the last child has departed.

Lowenthal and associates (1975) and Radloff (1975) have supported the notion that having children at home is more stressful than the postparental stage. Of the total sample in the present study, 64.7% of the women had children living at home. Additional descriptive data for the study population supports this contention. Of the 25 women with no children at home, 68% of them were in the low stress category and 32% were in the high stress category. In contrast, over one-half (56.5%) of the women with children at home were in the high social stress category.

Some researchers suggest that children who are not living at home can also be a source of stress to their



parents. Lowenthal and associates (1975) and Smith (1979) showed that significant others were a focus of stress for middle-aged women and that the experiences of older children who are not living at home may still represent sources of stress for these women.

Therefore, high parenting stress scores in this study can be explained by the fact that nearly two-thirds of the sample had children at home and that even for the one-third of the sample with no children at home, children may still be a source of stress. It can be suggested, therefore, that for this sample of middle-aged hypertensive women, parenting was perceived as a source of social stress.

Singlehood also apparently constitutes a source of social stress for this sample. There were only 17 individuals responding to the singlehood stressors subscale, so interpretation of the data must be done with caution.

The contention that singlehood is a source of stress is supported in the literature. Of the total sample, nearly one-fourth (22.5%) of the women were single as a result of divorce, separation, or widowhood. This disruption of marriage represents a significant stressor in itself for the women must cope with loss of status, loss of identity, and loss of financial support (Jacobsen, 1982). Griffith (1981) found that single women were the least satisfied group and used the most unhealthy coping patterns as compared to married women.

Data from a study by Lowenthal and associates (1975)

showed that middle-aged women used familial roles and familial affect as buffers for stress. Hence, single women lack such a "buffer." Medley (1980) found that for middle-aged women, family life was a major source of life satisfaction.

Marital stress scores for this sample of middle-aged women were in the high range. There is disagreement in the literature regarding the amount of marital dissatisfaction and conflict that occurs in Middlecence. An early study by Rollins and Feldman (1970) concluded that a woman's perception of marital satisfaction was influenced by the presence of children. That is, the investigators found in their study that women had high levels of negative feelings from marital interactions during the child-rearing years. This contention is supported in a more recent study by Medley (1980) who reported more negative perceptions of marital interaction by women with children living at home. Therefore, because 64.7% of the middle-aged hypertensive women in the present study had children living at home, this factor may explain why the marital stressor scores were in the high range.

Further interpretation for the perception of high marital stress in this sample of middle-aged women may be related to factors that were not assessed for this group. Such factors include the role reversal that occurs for men and women in middle-age (Neugarten, 1968a; Lowenthal

and Chiriboga, 1972), and the different patterns of social interaction and emotional support for men and women (Hess, 1979; Lowenthal and Weiss, 1972, Zube, 1982). These factors are potential sources of conflict in the marital relationship during middle-age that were not assessed in the present study.

The findings of the present study regarding the level of marital stress do not support the findings of Glenn (1975). Glenn found marital happiness to be generally higher for both men and women during middle-age as compared to earlier years.

The mean homemaking/job stressors score was not in the high range. Therefore, for this group of middle-aged women a combination of homemaking/job roles does not appear to constitute a source of social stress. One plausible explanation for this finding is that the Life Situation Instrument did not measure role strain per se and role strain may have been more indicative of stress related to these combined roles.

Of the 32 subjects who were employed, over one-third (37.6%) had higher level jobs such as executives and business managers. Thus, a high level of career commitment may represent a source of satisfaction and self-esteem for these women instead of a source of stress. This contention would support Birnbaum's (1975) findings of the high levels of life satisfaction in professional, career-committed women.

Another interpretation of this finding is that the household size for the women in this sample is larger than the national average. More people living in the household could mean the women received more social support and more help with homemaking responsibilities. Therefore, the women would not have perceived homemaking/job stressors as being problematic.

#### Additional Findings

The finding of a moderate negative relationship between social stressors and barriers to diet ( $r = -.4330$ ) for women in Middlescence I may indicate adequate coping resources such as financial security and sufficient education. The moderate negative relationship between parental stressors and barriers to diet ( $r = -.4543$ ) for women with older children (ages 16-20) may be explained by the fact that these women may be receiving social support and reinforcement to ameliorate stress or to provide help with following a diet.

For women in Middlescence I, parental stressor scores were in the high range for those women with younger children (mean score = 3.04) as well as for those women with older children (mean score = 2.83). Younger children were defined in the study as those children ages 6-15. This is a broad age range and includes the early adolescent years when parenting stress may be high. However, it must be

noted that older children (ages 16-20), while still a source of parenting stress, are more able to give help to their parents in terms of social support, driving, or helping with the housework and care of younger children.

For women in Middlecence I and II, there were moderate to high positive correlations between parenting stress and the total social stress score (see Tables 19-21, Appendix D). High parenting stress may be accounted for in this sample because the majority of the sample had children living at home and also because women in the sample had a higher than average number of children. For the one-third of the sample with no children at home, their children may still have been a source of stress (Lowenthal, et al., 1975; Smith, 1979).

There was a moderate to high positive correlation between singlehood stress and total social stress scores (See Tables 19-21, Appendix D). This finding is consistent with previous studies which have shown singlehood to be a source of stress for women (Jacobsen, 1981; Griffith, 1981).

The finding that there was a fairly high negative relationship ( $r = -.70$ ) between singlehood stress and barriers to diet for women in Middlecence I remains unexplained. It must be acknowledged that this includes only nine subjects so this correlation may not be meaningful.

For both groups, there was a high positive relationship ( $r = .84$ ) between unemployment stressors and total stress scores. Again, this involved a small number of

respondents (n = 7). This finding supports the conclusion drawn from Warren's (1980) study that unemployed women experience a great deal of stress. Warren found that unemployed women reported four times more stress than unemployed men and reported 50% more stress than housewives.

For subjects in both Middlescence I and II, the highest mean scores were on the parental stressors and singlehood subscales. This finding does not mean parenting and singlehood are the most stressful areas for this group, but does indicate these are areas of high stress for this sample of middle-aged hypertensive women.

#### Limitations of the Present Study

In addition to the limitations cited in Chapter I, the following limitations have been identified which may have affected the results of this study. These limitations encompass those factors that need to be considered in developing a methodology for future research.

Data for yearly income and size of household was gathered on the sociodemographic instrument, but this researcher did not correlate income and size of household for each subject. This analysis would have been helpful in determining the socioeconomic status of the subjects, as income alone is not a reliable indicator. The number of people that the income supports must be considered. This data would have been more meaningful than median family

income.

The Life Situation Instrument, which measured social stress, did not include a subscale for stressors associated with the parenting of children under six years of age or over 20 years of age. The age category of 6 to 15 years for younger children was too broad; perhaps ages of children could have been categorized more explicitly into small children (under age five), school age children (six to eleven), adolescents (12 to 17) and adult children (18 and over).

As cited previously, the type of data gathered for social stressors did not lend itself to being analyzed in terms of major sources of stress (which areas were more stressful than others). Also, some subjects answered mutually exclusive categories such as job and unemployment, while others did not answer subscales that applied to them.

There were no measures of social support, self-esteem, life satisfaction or role strain in the present study. These variables may have had an important effect on the individual's perception of social stressors and the coping strategies employed to deal with the stressors.

#### Implications for Nursing

In this section, the implications of the findings and limitations of the present study for nursing practice, education, and research will be presented. These

ramifications will be discussed within the context of the conceptual framework designed for this study.

### Implications for Nursing Practice

The implications for nursing practice will be discussed within the context of the nursing process model adapted from King (1981). It is evident from compliance literature that there are many variables that affect long-term compliance behaviors such as those involved in following a dietary regimen. These predictive variables have not been explored extensively. The present study has explored how social stressors may be related to barriers to dietary compliance. It has been postulated in the present study that social stressors may be an important variable to be investigated relative to its influence on compliance behaviors.

In practice, therefore, nurses must be aware of the potential impact of social stressors on compliance behaviors. Behaviors that involve long-term commitment and change in habits and lifestyle cannot be implemented when an individual's attention and energy is being diverted to deal with stress emanating from social roles.

During the assessment phase of the nursing process, the nurse should ascertain the client's risk for experiencing social stressors based on the person's developmental stage and the transitions associated with that stage. The nurse



assesses the client's perception of his/her social stressors and barriers to diet. An assessment tool could be used for this purpose.

The nurse formulates her own perceptions of the client's stressors and barriers and should share these perceptions with the patient. This two-way process of sharing perceptions, according to King (1981) facilitates communication which is necessary for movement toward interaction. In other words, the nurse and client must "speak the same language" before the next stage in the process, interaction, is possible.

By assisting the client to become more aware of the relationship between social stressors and barriers to diet, as well as the manner in which social stressors may be associated with transitions of middle-age, the nurse helps the patient identify actual potential problems. At this point, a nursing diagnosis can be made that will direct nursing interventions and outcomes.

Based on the findings of the present study, nurses in practice should be aware that homemaking stressors are positively related to barriers to diet for middle-aged women and that parenting, singlehood, and marital roles may be sources of social stress.

Also during the assessment phase, it is important for the nurse to help the client identify sources of social support and how he/she perceives these sources as helping

to ameliorate stress associated with the social roles in which he/she participates. This is an essential component of the assessment because people do not generally receive as much social support for day-to-day stressors as they do for major life events (Given and Given, 1982). Indeed, the nurse may be the client's only source of social support to modify stressors and barriers.

Last, the assessment should include the degree to which the stress associated with social roles impinges upon dietary compliance. That is, some degree of stress is "healthy" and nursing should be concerned only with those social stressors that interfere with compliance behaviors or negatively affect the client's health status. Findings from this study indicate one cannot assume certain roles will be stressful. That is, the assumptions and values of the health care provider may not be true. Therefore, it is important to elicit the client's perception of social stressors and barriers to compliance.

In planning and implementation, the nurse and client agree on realistic goals to decrease barriers and manage social stressors. Such goals may include decreasing marital stressors by increasing communication between husband and wife. Referral to another health care provider (social worker, psychologist) may be necessary depending on the severity of social stress and role dysfunction.

The client is assisted to become a more active participant in the management of his/her chronic illness

through increased awareness of social stressors and barriers to diet and utilization of individualized problem-solving strategies to deal with those stressors interfering with dietary compliance.

The nurse may provide anticipatory guidance related to marriage, parenting, and other transitions associated with middle-age. In this way, anticipatory socialization to roles can be provided. This can facilitate optimal growth and development in middle-age which facilitates self-actualization (King, 1981).

By helping the client develop problem-solving strategies and coping skills relative to stress associated with social roles, the nursing interventions during middle-age could help a person deal more effectively with the social stressors and transitions of late adulthood. The ability to cope in middle-age affects one's ability to cope in old age (Fozard and Popkin, 1978). In understanding the social stresses that are associated with middle-age, the nurse also gains more insight into that client's potential needs during late adulthood.

Group sessions may be beneficial in ameliorating social stressors and barriers to diet. For example, by discussing stressors related to parenting, a group may provide strategies for dealing with the stressors, provide social support, and provide anticipatory socialization to the transitions associated with middle-age. "Specialized" groups

could be formed for women with children at home, women in the post parental stage, and single parents. Such a specialized approach may meet the needs of the participants more effectively.

A group approach to deal with barriers to diet may involve strategies to tailor the dietary regimen to fit into the individual's lifestyle. Because of the number of decisions regarding dietary compliance that are made each day, an individual needs to gradually acquire new eating behaviors and therefore needs support and encouragement. "Booster" sessions with the nurse during times of stress would be an effective strategy to reinforce healthful eating behaviors.

In the transaction or evaluation phase of the nursing process, progress toward goal attainment is appraised. This appraisal is based on behavioral outcomes (alteration of stressors or increased awareness of social stressors, decrease in barriers to diet, increase in dietary compliance) and health outcomes (control blood pressure and weight).

#### Implications for Nursing Education

The recommendations for nursing education could apply to undergraduate, graduate, and continuing education programs for nurses. Nursing education should include the Health Belief Model as a theoretical framework for

understanding and predicting health-related behaviors. Those variables affecting the long-term compliance behaviors associated with chronic illness would be especially important to include in nursing education. The Health Belief Model, as currently conceptualized, is limited in explaining behaviors related to long-term regimens associated with chronic illness. Nursing education should include a focus on the "at-risk" role as suggested by Baric (1969) and Monahan (1982). The present study has suggested that two variables which have the potential for influencing long-term compliance behaviors are perceived social stressors and barriers to diet.

It is imperative that nursing education include the concept of social stressors. Stressors associated with an individual's everyday social roles need to be taken into consideration when developing a nursing management plan for the chronically ill patient. Ilfeld (1976a) and Pearlin and Schooler (1978) suggest that the stress produced from ongoing social relationships are more significant than the infrequent, chance life events. Last, in the case of hypertension, social stressors might also directly influence the control of hypertension because of the relationship of stress to the etiology of high blood pressure (Martin, 1981).

The concept of social stressors needs to be emphasized in nursing education because people generally do not

receive as much social support for these ongoing stressors as they do for major life events. The nurse may be the source of social support for the patient or she may increase the awareness of the patient's family and friends regarding the person's need for social support.

Since dietary compliance rates generally are low (Haynes, Taylor, and Sackett, 1979) and because dietary compliance is an essential component in the control of hypertension (Morgan, et al., 1978) nursing education should include factors that constitute barriers to dietary compliance, as well as strategies to assist clients to overcome the barriers. It is essential that nurses become more aware of the importance of dietary compliance and the difficulty an individual encounters in attempting to change lifelong behaviors.

The concept of barriers needs to be included in nursing education. Cummings and associates (1982) found in their study that barriers were the factors most significantly associated with compliance behaviors.

It is suggested that nursing education include the transitions and developmental tasks of Middlecence and how these transitions specifically relate to women. Diekelman (1975) proposed that nurses should be educated about changes that occur during the middle years and the types of stresses under which middle adults function. The relationship between developmental transitions and tasks associated with middle-age and stressors emanating

from social roles could be emphasized in nursing education.

Because of the broad definition of middle-age in the literature, nurses need to be aware of the trend toward dichotomizing Middlecence into Middlecence I and II. Nurses should be aware of the specific tasks and stressors associated with these two groups.

It is recommended that nursing diagnoses describing the stresses middle-aged women encounter in carrying out their social roles be included in nursing education. Nursing diagnoses related to social stressors could be included in the Role-Relationship Pattern category of nursing diagnosis. Diagnoses related to barriers to dietary compliance could be included in the Health Perception-Health Management Pattern category.

These diagnoses would be valuable in planning strategies and generating outcomes. The identified social stressors may be the etiology portion of the nursing diagnosis. An illustration of this would be the following nursing diagnosis: "dietary noncompliance secondary to homemaking/job stressors resulting in lack of time to prepare special foods."

### Nursing Research

While Given and Given (1982) examined social stressors as a variable that may influence health beliefs, no other

research has studied the relationship between social stressors and barriers to diet. Thus, the present study should be replicated to further test the hypothesized relationships. In further testing, the limitations of the present study should be considered in designing the methodology in order to make the data more meaningful.

For example, while the sample size for the present study was acceptable ( $n = 71$ ), some of the subscales had very few respondents. Therefore, a replication of the study should have a sample that would include more single people, more unemployed persons, and more retired people. With a sufficient number of people (30 or more) responding to each subscale on the Life Situation Instrument, a multiple regression analysis could then be used to test for social stressors which are most predictive of barriers to dietary compliance.

The study could be replicated using a different type of sample: all males or both males and females. If both men and women are used, a comparison of the differences in barriers to diet and social stressors could be done. Also, a cross-sectional study using different age groups such as young adults, middle adults, and older adults could be done to compare and contrast the social stressors associated with the various developmental stages. Last, a replication of the study is recommended using other chronic diseases such as diabetes.



The Health Belief Model needs to be expanded to include variables which are more relevant to the "at-risk" role associated with chronic illness. Identification and testing of these variables is recommended. Further, factors which constitute barriers need to be explored and researched.

The Life Situation Instrument needs further testing and refinement. This instrument could then be used as an assessment tool in nursing practice. Such a tool also could include measures of social support, role strain, self-esteem, life satisfaction, and care of aging parents.

Research could be carried out to compare social stressors (in terms of source and degree or severity) of those individuals with and without social support and with high and low self-esteem. Also, the sociodemographic characteristics of those persons with high and low stress scores and high and low barriers would be an interesting focus of nursing research.

To measure major sources of social stress for middle-aged women or any age group, an open-ended questionnaire designed to have respondents identify their most significant stressors could be developed. Or, subjects could be asked to rank order parenting stresses, marital stresses, etc. from those that are most stressful to those that are least stressful.

Further studies of women should include level of career commitment and job satisfaction as important variables

influencing the perception of job stressors and home-making/job stressors. Measures of role strain would also be pertinent to include in nursing research involving working women.

Research to further identify the differences in Middlecence I and Middlecence II relative to social stressors could be carried out. Also, a longitudinal study to analyze how social stressors change over time as a person progresses through the developmental stages of adulthood and throughout the duration of the chronic illness would be an interesting focus.

Last, it is recommended that nursing research be conducted to generate and test nursing diagnoses related to social stressors and barriers to diet. Nurse researchers could also test interventions to manage the stressors and decrease barriers and improve health outcomes.

In conclusion, interpretation of the research findings from the present study were discussed in Chapter VI. This chapter also included recommendations and implications for nursing practice, education, and research.

### Summary

This study has analyzed the relationship between perceived social stressors and barriers to dietary compliance for a sample of 71 middle-aged hypertensive women. Selected sources of social stress were also identified

and described for this group of women.

The findings of this study have implications not only for nursing practice, but for other disciplines as well. Nurses and other professionals such as social workers, marriage counselors, and psychologists need to be aware of the transitions of middle-age as they affect women and the social stressors inherent in those transitions. There is a need for increased awareness of factors such as social stressors that may affect long-term compliance behaviors associated with chronic illness.

Collaborative research efforts are needed to further identify sources of social stress throughout the various stages of adult development. The perspective of many disciplines is necessary to develop strategies to assist women to cope with developmental transitions and to help them attain and maintain their physical and psycho-social health.

APPENDIX A

CONTACT LETTER

**JAMES E. FOLKENING, M.D.**  
INTERNAL MEDICINE

**JAMES W. CARTER, M.D.**  
INTERNAL MEDICINE

2021 Rambling Road  
Kalamazoo, Michigan 49008  
Phone (616) 343-0542

To improve the care we give patients with high blood pressure, our medical and nursing staffs are working with researchers at Michigan State University to help patients better manage their high blood pressure. We are asking many patients, including you, for help in this effort.

Your assistance is important and we hope you will agree to participate in this important project. Your participation will involve responding to a questionnaire--administered by a research interviewer from the University--at your next visit and at two other visits during the next fifteen months. In addition, you may be asked to meet with a staff nurse during the next six months to talk with her about your high blood pressure and its treatment. We hope you will meet with them.

The information you give about yourself and your personal identity will, of course, remain strictly confidential. Should the results of the study be published, you will remain anonymous. You are free to discontinue your participation in this study at any time.

If you do not agree to participate, or should you withdraw from the study after originally agreeing to participate, the amount and quality of service we provide you, naturally, will not change. However, by agreeing to participate, you will help yourself and us to provide better care for all our patients.

To indicate your willingness to participate in this study, please return the enclosed postcard so we can arrange a day and time that it will be convenient for you to meet and talk with an interviewer.

Sincerely,

James W. Carter, M.D.

JWC/jmm

APPENDIX B  
CONSENT FORM

CONSENT FORM

The study in which you are about to participate is designed to find out the beliefs that persons with diabetes (hypertension) have about their disease and treatment. Your participation will involve responding to a questionnaire and permitting University researchers to review your past and future medical records. If you agree to participate, please sign the following statement.

1. I have freely consented to take part in a study of patients being conducted by the \_\_\_\_\_ and the College  
(Study Site Name)  
of Nursing and the Department of Community Health Science of the Colleges of Human and Osteopathic Medicine at Michigan State University.
2. The study has been described and explained to me and I understand what my participation will involve.
3. I understand that if I withdraw from the study after originally agreeing to participate, the amount and quality of service provided me will not change. I understand that I can withdraw from participating at any time.
4. I understand that the results of the study will be treated in strict confidence and that should they be published, my name will remain anonymous. I understand that within these restrictions results can, upon request, be made available to me.

I, \_\_\_\_\_, state that I understand what  
(print name)  
is required of me as a participant and agree to take part in this study.

Signed \_\_\_\_\_  
(Signature of Patient)

Date \_\_\_\_\_

APPENDIX C

INSTRUMENTS

Life Situation

Beliefs About Hypertension

Sociodemographic



BEGIN CARD 52

↓

Site (1)	
Pt. I.D. _____	(2-11)
Form <u>1 5</u> (12-13)	Type <u>  </u> (14)
Card No. <u>5 2</u> (15-16)	Date <u>  </u> (17-22)

LIFE SITUATION

THE FOLLOWING QUESTIONS CONCERN YOUR VIEWS ABOUT CERTAIN ASPECTS OF YOUR LIFE, FOR EXAMPLE, YOUR JOB OR FINANCES. SINCE WE ARE TRYING TO GET YOUR FEELINGS, PLEASE ANSWER THE QUESTIONS TO THE BEST OF YOUR ABILITY.

1. Are you working now at a regular job (outside the home for money), unemployed, retired, a housewife, or what? (CHECK ONE)
1. Working now at a regular job → (GO TO Q. 2)
  2. Unemployed or laid off → (GO TO PAGE 5, Q. 4)
  3. Retired → (GO TO PAGE 6, Q. 5)
  4. Disabled → (GO TO PAGE 6, Q. 5)
  5. Housewife → (GO TO PAGE 4, Q. 3)
  6. Work at regular job and keep house → (GO TO Q. 2)
  7. Other (WRITE IN) \_\_\_\_\_ → (GO TO PAGE 7, Q. 6) (23)

WORK AT A JOB

BELOW IS A LIST OF STATEMENTS THAT DESCRIBE PROBLEMS PEOPLE SOMETIMES HAVE AT THEIR JOBS. SINCE WE ARE TRYING TO GET YOUR FEELINGS ABOUT YOUR SITUATION, PLEASE INDICATE HOW OFTEN EACH OF THESE STATEMENTS DESCRIBES YOUR JOB. CIRCLE ONE ANSWER FOR EACH STATEMENT.

2. I have more work than I can handle.
- |                  |                     |                    |                          |      |
|------------------|---------------------|--------------------|--------------------------|------|
| Almost<br>Always | Much of<br>the Time | Once in<br>a While | Never or<br>Almost Never | (24) |
|------------------|---------------------|--------------------|--------------------------|------|
- 2a. I have a lot of noise on my job.
- |                  |                     |                    |                          |      |
|------------------|---------------------|--------------------|--------------------------|------|
| Almost<br>Always | Most of<br>the Time | Once in<br>a While | Never or<br>Almost Never | (25) |
|------------------|---------------------|--------------------|--------------------------|------|
- 2b. I work in a lot of dirt or dust.
- |                  |                     |                    |                          |      |
|------------------|---------------------|--------------------|--------------------------|------|
| Almost<br>Always | Much of<br>the Time | Once in<br>a While | Never or<br>Almost Never | (26) |
|------------------|---------------------|--------------------|--------------------------|------|
- 2c. I am in danger of illness or injury on my job.
- |                  |                     |                    |                          |      |
|------------------|---------------------|--------------------|--------------------------|------|
| Almost<br>Always | Much of<br>the Time | Once in<br>a While | Never or<br>Almost Never | (27) |
|------------------|---------------------|--------------------|--------------------------|------|

CONTINUED ON NEXT PAGE

## WORK AT A JOB, CONT.

2d. I do the same thing over and over again.

Almost Always	Much of the Time	Once in a While	Never or Almost Never	(28)
------------------	---------------------	--------------------	--------------------------	------

2e. I am under pressure to keep up with new ways of doing things.

Almost Always	Much of the Time	Once in a While	Never or Almost Never	(29)
------------------	---------------------	--------------------	--------------------------	------

2f. I work too many hours.

Almost Always	Much of the Time	Once in a While	Never or Almost Never	(30)
------------------	---------------------	--------------------	--------------------------	------

PLEASE INDICATE THE EXTENT TO WHICH YOU AGREE WITH THE FOLLOWING STATEMENTS.  
CIRCLE ONE ANSWER FOR EACH STATEMENT.

2g. The income I earn is just about right for the job I have.

Strongly Agree	Somewhat Agree	Somewhat Disagree	Strongly Disagree	(31)
-------------------	-------------------	----------------------	----------------------	------

2h. I can count on a steady income.

Strongly Agree	Somewhat Agree	Somewhat Disagree	Strongly Disagree	(32)
-------------------	-------------------	----------------------	----------------------	------

2i. My chances for increased earnings in the next year or so are good.

Strongly Agree	Somewhat Agree	Somewhat Disagree	Strongly Disagree	(33)
-------------------	-------------------	----------------------	----------------------	------

2j. The work I'm doing now is preparing me for a better job situation later.

Strongly Agree	Somewhat Agree	Somewhat Disagree	Strongly Disagree	(34)
-------------------	-------------------	----------------------	----------------------	------

2k. My job has good fringe benefits such as sick pay and retirement.

Strongly Agree	Somewhat Agree	Somewhat Disagree	Strongly Disagree	(35)
-------------------	-------------------	----------------------	----------------------	------

2l. There is always a chance I may be out of a job.

Strongly Agree	Somewhat Agree	Somewhat Disagree	Strongly Disagree	(36)
-------------------	-------------------	----------------------	----------------------	------

PLEASE INDICATE HOW OFTEN EACH OF THE FOLLOWING STATEMENTS DESCRIBES YOUR JOB.  
CIRCLE ONE ANSWER FOR EACH STATEMENT.

2m. My co-workers treat me as if I was a person without real feelings.

Never	Once in a While	Fairly Often	Very Often	(37)
-------	-----------------	--------------	------------	------

CONTINUED ON NEXT PAGE





## HOUSEWIFE (DO NOT WORK OUTSIDE THE HOME FOR PAY)

THE FOLLOWING STATEMENTS DESCRIBE PROBLEMS HOUSEWIVES SOMETIMES HAVE. PLEASE INDICATE HOW OFTEN EACH OF THESE STATEMENTS DESCRIBES YOUR SITUATION. CIRCLE ONE ANSWER FOR EACH STATEMENT.

3. I am not appreciated for my work in the house.

Almost Always	Much of the Time	Once in a While	Never or Almost Never	(47)
------------------	---------------------	--------------------	--------------------------	------

3a. I am uninterested in or bored with housework chores.

Almost Always	Much of the Time	Once in a While	Never or Almost Never	(48)
------------------	---------------------	--------------------	--------------------------	------

3b. I am tired out from doing housework.

Almost Always	Much of the Time	Once in a While	Never or Almost Never	(49)
------------------	---------------------	--------------------	--------------------------	------

3c. I am lonely for the company of adults during the day.

Almost Always	Much of the Time	Once in a While	Never or Almost Never	(50)
------------------	---------------------	--------------------	--------------------------	------

3d. I really enjoy the work I do at home.

Almost Always	Much of the Time	Once in a While	Never or Almost Never	(51)
------------------	---------------------	--------------------	--------------------------	------

3e. I use my talents and abilities in doing my housework.

Almost Always	Much of the Time	Once in a While	Never or Almost Never	(52)
------------------	---------------------	--------------------	--------------------------	------

3f. I am able to have free time for myself.

Almost Always	Much of the Time	Once in a While	Never or Almost Never	(53)
------------------	---------------------	--------------------	--------------------------	------

TO TO PAGE 7, Q. 6

## UNEMPLOYED OR LAID-OFF

THE FOLLOWING STATEMENTS DESCRIBE PROBLEMS PEOPLE WHO ARE UNEMPLOYED OR LAID-OFF SOMETIMES HAVE. PLEASE INDICATE HOW OFTEN EACH OF THESE STATEMENTS DESCRIBES YOUR SITUATION. CIRCLE ONE ANSWER FOR EACH STATEMENT.

- |   |       |                 |              |            |      |
|---|-------|-----------------|--------------|------------|------|
| 4. I have too much time and not enough to do.             | Never | Once in a While | Fairly Often | Very Often | (54) |
| 4a. I am not able to buy the things I or my family needs. | Never | Once in a While | Fairly Often | Very Often | (55) |
| 4b. I have to depend on others for help.                  | Never | Once in a While | Fairly Often | Very Often | (56) |
| 4c. I'm not having enough recreation.                     | Never | Once in a While | Fairly Often | Very Often | (57) |
| 4d. I'm not seeing enough of my friends                   | Never | Once in a While | Fairly Often | Very Often | (58) |
| 4e. I'm having arguments at home.                         | Never | Once in a While | Fairly Often | Very Often | (59) |
| 4f. People are not interested in me.                      | Never | Once in a While | Fairly Often | Very Often | (60) |

GO TO PAGE 7, Q. 6

## RETIREE OR DISABLED

THE FOLLOWING STATEMENTS DESCRIBE PROBLEMS PEOPLE WHO ARE RETIRED, DISABLED, OR UNABLE TO WORK DUE TO A HEALTH PROBLEM SOMETIMES HAVE. PLEASE INDICATE HOW OFTEN EACH OF THESE STATEMENTS DESCRIBES YOUR SITUATION. CIRCLE ONE ANSWER FOR EACH STATEMENT.

- |  |       |                 |              |            |      |
|--|-------|-----------------|--------------|------------|------|
| 5. I have too much time with not enough to do.                               | Never | Once in a While | Fairly Often | Very Often | (61) |
| 5a. I don't have the money to be able to do some of the things I used to do. | Never | Once in a While | Fairly Often | Very Often | (62) |
| 5b. I am looking for activities to keep me busy.                             | Never | Once in a While | Fairly Often | Very Often | (63) |
| 5c. I am by myself most of the time.   | Never | Once in a While | Fairly Often | Very Often | (64) |
| 5d. I miss a daily routine.  | Never | Once in a While | Fairly Often | Very Often | (65) |
| 5e. People treat me like I don't know what's going on.                       | Never | Once in a While | Fairly Often | Very Often | (66) |
| 5f. People pay less attention to my opinion.                                 | Never | Once in a While | Fairly Often | Very Often | (67) |
| 5g. I'm not having a chance to be with and talk to other people.             | Never | Once in a While | Fairly Often | Very Often | (68) |

GO TO PAGE 7, Q. 6

END OF  
CARD 52

BEGIN CARD 53

KEYPUNCH:  
DUPLICATE  
COLUMNS 1-14

Card No.

5 3  
(15-16)

KEYPUNCH:  
DUPLICATE  
COLUMNS 17-22

THE NEXT FEW QUESTIONS CONCERN YOUR VIEWS ABOUT YOUR FINANCIAL SITUATION AT THE PRESENT TIME.

6. Are you able to afford a home that is large enough and comfortable enough for you or your family? (CHECK ONE)
- Yes \_\_\_ No \_\_\_ (23)
7. Are you able to afford furniture or household equipment that needs to be replaced? (CHECK ONE)
- Yes \_\_\_ No \_\_\_ (24)
8. Are you able to afford the kind of car you need? (CHECK ONE)
- Yes \_\_\_ No \_\_\_ (25)
9. How often do you not have enough money to afford the kind of food you or your family should have? (CIRCLE ONE)
- Never Once in a While Fairly Often Very Often (26)
10. How often do you not have enough money to afford the kind of medical care you or your family should have? (CIRCLE ONE)
- Never Once in a While Fairly Often Very Often (27)
11. How often do you not have enough money to afford the kind of clothing you or your family should have? (CIRCLE ONE)
- Never Once in a While Fairly Often Very Often (28)
12. How often do you not have enough money to afford the leisure activities that you or your family want? (CIRCLE ONE)
- Never Once in a While Fairly Often Very Often (29)
13. How much difficulty do you have in meeting the monthly payments on your or your family's bills? (CIRCLE ONE)
- A Great Deal Some Only a Little None (30)
14. In general, how do your or your family's finances usually work out at the end of the month? (CHECK ONE)
- \_\_\_ Usually end up with some money left over
- \_\_\_ Usually end up with just enough money to make ends meet
- \_\_\_ Usually end up with not enough money to make ends meet (31)





## PARENTS WHO HAVE CHILDREN 6-15 YEARS OF AGE CONT.

- 18f. Playing with the wrong kind of friends.  
 Never          Once in a While          Fairly Often          Very Often          (41)
- 18g. Failure to get along with others the same age  
 Never          Once in a While          Fairly Often          Very Often          (42)
- 18h. Carelessness about personal appearance.  
 Never          Once in a While          Fairly Often          Very Often          (43)
- 18i. Poor school work.  
 Never          Once in a While          Fairly Often          Very Often          (44)
- 18j. Poor use of spare time.  
 Never          Once in a While          Fairly Often          Very Often          (45)

19. Do you have any children 16-20 years of age? (CHECK ONE)

Yes           No  → (GO TO PAGE 10, Q. 20)          (46)

↓

## PARENTS WHO HAVE CHILDREN 16-20 YEARS OF AGE

THE FOLLOWING STATEMENTS DESCRIBE THINGS CHILDREN DO THAT SOME PARENTS THINK ABOUT. PLEASE INDICATE HOW OFTEN YOU WONDER IF YOUR CHILDREN ARE DOING THE FOLLOWING THINGS. CIRCLE ONE ANSWER FOR EACH STATEMENT.

- 19a. Is living too much for the present and thinking too little of what lies ahead.  
 Never          Once in a While          Fairly Often          Very Often          (47)
- 19b. Is not practicing the moral beliefs that are important.  
 Never          Once in a While          Fairly Often          Very Often          (48)
- 19c. Is showing too little interest in religion.  
 Never          Once in a While          Fairly Often          Very Often          (49)
- 19d. Might be tempted by others to try illegal drugs.  
 Never          Once in a While          Fairly Often          Very Often          (50)
- 19e. Is not trying hard enough to prepare themselves for the life ahead of them.  
 Never          Once in a While          Fairly Often          Very Often          (51)

CONTINUED ON NEXT PAGE

PARENTS WHO HAVE CHILDREN 16-20 YEARS OF AGE CONT.

19f. Might be using too much alcohol. (52)

Never          Once in a While          Fairly Often          Very Often

19g. Is not headed for the success I want for him/her. (53)

Never          Once in a While          Fairly Often          Very Often

20. What is your marital status? (CHECK ONE)

Married

↓

Single, never married

Separated

Divorced

Widowed

↓

GO TO PAGE 13, Q. 21

MARRIED PEOPLE

THE FOLLOWING STATEMENTS DESCRIBE THE THINGS HUSBANDS OR WIVES SOMETIMES DO OR THE WAY SOME COUPLES GET ALONG. SINCE WE ARE TRYING TO GET YOUR FEELINGS ABOUT YOUR SITUATION, PLEASE INDICATE THE EXTENT TO WHICH YOU AGREE WITH THE FOLLOWING STATEMENTS. CIRCLE ONE ANSWER FOR EACH STATEMENT.

20a. My husband/wife insists on having his/her own way. (55)

Strongly Agree          Somewhat Agree          Somewhat Disagree          Strongly Disagree

20b. My husband/wife usually expects more from me than he/she is willing to give back. (56)

Strongly Agree          Somewhat Agree          Somewhat Disagree          Strongly Disagree

20c. I can rely on my husband/wife to help me with most of the problems that need to be taken care of in the family. (57)

Strongly Agree          Somewhat Agree          Somewhat Disagree          Strongly Disagree

20d. My husband/wife usually acts as if he/she were the only important person in the family. (58)

Strongly Agree          Somewhat Agree          Somewhat Disagree          Strongly Disagree

CONTINUED ON NEXT PAGE

## MARRIED PEOPLE CONT.

- 20e. Generally, I give in more to my husband's/wife's wishes than he/she gives in to mine.
- |                |                |                   |                   |      |
|----------------|----------------|-------------------|-------------------|------|
| Strongly Agree | Somewhat Agree | Somewhat Disagree | Strongly Disagree | (59) |
|----------------|----------------|-------------------|-------------------|------|
- 20f. My husband/wife is someone I can really talk with about things that are important to me.
- |                |                |                   |                   |      |
|----------------|----------------|-------------------|-------------------|------|
| Strongly Agree | Somewhat Agree | Somewhat Disagree | Strongly Disagree | (60) |
|----------------|----------------|-------------------|-------------------|------|
- 20g. My husband/wife is someone who is affectionate toward me.
- |                |                |                   |                   |      |
|----------------|----------------|-------------------|-------------------|------|
| Strongly Agree | Somewhat Agree | Somewhat Disagree | Strongly Disagree | (61) |
|----------------|----------------|-------------------|-------------------|------|
- 20h. My husband/wife is someone who spends money wisely.
- |                |                |                   |                   |      |
|----------------|----------------|-------------------|-------------------|------|
| Strongly Agree | Somewhat Agree | Somewhat Disagree | Strongly Disagree | (62) |
|----------------|----------------|-------------------|-------------------|------|
- 20i. My husband/wife is someone who is a good wage earner/housekeeper.
- |                |                |                   |                   |      |
|----------------|----------------|-------------------|-------------------|------|
| Strongly Agree | Somewhat Agree | Somewhat Disagree | Strongly Disagree | (63) |
|----------------|----------------|-------------------|-------------------|------|
- 20j. My husband/wife is someone who is a good sexual partner.
- |                |                |                   |                   |      |
|----------------|----------------|-------------------|-------------------|------|
| Strongly Agree | Somewhat Agree | Somewhat Disagree | Strongly Disagree | (64) |
|----------------|----------------|-------------------|-------------------|------|
- 20k. My husband/wife is someone who appreciates the job I do as a wage earner/housekeeper.
- |                |                |                   |                   |      |
|----------------|----------------|-------------------|-------------------|------|
| Strongly Agree | Somewhat Agree | Somewhat Disagree | Strongly Disagree | (65) |
|----------------|----------------|-------------------|-------------------|------|
- 20l. My husband/wife seems to bring out the best qualities in me.
- |                |                |                   |                   |      |
|----------------|----------------|-------------------|-------------------|------|
| Strongly Agree | Somewhat Agree | Somewhat Disagree | Strongly Disagree | (66) |
|----------------|----------------|-------------------|-------------------|------|
- 20m. My husband/wife appreciates me just as I am.
- |                |                |                   |                   |      |
|----------------|----------------|-------------------|-------------------|------|
| Strongly Agree | Somewhat Agree | Somewhat Disagree | Strongly Disagree | (67) |
|----------------|----------------|-------------------|-------------------|------|
- 20n. My marriage doesn't give me enough opportunity to become the sort of person I would like to be.
- |                |                |                   |                   |      |
|----------------|----------------|-------------------|-------------------|------|
| Strongly Agree | Somewhat Agree | Somewhat Disagree | Strongly Disagree | (68) |
|----------------|----------------|-------------------|-------------------|------|

CONTINUED ON NEXT PAGE

## MARRIED PEOPLE CONT.

20o. I can't completely be myself around my husband/wife.

Strongly Agree          Somewhat Agree          Somewhat Disagree          Strongly Disagree

(69)

20p. Do you have disagreements over your husband's/wife's drinking? (CHECK ONE)

Yes \_\_\_          No \_\_\_

(70)

20q. At the present time, does your husband/wife have any problems with health, sickness, injury, or handicap? (CHECK ONE)

Yes \_\_\_          No \_\_\_ → (GO TO END OF QUESTIONNAIRE)

(71)



20r. How much does this bother you? (CIRCLE ONE)

Very Much          Somewhat          Only a Little          Not at All

(72)

GO TO END OF QUESTIONNAIRE

## SINGLE, SEPARATED, DIVORCED, OR WIDOWED PEOPLE

THE FOLLOWING STATEMENTS DESCRIBE THE SITUATION OF SOME PEOPLE WHO ARE SINGLE, SEPARATED, DIVORCED, OR WIDOWED. SINCE WE ARE INTERESTED IN YOUR FEELINGS, PLEASE INDICATE HOW OFTEN EACH OF THE STATEMENTS DESCRIBES YOUR SITUATION. CIRCLE ONE ANSWER FOR EACH STATEMENT.

- |   |       |                 |              |            |      |
|---|-------|-----------------|--------------|------------|------|
| 21. I feel out of place in a social situation because I am single.  | Never | Once in a While | Fairly Often | Very Often | (73) |
| 21a. I have no one to talk to about myself.                         | Never | Once in a While | Fairly Often | Very Often | (74) |
| 21b. I have no one with whom I can share experiences and feelings.  | Never | Once in a While | Fairly Often | Very Often | (75) |
| 21c. I have a chance to have fun.                                   | Never | Once in a While | Fairly Often | Very Often | (76) |
| 21d. I stay at home because I am afraid to go out at night.         | Never | Once in a While | Fairly Often | Very Often | (77) |
| 21e. I wonder if I am an interesting person.                        | Never | Once in a While | Fairly Often | Very Often | (78) |
| 21f. I feel that I am not having the kind of sex life I would like. | Never | Once in a While | Fairly Often | Very Often | (79) |
| GO TO END OF QUESTIONNAIRE  |       |                 |              |            |      |

END OF  
CARD 53

END: YOU HAVE COMPLETED THIS PART OF THE QUESTIONNAIRE. PLEASE BEGIN ANSWERING THE NEXT SECTION.

BEGIN CARD 85

Site	___	(1)		
Pt. I.D.	___	___	___	(2-11)
Form	<u>1</u>	<u>7</u>	Type	<u>2</u>
	(12-13)			(14)
Card No.	<u>8</u>	<u>5</u>	Date	___
	(15-16)			(17-22)

## BELIEFS ABOUT HIGH BLOOD PRESSURE

EVERYONE HAS CERTAIN BELIEFS ABOUT HIGH BLOOD PRESSURE AND WHAT HELPS THEM TO FEEL BETTER. BELOW IS A LIST OF STATEMENTS THAT SOME PEOPLE BELIEVE ABOUT HIGH BLOOD PRESSURE AND THE BENEFITS OF TREATMENT. SINCE WE ARE TRYING TO GET YOUR FEELINGS OR BELIEFS, PLEASE INDICATE THE EXTENT OF YOUR AGREEMENT WITH EACH STATEMENT. THERE ARE NO RIGHT OR WRONG ANSWERS.

PLEASE ANSWER ALL QUESTIONS IN THE FOLLOWING WAY.

IF YOU STRONGLY AGREE WITH THE STATEMENT, THEN CIRCLE STRONGLY AGREE.  
 IF YOU AGREE WITH THE STATEMENT, THEN CIRCLE AGREE.  
 IF YOU ARE UNDECIDED ABOUT THE STATEMENT, THEN CIRCLE UNDECIDED.  
 IF YOU DISAGREE WITH THE STATEMENT, THEN CIRCLE DISAGREE.  
 IF YOU STRONGLY DISAGREE WITH THE STATEMENT, THEN CIRCLE STRONGLY DISAGREE.

1. A person with high blood pressure should stick with his/her treatment even if he/she doesn't think he/she is getting better.

Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree	(23)
----------------	-------	-----------	----------	-------------------	------

2. If my high blood pressure was getting worse I would get help.

Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree	(24)
----------------	-------	-----------	----------	-------------------	------

3. High blood pressure can be a serious disease if you don't control it.

Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree	(25)
----------------	-------	-----------	----------	-------------------	------

4. My high blood pressure is well controlled.

Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree	(26)
----------------	-------	-----------	----------	-------------------	------

5. My high blood pressure would be worse if I did nothing about it.

Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree	(27)
----------------	-------	-----------	----------	-------------------	------

- |     |   |       |           |          |                      |      |
|-----|---|-------|-----------|----------|----------------------|------|
| 6.  | I believe that I can control my high blood pressure.                                  |       |           |          |                      |      |
|     | Strongly<br>Agree   | Agree | Undecided | Disagree | Strongly<br>Disagree | (28) |
| 7.  | In general, the doctor has helped my high blood pressure.                             |       |           |          |                      |      |
|     | Strongly<br>Agree   | Agree | Undecided | Disagree | Strongly<br>Disagree | (29) |
| 8.  | High blood pressure is much less serious than pneumonia.                              |       |           |          |                      |      |
|     | Strongly<br>Agree   | Agree | Undecided | Disagree | Strongly<br>Disagree | (30) |
| 9.  | My high blood pressure will go away when I don't have so many other problems.         |       |           |          |                      |      |
|     | Strongly<br>Agree   | Agree | Undecided | Disagree | Strongly<br>Disagree | (31) |
| 10. | So many doctors have talked to me I don't know what to do for my high blood pressure. |       |           |          |                      |      |
|     | Strongly<br>Agree   | Agree | Undecided | Disagree | Strongly<br>Disagree | (32) |
| 11. | The treatment that has been prescribed isn't exactly right for me.                    |       |           |          |                      |      |
|     | Strongly<br>Agree   | Agree | Undecided | Disagree | Strongly<br>Disagree | (33) |
| 12. | I am not really sure I have high blood pressure.                                      |       |           |          |                      |      |
|     | Strongly<br>Agree   | Agree | Undecided | Disagree | Strongly<br>Disagree | (34) |
| 13. | High blood pressure is not as serious as some people say.                             |       |           |          |                      |      |
|     | Strongly<br>Agree   | Agree | Undecided | Disagree | Strongly<br>Disagree | (35) |
| 14. | Right now I have more important things to worry about than my high blood pressure.    |       |           |          |                      |      |
|     | Strongly<br>Agree   | Agree | Undecided | Disagree | Strongly<br>Disagree | (36) |
| 15. | High blood pressure is much less serious than diabetes.                               |       |           |          |                      |      |
|     | Strongly<br>Agree   | Agree | Undecided | Disagree | Strongly<br>Disagree | (37) |
| 16. | Since my high blood pressure isn't serious I don't have to worry so much.             |       |           |          |                      |      |
|     | Strongly<br>Agree   | Agree | Undecided | Disagree | Strongly<br>Disagree | (38) |



17. Taking care of my blood pressure is worth the effort it requires.
- |                   |       |           |          |                      |      |
|-------------------|-------|-----------|----------|----------------------|------|
| Strongly<br>Agree | Agree | Undecided | Disagree | Strongly<br>Disagree | (39) |
|-------------------|-------|-----------|----------|----------------------|------|
18. Treatment for high blood pressure is doing me a lot of good.
- |                   |       |           |          |                      |      |
|-------------------|-------|-----------|----------|----------------------|------|
| Strongly<br>Agree | Agree | Undecided | Disagree | Strongly<br>Disagree | (40) |
|-------------------|-------|-----------|----------|----------------------|------|
19. A person could do everything he/she is supposed to do to control high blood pressure but it won't help much.
- |                   |       |           |          |                      |      |
|-------------------|-------|-----------|----------|----------------------|------|
| Strongly<br>Agree | Agree | Undecided | Disagree | Strongly<br>Disagree | (41) |
|-------------------|-------|-----------|----------|----------------------|------|
20. Some patients have to take pills (medications) to help control their high blood pressure. Do you take any pills for your high blood pressure? (CHECK ONE)
- |                          |                                |      |
|--------------------------|--------------------------------|------|
| 1. Yes, take pills _____ | 2. No, do not take pills _____ | (42) |
|--------------------------|--------------------------------|------|

↓

GO TO PAGE 4, QUESTION 32

↓

**TAKE PILLS**

21. I could take my medications regularly if my family problems weren't so great.
- |                   |       |           |          |                      |      |
|-------------------|-------|-----------|----------|----------------------|------|
| Strongly<br>Agree | Agree | Undecided | Disagree | Strongly<br>Disagree | (43) |
|-------------------|-------|-----------|----------|----------------------|------|
22. I am confused by all the medications the doctor has given me.
- |                   |       |           |          |                      |      |
|-------------------|-------|-----------|----------|----------------------|------|
| Strongly<br>Agree | Agree | Undecided | Disagree | Strongly<br>Disagree | (44) |
|-------------------|-------|-----------|----------|----------------------|------|
23. I would have to change too many habits to take my medications.
- |                   |       |           |          |                      |      |
|-------------------|-------|-----------|----------|----------------------|------|
| Strongly<br>Agree | Agree | Undecided | Disagree | Strongly<br>Disagree | (45) |
|-------------------|-------|-----------|----------|----------------------|------|
24. If I take my medications I may become dependent upon them.
- |                   |       |           |          |                      |      |
|-------------------|-------|-----------|----------|----------------------|------|
| Strongly<br>Agree | Agree | Undecided | Disagree | Strongly<br>Disagree | (46) |
|-------------------|-------|-----------|----------|----------------------|------|
25. I am not interested in taking my medications regularly.
- |                   |       |           |          |                      |      |
|-------------------|-------|-----------|----------|----------------------|------|
| Strongly<br>Agree | Agree | Undecided | Disagree | Strongly<br>Disagree | (47) |
|-------------------|-------|-----------|----------|----------------------|------|
26. Taking my medications interferes with my normal daily activities.
- |                   |       |           |          |                      |      |
|-------------------|-------|-----------|----------|----------------------|------|
| Strongly<br>Agree | Agree | Undecided | Disagree | Strongly<br>Disagree | (48) |
|-------------------|-------|-----------|----------|----------------------|------|

CONTINUED ON NEXT PAGE

TAKE PILLS, CONT.						
27.	I believe that my medications for high blood pressure will help me to feel better.					
	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree	(49)
28.	I must take my high blood pressure medications even if I don't think I am getting better.					
	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree	(50)
29.	I believe that my medications will control my high blood pressure.					
	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree	(51)
30.	Taking medication is something a person must do no matter how hard it is.					
	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree	(52)
31.	I believe that my medications will help prevent diseases (complications) related to high blood pressure.					
	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree	(53)

EVERYONE WHO HAS HIGH BLOOD PRESSURE HAS TO FOLLOW SOME GUIDELINES FOR EATING (OR A DIET) TO HELP CONTROL HIGH BLOOD PRESSURE. SOME PATIENTS MUST BE CONCERNED WITH CALORIES OR CARBOHYDRATES, OTHERS WITH FAT OR PROTEIN RESTRICTIONS. THE FOLLOWING STATEMENTS DESCRIBE BELIEFS SOME PEOPLE HAVE ABOUT THE DIET THEY MUST FOLLOW. PLEASE INDICATE THE EXTENT OF YOUR AGREEMENT WITH EACH STATEMENT BY CIRCLING ONE CHOICE FOR EACH STATEMENT.

32.	Following my diet does not interfere with my normal daily activities.					
	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree	(54)
33.	I am always hungry when I stick to my diet.					
	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree	(55)
34.	I could follow my diet if I had a step by step plan.					
	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree	(56)
35.	I dislike the tastes of foods on my diet.					
	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree	(57)



## WORK

PLEASE INDICATE THE EXTENT OF YOUR AGREEMENT WITH EACH OF THE FOLLOWING STATEMENTS THAT DESCRIBE BELIEFS SOME PEOPLE HAVE ABOUT WORKING AND THEIR ILLNESS. CIRCLE ONE CHOICE FOR EACH STATEMENT.

- |  |                   |       |           |          |                      |      |
|--|-------------------|-------|-----------|----------|----------------------|------|
| 45. If I changed jobs it would be easier to take my medications.           | Strongly<br>Agree | Agree | Undecided | Disagree | Strongly<br>Disagree | (67) |
| 46. My job does not interfere with taking my medications.                  | Strongly<br>Agree | Agree | Undecided | Disagree | Strongly<br>Disagree | (68) |
| 47. I worry so much about my job that I can't take my medications.         | Strongly<br>Agree | Agree | Undecided | Disagree | Strongly<br>Disagree | (69) |
| 48. If I changed jobs it would be easier to follow my diet.                | Strongly<br>Agree | Agree | Undecided | Disagree | Strongly<br>Disagree | (70) |
| 49. My work makes me so tired it is hard to follow my diet.                | Strongly<br>Agree | Agree | Undecided | Disagree | Strongly<br>Disagree | (71) |
| 50. I could control my weight if the pressures of my job weren't so great. | Strongly<br>Agree | Agree | Undecided | Disagree | Strongly<br>Disagree | (72) |
| 51. It has been difficult to follow the work habits prescribed.            | Strongly<br>Agree | Agree | Undecided | Disagree | Strongly<br>Disagree | (73) |

END O  
CARD 8

END: You have now completed this part of the questionnaire. Please begin answering the next section.

Site	(1)
Pt. I.D.	(2-11)
Form	0 2 (12-13) Type (14)
Card No.	0 2 (15-16) Date (17-22)

SOCIO-DEMOGRAPHIC

The following questions describe general things about you. Please answer all the questions to the best of your ability.

1. Sex: (CHECK ONE)

- 1. Male
- 2. Female  (23)

2. Age: (WRITE IN)

\_\_\_\_\_ (24-25)

3. What is your racial or ethnic background? (CHECK ONE)

- 1. White
- 2. Black
- 3. Mexican-American
- 4. American Indian
- 5. Oriental
- 6. Other (Specify) \_\_\_\_\_ (26)

4. What is your marital status? (CHECK ONE)

- 1. Married
- 2. Single, never married
- 3. Separated
- 4. Divorced
- 5. Widowed  (27)

5. How many living children do you have, including adopted and stepchildren?

- No living children (CHECK)
- Number of living children (WRITE IN) \_\_\_\_\_ (28-29)

6. Taking all sources of money into consideration, what was your family's total income before taxes and other deductions for the past 12 months? (CHECK ONE)

- |  |   |
|--|---|
| 00. Below \$5,000 <input type="checkbox"/>     | 05. \$13,000-\$14,999 <input type="checkbox"/>        |
| 01. \$5,000-\$6,999 <input type="checkbox"/>   | 06. \$15,000-\$16,999 <input type="checkbox"/>        |
| 02. \$7,000-\$8,999 <input type="checkbox"/>   | 07. \$17,000-\$19,999 <input type="checkbox"/>        |
| 03. \$9,000-\$10,999 <input type="checkbox"/>  | 08. \$20,000-\$24,999 <input type="checkbox"/>        |
| 04. \$11,000-\$12,999 <input type="checkbox"/> | 09. \$25,000 or over <input type="checkbox"/> (30-31) |

7. Are you working now at a regular job, unemployed, retired, a housewife, or what? (CHECK ONE)

1. Working now at regular job

2. Unemployed or laid off

3. Retired

4. Disabled

5. Housewife

6. Other (Specify )

GO TO QUES. 10

(32)

8. What is the main occupation you work at? (What type of work do you do?) (WRITE IN)

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

9. What kind of business or industry is that in? (What do they make or do?) Is it your own business? (WRITE IN)

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

(33)

10. How much schooling have you had (highest grade completed)? (CHECK ONE)

1. None or some grammar school (less than 7 grades completed)
2. Junior high school (9 grades completed)
3. Some high school (10 or 11 grades)
4. Graduated high school
5. Technical, business, or trade school
6. Some college (less than 4 years completed)
7. Graduated college
8. Postgraduate college or professional

(34)

11. Who lives in your household, besides yourself? (CHECK AS MANY AS APPLY)

- a. No one else  (35)
- b. Husband/wife  (36)
- c. Children (Write in number living at home)  (37-
- d. Other relatives (Write in relationships: example, mother-in-law; niece)  (39-
- e. Non-related persons (Write in: example, 2 friends; 1 boarder)  (41-

12. Do you have hypertension? (CHECK ONE)

1. Yes  2. No  →(GO TO QUES. 14) (43)

13. How long have you had hypertension? (CHECK ONE)

1. Less than one year
  2. One to two years
  3. Three to five years
  4. Six to eight years
  5. Nine to eleven years
  6. Twelve to fourteen years
  7. Fifteen years or more
- (44)

14. Do you smoke cigarettes? (CHECK ONE)

1. Yes  2. No  →(GO TO QUES. 16) (45)

15. How many cigarettes do you smoke in a day? (CHECK ONE)

1. Less than five cigarettes a day
  2. Six to nine cigarettes a day
  3. Ten to nineteen cigarettes a day
  4. Twenty to twenty-nine cigarettes a day
  5. Thirty or more cigarettes a day
- (46)

16. Do you drink alcoholic beverages? (CHECK ONE)

1. Yes  2. No  →(GO TO QUES. 18) (47)

17. How often do you drink alcoholic beverages? (CHECK ONE)

1. Occasionally
  2. Weekends only
  3. Several times a week
  4. One to two drinks a day
  5. More than two drinks a day
- (48)

18. Do you have diabetes? (CHECK ONE)

1. Yes  2. No  →(GO TO END OF QUESTIONNAIRE) (49)

19. How long have you had diabetes? (CHECK ONE)

1. Less than one year
  2. One to two years
  3. Three to five years
  4. Six to eight years
  5. Nine to eleven years
  6. Twelve to fourteen years
  7. Fifteen years or more
- (50)

END: You have completed this part of the questionnaire.  
Please begin answering the next section.

END OF  
CARD 02

APPENDIX D

Tables



Table 16. Relationship Between Extraneous Variables and Study Variables (Pearson Product Moment Correlation).

Extraneous Variable	Number of Participants	Social Stressors	Barriers to Diet
Age	71	-.1105 (P=.180)	-.2173 (P=.088)
Duration of Hypertension	69	.0834 (P=.248)	-.1695 (P=.082)
Education	71	-.1301 (P=.140)	-.1209 (P=.158)
Number of Living Children	71	-.0204 (P=.433)	.0132 (P=.456)
Number of Children at Home	71	.1373 (P=.127)	.1717 (P=.076)
Income	67	.0410 (P=.371)	-.1522 (P=.109)
Size of Household	70	.1978 (P=.050)	.1165 (P=.169)

Table 17. ANOVA-Differences in Mean Scores for Social Stress and Barriers to Diet by Extraneous Variables.

Extraneous Variable	N	Mean Scores	
		Social Stress	Barriers to Diet
<b>Marital Status</b>			
married	54	2.70	2.47
single, never married	1	2.61	2.52
separated	3	2.65	2.53
divorced	6	2.69	2.49
widowed	7	2.64	2.64
		$F(4,66) = .24$ ns	$F(4,66) = .269$ ns
<b>Occupation</b>			
Higher executive, major professional	3	2.70	2.54
Business manager Lesser professional	6	2.60	2.42
Administrator Lesser professional	3	2.61	2.70
Clerical, sales Skilled	9	2.65	2.20
Manual employee	3	2.73	2.55
Semi-skilled	4	2.72	2.62
Unskilled	4	2.73	2.78
		$F(6,25) = .523$ ns	$F(6,25) = 1.125$ ns
<b>Ethnicity/Race</b>			
White	58	2.69	2.47
Black	13	2.68	2.57
		$F(1,69) = .008$ ns	$F(1,69) = .530$ ns
<b>Work Status</b>			
working	32	2.66	2.47
unemployed/laid off	6	2.61	2.71
retired	1	2.74	2.22
disabled	4	2.64	2.36
housewife	26	2.74	2.46
other	2	2.70	2.95
		$F(5,65) = .831$ ns	$F(5,65) = .974$ ns

Table 17. Continued.

Extraneous Variable	N	Mean Scores	
		Social Stress	Barriers to Diet
<b>Living Arrangements</b>			
Unmarried, living alone	8	2.58	2.57
Unmarried, living with relative/unrelated persons	1	2.87	2.00
Single; living with children	5	2.66	2.70
Married; living with spouse and children	35	2.71	2.56
Married; living with spouse alone	15	2.65	2.31
Married; living with spouse, children and other relatives	3	2.82	2.22
Married; living with spouse and other relatives	1	2.57	2.22
Other	3	2.78	2.50
		F(7,63)=1.225 ns    F(7,63)=1.128 ns	

Table 18. Mean Scores, Number of Respondents for Each Scale by Age Group.\*

Variable	Number of Respondents			Mean Scores		
	B	I	II	B	I	II
Stress	71	43	28	2.6886	2.70	2.65
Barriers to diet	71	43	28	2.4886	2.56	2.36
Age	71	43	28	48.2	42.4	57.2
Job	33	21	12	2.43	2.47	2.37
Housewife/job	33	21	12	2.26	2.28	2.22
Housewife	28	15	13	2.26	2.30	2.23
Unemployment	7	7	0	2.68	2.68	----
Retirement/disability	5	2	3	2.71	2.71	2.71
Finances	71	43	28	2.42	2.42	2.43
Parenting-younger children	27	26	1	3.04	3.04	3.10
Parenting-older children	23	19	4	2.90	2.83	3.21
Marriage	54	34	20	2.80	2.78	2.83
Singlehood	17	9	8	2.99	2.95	3.03

\* B = Both Middlelence I and II (ages 35-65)

I = Middlelence I (ages 35-50)

II = Middlelence II (ages 51-65).

Table 19. Correlation Matrix: Relationships Among Study Variables (Pearson Product Moment Correlation). Both Age Groups - Middlecence I and II. N = 71.

Stress	Stress	Bardt	Job	HW/job	HW	Unemp	Ret/Dis	Finan	Pting		Single
									Yng	Old	
Barriers diet	-.18	-----									
Job	.73	.06	-----								
HW/job	.10	.25	-.07	-----							
HW	.08	.41**	99.00	99.00	-----						
Unemp.	.84**	-.57	99.00	99.00	-----	-----					
Ret/Dis	.22	-.27	99.00	99.00	99.00	1.00	-----				
Finan	.36	-.24*	-.11	-.13	.03	-.10	.25	-----			
Pting/Yng	.49**	-.15	.27	-.49	-.19	.63	99.00	.14	-----		
Pting/Old	.85***	-.45**	.36	.23	-.03	.99	1.00	.39	.47	-----	
Marriage	.62	-.003	.33	.32	-.19	.88	-.96	-.21	-.13	.37	-----
Singlehood	.67**	-.57**	.29	-.05	1.00		.44	.26	.59	.75	99.00

\* Significant at the .05 level.

\*\* Significant at the .01 level.

\*\*\* Significant at the .001 level.

99.00 = uncomputable.

Table 20. Correlation Matrix: Relationship Among Study Variables (Pearson Product Moment Correlation) Subjects in Middlecence I (Ages 35-50). N = 43.

	Stress	Bardt	Job	HW/job	HW	Unemp	Ret/Dis	Finan	Ptng		Mar.	Single
									Yng	Old		
Stress	----											
Bardt	-.43**	----										
Job	.75	.02	----									
HW/job	.17	-.08	.16	----								
HW	-.05	.36	99.00	99.00	----							
Unemp	.84**	-.56	99.00	99.00	1.00	----						
Ret/dis	1.00	-1.00	99.00	99.00	99.00	1.00	----					
Finances	.44	-.41**	.06	-.26	-.29	-1.10	1.00	----				
Parenting												
Yng	.49**	-.15	.26	-.49	-.16	.63	99.00	.14	----			
Old	.85**	-.52**	.36	.60	-.18	.99	1.00	.38	.47	----		
Marriage	.73	-.16	.61	.16	-.10	.88	-1.00	.07	-.13	.43	----	
Single	.81**	-.70*	.95	.42	99.00	.44	99.00	.13	.58	.75	99.00	----

\* Significant at .05 level.

\*\* Significant at .01 level.

\*\*\* Significant at .001 level.

99.00 = uncomputable.

Table 21. Correlation Matrix: Relationships Among Study Variables (Pearson Product Moment Correlation) Middlecence II (Ages 51-65). N = 28.

Stress	-----	Stress	Bardt	Job	HW/job	HW	Unemp	Ret/Dis	Finan	Pting			
										Yng	Old	Single	
Bardt	.19	-----											
Job	.74	-.07	-----										
HW/job	.01	.51	-.49	-----									
HW	.16	.42	99.00	99.00	-----								
Unemp	99.00	99.00	99.00	99.00	99.00	-----							
Ret/dis	.01	-.11	99.00	99.00	99.00	99.00	-----						
Finances	.28	-.05	-.09	.02	.22	99.00	.09	-----					
Parenting													
Yng	99.00	99.00	99.00	99.00	99.00	99.00	99.00	99.00	99.00	-----			
Old	.96**	-.05	1.00 <sup>†</sup>	-1.00 <sup>†</sup>	-1.00 <sup>†</sup>	99.00	99.00	99.00	-.05	99.00	-----		
Marriage	.37	.35	-.36	.79	-.29	99.00	99.00	99.00	-.66	99.00	.16	-----	
Singlehood	.50	-.29	.13	-.08	99.00	99.00	99.00	-1.00 <sup>†</sup>	.45	99.00	99.00	99.00	-----

\* Significant at .05 level.

\*\* Significant at .01 level.

† Significant at .001 level.

99.00 = uncomputable.

Table 22. Frequency and Distribution of Subjects by Sociodemographic Variables in High and Low Social Stress and Barriers to Diet Categories.

Variable	Barriers to Diet			Social Stress		
	N	Low %	High %	N	Low %	High %
<u>Duration of hypertension</u>						
less than 1 year	3	4.3	5.7	4	4.3	5.7
1-2 yrs	6	8.6	13.0	7	11.5	10.1
3-5 yrs	9	13.0	13.0	9	13.0	13.0
6-8 yrs	2	2.8	7.2	2.	7.2	2.8
9-11 yrs	5	7.2	2.8	4	4.3	5.7
12-14 yrs	2	2.8	1.4	3	0.0	4.3
15 or more yrs	7	10.1	7.2	6	8.6	8.6
Total	34	49.2	50.7	34	49.2	50.7
<u>Marital Status</u>						
Married	27	38.0	38.0	26	36.6	39.4
Single, never married	0	0.0	1.4	1.	1.4	0.0
Separated	2	2.8	1.4	1	1.4	2.8
Divorced	3	4.2	4.2	2	2.8	5.6
Widowed	3	4.2	5.6	4	5.6	4.2
Total	35	49.2	50.6	34	47.8	52.0



Table 22. Continued.

Variable	Barriers to Diet				Social Stress			
	N	%	N	%	N	%	N	%
<u>Education</u>								
<7 yrs of school	2	2.8	3	4.2	3	4.2	2	2.8
Completed 9 grades	2	2.8	0	0.0	1	1.4	1	1.4
Completed 10th or 11th grade	5	7.0	5	7.0	3	4.2	7	9.8
High School grad	14	19.7	15	21.1	15	21.1	14	19.7
Technical/trade school	1	1.4	3	4.2	2	2.8	2	2.8
Some college (<4 yrs)	6	8.4	7	9.8	7	9.8	6	8.4
College grad	3	4.2	1	1.4	2	2.8	2	2.8
Post grad or professional	2	2.8	2	2.8	1	1.4	3	4.2
Total	35	49.1	36	50.5	34	47.7	37	52.3
<u>Work Status</u>								
Working	15	21.1	17	23.9	17	23.9	15	21.1
Unemployed	2	2.8	4	5.6	3	4.2	3	4.2
Retired	1	1.4	0	0.0	0	00.0	1	1.4

Table 22. Continued.

Variable	Barriers to Diet			Social Stress		
	N	%	High %	N	%	High %
<u>Work Status - cont.</u>						
Disabled	3	4.2	1 1.4	2	2.8	2 2.8
Housewife	14	19.7	12 16.9	11	15.5	15 21.1
Other	0	0.0	2 2.8	1	1.4	1 1.4
Total	35	49.2	36 50.6	34	47.8	37 52.1
<u>Number of Children at Home</u>						
0	15	21.1	10 14.1	17	23.9	8 11.3
1	9	12.7	10 14.1	5	7.0	14 19.7
2	6	8.5	11 15.4	9	12.7	8 11.3
3	2	2.8	1 1.4	0	0.0	3 4.2
4	1	1.4	3 4.2	2	2.8	2 2.8
5	1	1.4	0 0.0	0	0.0	1 1.4
6	1	1.4	1 1.4	1	1.4	1 1.4
Total	35	49.3	36 50.7	34	47.8	37 52.1

Table 22. Continued.

Variable	Barriers to Diet				Social Stress			
	N	%	N	%	N	%	N	%
<u>Income</u>								
<5,000/yr	2	3.0	1	1.5	1	1.5	2	3.0
5,000-6,999	3	4.4	1	1.5	2	3.0	2	3.0
7,000-8,999	0	0.0	4	6.0	2	3.0	2	3.0
9,000-10,999	2	3.0	3	4.4	2	3.0	3	4.4
11,000-12,999	1	1.5	0	0.0	0	0.0	1	1.5
13,000-14,999	2	3.0	3	4.4	2	3.0	3	4.4
15,000-16,999	1	1.5	1	1.5	2	3.0	0	0.0
17,000-19,999	4	6.0	4	6.0	5	7.5	3	4.4
20,000-24,999	7	10.4	11	16.4	10	14.9	8	11.9
25,000 or more	<u>11</u>	<u>16.4</u>	<u>6</u>	<u>8.9</u>	<u>6</u>	<u>8.9</u>	<u>11</u>	<u>16.4</u>
Total	33	49.2	34	50.7	32	47.8	35	52.2

Table 23. Frequency and Distribution of Subjects in Categories of High and Low Social Stress and High and Low Barriers to Diet\*. (N = 71)

	<u>N</u>			<u>%</u>		
	I	II	B	I	II	B
Low Barriers to Diet	17	18	35	23.9	25.4	49.3
High Barriers to Diet	<u>26</u>	<u>10</u>	<u>36</u>	<u>36.6</u>	<u>14.1</u>	<u>50.7</u>
TOTAL	43	28	71	70.5	39.5	100.0
Low Social Stress	18	16	34	25.3	22.6	47.9
High Social Stress	<u>25</u>	<u>12</u>	<u>37</u>	<u>35.2</u>	<u>16.9</u>	<u>52.1</u>
TOTAL	43	28	71	60.5	39.5	100.0

Table 24. Frequency and Distribution of Subjects in Middle-  
 dlescence I (Ages 35-50) in Categories of High  
 and Low Social Stress and High and Low Barriers  
 to Diet. (N = 43).

	<u>N</u>	<u>%</u>
Low Barriers to Diet	17	39.5
High Barriers to Diet	<u>26</u>	<u>60.5</u>
TOTAL	43	100.0
Low Social Stress	18	41.9
High Social Stress	<u>25</u>	<u>58.1</u>
TOTAL	43	100.0

Table 25. Frequency and Distribution of Subjects in Mid-  
dlescence II (Ages 51-65) in Categories of High  
and Low Social Stress and High and Low Barriers  
to Diet. (N = 28).

	<u>N</u>	<u>%</u>
Low Barriers to Diet	18	64.2
High Barriers to Diet	<u>10</u>	<u>35.8</u>
TOTAL	28	100.0
Low Social Stress	16	57.1
High Social Stress	<u>12</u>	<u>42.9</u>
TOTAL	28	100.0

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