

BEHAVIORAL MEDICINE MULTIVARIATE ASPECTS OF STRESS
AND CARDIOVASCULAR DYSFUNCTIONS IN THE
ELDERLY

By

RONNIE LEE JOHNSON

Bachelor of Arts
Biola University
La Mirada, California
1973

Master of Arts
Chapman College
Orange, California
1978

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Thesis Approved:

John M. Willard
Thesis Adviser

Harold P. Landolt

Deanna J. Newman

Stefed Harlozzi

Judith E. Dobson

Norman D. Murdum
Dean of the Graduate College

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Ronn Johnson

May, 1986

Dedicated to my mother, Dellia Johnson, and my father,
Thaddeus H. Johnson (who passed away on January 18,
1962), may the love, honor and support that we
have for each other continue forever.

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CHAPTER I

INTRODUCTION

There are approximately 25 million Americans 65 years of age or older who represent slightly more than 10 percent of the general population of the United States. The United States Bureau of the Census projects that elderly persons over 65 will increase to over 27 million by 1985 (U.S. Department of Health, Education, and Welfare, 1976-77). The increase within this segment of the population is higher than any other age group. A large segment of this population experience psychological problems that may warrant some type of counseling assistance.

Counseling psychologists are confronted with the need to find more effective means to assist the elderly. Few of these professionals are fully cognizant of the problems many elderly face. There may be further need to equip counseling psychologists with new knowledge to provide appropriate counseling. A goal would be to facilitate an elderly person's psychological well-being or quality of life. Additionally, many psychologists are not experienced in the treatment of the elderly. There are "relatively few counselors and psychologists who appreciate the contribution they could make in this area" (Kastenbaum, 1979, p. 78). There are only a few psychiatrists or psychologists in private practice working with the elderly (Dorken & Webb, 1979, Marmor, 1975). Therefore, the impact of some psychological disorders, namely depression, may be

further heightened by this inadequate delivery of mental health services.

It appears that there is an important role for counselors and psychologists to play in reducing the effect of depression associated with the elderly. This is particularly relevant to those elderly experiencing depression as a result of a myocardial infarction. For instance, there is a higher incidence of mental health disorders among the elderly (Roth, 1976). However, only four percent of the patients seen at outpatient mental health centers have been in the elderly category (Mintz, Steuer, & Jarvik, 1981). Cohen's (1976) findings indicate that time given to the elderly is probably less than one percent of the total time devoted to patients, whereas a younger individual, for example, may be seen weekly, while an elderly person might be seen only once. Despite Cohen's (1976) findings there are some potential problems in health care delivery.

The growing increase in the elderly population has the potential of placing heavy demands on the health care delivery systems. To illustrate, it is estimated that between 18 to 25 percent of the elderly have mental health problems (Roth, 1976). More specifically, there is general agreement that depression is the most common functional psychiatric disorder among the elderly, affecting 7 to 11 percent of the general population of the United States (Mintz et al., 1981). Although they represent only 10 percent of the United States population, persons 60 and older commit 23 percent of suicides in America (National Center for Health Statistics, 1975). Additionally, depression, a dimension of stress, is the psychological condition most commonly associated with suicide in the elderly. Suicide is at least as common among elderly

women as it is among elderly men (Busse & Pfeiffer, 1969). Furthermore, many elderly people experience significant psychological reactions from stress resulting from various aspects of poor health (Butler & Lewis, 1973).

Stress may be defined as the event and/or situation that initiates and/or maintains arousal or reaction. In conventional terms,

Stress refers both a state of imbalance within an organism that is (a) elicited by an actual or perceived disparity between environmental demands and the organism's capacity to cope with these demands and (b) is manifested through a variety of physiological, emotional, and behavioral responses" (Sarason & Spielberger, 1979, p. 27).

Stress also refers to a condition of disequilibrium within the elderly.

The disequilibrium among the elderly may be initiated by a real or perceived distinction between the demands of the environment (e.g., depression-inducing situations) and the elderly's ability to adjust to these demands. The ability of the elderly to adjust is reflected through a multitude of physiological (i.e., cardiovascular), emotional (i.e., depression), and behavioral responses (i.e., recovery time from the onset of a health emergency). Hence, stress may be conceptualized from a physical and psychological perspective.

Depression is one significant dimension of stress, often resulting from the latter (Lipton, 1976). Seventy percent of all physical illness develops at periods of time when a person feels helpless or hopeless (Seligman, 1975). Depression is frequently expressed by the elderly person's over-preoccupation with bodily functions, often associated with somatic complaints. Therefore, depression caused by stress can have profound effect on physical health.

There are many studies linking physical health to life stressors (Holmes & Rahe, 1967, Rahe, 1967, Rahe, 1968, Rahe, Gunderson, & Arthur,

1970, 1964, Rahe, McKean, & Arthur, 1967, Rahe, Meyer, Smith, Kjaer, & Holmes, 1964). Stress may be associated with 37 percent of a group of patients who experienced coronary occlusion, which is the blockage of one of the large branches of the coronary vessels. When this occurs that portion of the heart loses its nutrition and stops contracting. The person at this point is said to have a heart attack (e.g., coronary occlusion used synonymously with myocardial infarction). Theorell & Rahe (1971), along with Rahe & Passikiv's (1971) research results indicate significantly more life changes in myocardial patients when compared to a control group. These life changes are considered as precipitants of stress.

The relationship between cardiovascular disorders and psychological stress (depression) is evidenced in several studies (Friedman & Rosenman, 1974, Perlman, Ferguson, Bergum, Isenberg, & Hammersten, 1971). Blazer and Williams (1980) maintain, as a result of their research findings, that many elderly people have depressive symptoms associated with impaired health. As stated earlier, depression is identified as a dimension of stress.

Depression is the common cold of psychopathology (Seligman, 1975). A psychiatric glossary (American Psychiatric Association, 1975) defines depression as

Slowed thinking and decreased purposeful physical activity accompany the mood change when the term is used diagnostically. This is a state of both mood change and reduced activity. Persistent grief feelings make up a clinical depression only when accompanied by marked reduction in activity. In many severe cases this reduction involves the above mentioned obvious slowing of thinking and movements. In other cases, often equally severe, the diminution of activity is only related to withdrawal from previous fields of interest (p. 28).

There are numerous primary and secondary symptoms associated with depression. The primary symptoms of depression are manifested through a depressive mood (sad, dejected, fatigued, helpless, or hopelessness) and reduced behavior (defeatist attitude and behavior--I can't do anything) (Birren & Sloane, 1980). There are secondary symptoms also manifested through guilt, that is, aggressiveness towards the environment and anxiety which is a concomitant of depression (Wolpe, 1971). There are arguments that cognitive disturbances (i.e., depressive delusions, pessimistic thoughts, self-blame) precede depression (Beck, 1967). Other secondary manifestations include somatic symptoms, such as feelings of fatigue, and inability to take strong interests (Birren & Sloane, 1980).

Depression in the elderly results from individual sources and partially from physical, and psychological factors distinctive of this stage of living. The transition from middle-age to retirement can sometimes induce depression. It has been demonstrated that the aging of the hypothalamus and hormonal system produces a reduction in the ability to adjust to stress (Froklis, 1976). The synthesis of catecholamines occurs at a low percent, the monoamine oxidase activity rises, and the adrenal cortex decreases progressively with age (Robinson, Nies, Davis, Bunney, Davis, Colburn, Bourne, Shaw, & Coppen, 1972). A by-product of the aforementioned changes is a reduction in the capacity to tolerate depression-evoking events. The physical deterioration weakens the emotional state of the elderly. Thus, the physical and psychological factors interact with each other to compound the condition of the elderly. Thereby making them more depressed or prolonging their physical deterioration.

Nevertheless, there are several constructs which were examined in the elderly with cardiovascular dysfunctions and those elderly not having cardiovascular dysfunctions. Examples of some of those factors were health, life satisfaction, depression, and locus of control.

Locus of control is a concept developed by Rotter (1966) from social learning theory. Joe (1971) maintains that "A concept of internal-external control of reinforcement which describes the degree to which an individual believes that reinforcements are contingent upon his own behavior" (p. 619). Persons with an internal locus of control are self-regulated and basically feel that they determine their emotional reactions. Persons with an external locus of control believe their reactions are determined by events or circumstances beyond their control or by chance (Joe, 1979). In the elderly, internal control has been associated with higher life satisfaction (Morale) (Neheke, Belluci, and Gabriel, 1980). Conversely, more problems with health problems were associated with the elderly who were controlled more by external factors. The discussion thus far allows associations to be made which examine the effects of locus of control in the elderly. Associations among locus of control, self-assessed health, and life satisfaction may also be evidenced.

Hunter, Linn, Harris, & Pratt (1980) state that those elderly persons who were external in their orientation were more inclined to report poorer overall health. On the other hand, self-assessed health was found positively correlated with an internal elderly group. Good health for the elderly has two connotations (1) the non-existence of disease and (2) the absence of the perception of disability (Chappell,

1981). Health is also related to an elderly person's life satisfaction or morale.

Larson (1978) uses psychological well-being, a concept used synonymously with life satisfaction. He contends that poor health was related to a lower sense of psychological well-being in the general population of Americans 60 years of age. Life satisfaction was also associated with internality (Fawcett, Stonner, & Zepelin, 1980). Fawcett et al. (1980) described internality as a "belief in personal influence" (p. 13). As mentioned previously, depressed people frequently report feelings of hopelessness, and helplessness (Seligman, 1975). Given this observation, it is axiomatic that positive relationships might exist among life satisfaction, self-reported health, and locus of control. De Millier (1982) found perceived health, and contact with close friend led to adaptation and life satisfaction. Family members, friendships with others and hard work were found by Nagy (1983) as the top three components of life satisfaction in an elderly group. Therefore, three questions warrant further investigation. First, to what extent are the cardiac and non-cardiac elderly different on the multivariate construct of psychological stress where this construct is composed of life satisfaction, and depression. Second, to what degree are the cardiac and non-cardiac elderly different on the multivariate construct of physical stress where this construct is composed of health locus of control, and self-ratings of health. Third, to what extent are the elderly different on the multivariate construct of social stress where this construct is divided into visits from family and phone calls from family.

Significance of the Problem

Cardiovascular disorders are often a result of stress. Cardiovascular disorders rank number one as a major cause of death in the United States in 1977 (U S. Department of Health, Education, and Welfare, 1979). There is a relationship between cardiovascular disorders and psychological factors (Freidman & Rosenman, 1974, Perlman, 1971). Depressive symptoms are associated with impaired health (Blazer & Williams, 1980). Answers to two questions might prove useful to counselors and psychologists. First, how do the levels of depression in a elderly myocardial infarction group differ from the elderly without a myocardial infarction experience? Second, do differences exist between a myocardial and non-myocardial elderly group? These groups are compared on the multivariate construct psychological stress when this variable consists of depression, locus of control (internal, powerful others, and chance), and life satisfaction. The multivariate construct physical stress where this construct is composed of health locus of control and self-ratings of health is used to compare the above groups. The groups are compared on the multivariate construct social stress. This construct is composed of visits from family and phone calls from family.

Statement of Problem

This study investigates the multidimensional construct of stress in myocardial infarction elderly and non-myocardial infarction elderly. That is, do the stress components of the two groups vary? This study investigates the extent to which locus of control, depression, health, family contacts, and life satisfaction scores are different in these two elderly groups. Additionally, there is a need to determine whether the

two components of the multidimensional construct of stress differ for each of the above mentioned elderly groups. The first component includes the physical components of stress (e.g., physical stress). The second component includes the psychological components of stress (e.g., psychological stress). The third component social stress includes visits from family and phone calls from family.

Hypotheses

The three research hypotheses investigated in the present study are as follows

1. There are no differences between the myocardial and nonmyocardial elderly on the multivariate construct of physical stress where this construct was composed of self health ratings.
2. There are no differences between the myocardial and non-myocardial elderly on the multivariate construct of psychological stress where this construct was composed of depression and life satisfaction.
3. There are no differences between the myocardial and non-myocardial elderly on the multivariate construct social stress where this construct was composed of visits from family and phone calls from family.

Definition of Terms

1. Cardiovascular Disorder is defined as a physiological dysfunction involving the circulatory system (i.e., myocardial infarction, heart disease, hardening of the arteries, etc.).
2. Depression is defined as a dimension of stress associated with feelings of hopelessness, sadness, slowed thinking and behavioral

activity. Depression is operationally defined as any score at or below one standard error of the mean on the Zung Self-Rating Depression Scale (Zung, 1965).

3. Health Locus of Control is defined as an elderly person's perception that their health is or is not determined by their behavior. It is defined as a score obtained on the Multidimensional Health Locus of Control Scale (MHLC) (Wallston, Wallston, and Devellis, 1978).
4. Externality is defined as an elderly person's attained score on the Multidimensional Health Locus of Control Scale (MHLC) that is above one standard error of the mean of the scores obtained from the sample under study.
5. Internality is defined as a score than an elderly person obtains which is one standard deviation below the mean of the population under investigation on the MHLC-Internal Subscale. It is the perception that individuals become healthy or sick as a result of their behavior.
6. Chance is defined by a score an elderly person obtained on the MHLC-Chance Subscale that is one standard deviation above the mean of the sample under investigation on the MHLC-Chance Subscale. It is the elderly person's perception that their health (good or bad) is determined by luck or fate.
7. Powerful Others is defined by an elderly person's score obtained on the MHLC-Powerful Others Subscale which is one standard deviation above the mean of the sample under investigation. It is the perception that one's health is determined by the influence of significant others (e.g., spouse).

8. Morale is an individual's level of expressed life satisfaction. However, for purposes of this investigation, morale will be defined as a score obtained on the Philadelphia Geriatric Morale Scale (Lawton, 1975).
9. Elderly is a person or group of persons at or above 55 years of age.
10. Social Stress is the number of personal encounters an elderly person has with family members. Social stress, for purposes of this investigation, is defined as the number of visits and phone calls from family members obtained on the Elderly Interpersonal Experience Inventory, (Dillard, Johnson, Campbell & Newman, 1984).
11. Self-Rating of Health is defined as a scale that an elderly person receives on the Duke-University of North Carolina Health Profile (DUNC), (Parkerson, Gehlbach, Wagner, James, Clapp, & Muhlbaief, 1981).

Limitations of the Investigation

1. The results of this investigation are specifically applicable only to voluntary the elderly with or without cardiovascular disorders. That is, findings are restricted to those persons 55 years of age or above who have had at least one myocardial infarction and those who have not experienced a myocardial infarction
2. The generalization can be made only with regard to the measures used in this investigation.
3. The geographic generalizability of the results will be limited to the State of Oklahoma

4. The data may be generalized only to senior centers and/or non-nursing home for the elderly.

Organization of the Investigation

A review of the literature and research results related to this study is presented in Chapter II. Chapter III contains the sample of the investigation, a description of the instruments used in the assessment of the criterion variables, and a description of the procedures used to collect and analyze the data.

Chapter IV includes the statistical analysis and interpretation of the data. The last chapter presents a summary of the data, conclusions made from the data, implications of the results, and suggestions for further research related to the findings of this investigation.

CHAPTER II

REVIEW OF THE LITERATURE

In Chapter II, quantitative research is reviewed relevant to depression, cardiovascular dysfunctions, and the elderly and focuses on the following major areas, health locus of control, life satisfaction, and health ratings. This chapter also includes research information pertaining to predisposing factors and psychological effects associated with cardiovascular dysfunctions in the elderly. The final section summarizes the literature review and compares and contrasts this review with the present investigation.

Depression and the Elderly

Psychological Impairment

Depression is identified as the most prevalent psychological impairment that health professionals and psychologists are likely to encounter when dealing with an older person (Coetzee, 1981, Epstein, 1976, Mintz, Steuer, & Jarvik, 1981, & Solomon, 1981). Depression can be referred to as a mood, symptom, or syndrome. A depressed mood is characterized by feelings of sadness, disappointment, discouragement, and similar emotions. As a symptom, depression refers to emotional shifts corresponding to other psychological dysfunctions, medical illnesses or pharmaceutical effects. The syndrome of depression has affective and cognitive inactivity and motoric aspects. The thinking components are

retarded and thought content is unhealthy and guilt ridden. The emotions reflected are despair and helplessness. Food consumption, sleep patterns, and weight and energy levels are interrupted. The individual displays either agitated or lethargic motor activity. The conventional depressive triad is comprised of difficulty in thinking, sadness, and motor slowness (Wasylenki, 1980, p. 525).

Busse and Blazer (1980) categorize depression under five areas (a) physiologic retardation, (b) tension depression, (c) schizo-depression, (d) depression secondary to problems in living, and (e) depression symptomatic of organic illness. Similar categorization of the types and severity of elderly depression were used by Dovenmuehle and Verwoerd (1962, 1963). Too often, the definitions and categories of depression obscure the relevance of the rate of depression in the elderly and the input it has on their lives.

Depression, as mentioned previously but with different research support, is one of the most prevalent psychological disorders in the elderly (Comstock & Helsing, 1976, American Psychiatric Association 1980, Radloff, 1977, Weissman & Meyers, 1979, Weissman, Sholomskar, Pottenger, 1977). There is a relationship between depression and physical illness.

Depression and Physical Illness

Depression's potentially insidious and destructive influence may be seen in the area of physical illness. Birren and Sloane (1980) report research which indicated that depression seems to be associated with a high incidence of chronic disease. Physical illness may be a frequent and recognizable precipitant of depression in the elderly (Raskan & Jarvik, 1979). For example, Forbes and Chaney (1980) found depressed

patients had heart rates and blood pressure levels which were significantly higher during their depressed mood than when they discovered no measurable emotional reaction. Widgor and Morris's (1977) findings suggest the cost of depressed persons may be a high incidence of somatic disease. Martin and Grosz (1964) found that physiologic activities including heart rate, muscle action potentials, and skin resistance were elevated in depression as well as anxiety. Similarly, Dovenmuehle and Verwoerd (1962, 1963) found that both in mild and in severe cardiac disease severe depressive symptoms were apt to occur early in the course of the illness. In a 9-year follow-up study on about 5,000 widowers, 213 died during the first 6 months of bereavement (Parkes, 1969). Therefore, depression appears to be linked to physical illness. Presumably, however, individuals who are mentally healthy with late-life physical illness will maintain the psychological, social, and physical demands of the environment at a higher tolerable level than would those less mentally healthy (Birren & Sloane, 1980).

Depression and Cardiovascular Dysfunctions

Forbes and Chaney (1980) maintain as a result of their findings that the somatic reaction to depression may, when superimposed on an already compromised cardiovascular system, cause further disability and even death. The depression, following myocardial infarction, includes a sad preoccupation of the future, which patients tend not to discuss with their physicians (Hackett & Adams, 1977). Perlman, Ferguson, Bergum, Isenberg, Edward, & Hammarster's (1971) study indicates that appropriate measures may prevent cardiac failure if physicians were alert to depression and tension in their cardiac patients. Perlman et al. (1971)

further indicated that emotional factors antedated hospitalization of 49 percent (51 of 105) of a group with congestive heart failure. Patients' attitudes toward their living accommodations correlated with the presence of a preceding emotional event. The patients with organic heart disease were forced to recover from exercise inefficiently when exposed to increased emotional stress, in this case depression.

In cardiovascular disease, depression appears early in the illness. As the disease advances and the depression progresses, fatigue and exhaustion appear (sometimes incorrectly linked to a deteriorating heart by the ill patient), followed by dependency (Raskan & Jarvik, 1979). Such increased dependency facilitates helplessness and social isolation which enhances the depression. Given these conditions, it is not surprising to find other problems created by personal feelings of helplessness and social isolation.

Depression and Suicide

The most conspicuous feature of helplessness in the elderly is reflected in the rate of suicide. Additional research in 1970 found 23,480 persons committed suicide in the U.S. and of these 31.5 percent were 65 years of age or more (Pfeiffer, 1977). Furthermore, Fasseler's (1978) research contends that 25 percent of all suicides in the U.S. occur in persons over the age of 65. Among those in whom depression is diagnosed, the annual suicide rate is 551/100,000 for those 55 years of age or older, compared with 159/100,000 for those under 55 (Barraclough, 1971). To reiterate, Solomon (1981) found depression to be the most common psychopathological syndrome in the elderly. Additionally, it has been estimated that from 30 to 50 percent of persons over the age of 65

will undergo an episode of depression severe enough to interfere with daily functioning. Depression has been identified as the chief reason for psychiatric hospitalization in the elderly. In some cases, depression has the potential of being a fatal disorder. That is, through the incidence of suicide. Wasylenkı (1980) found that depression and suicide in the elderly are important health problems and will become even more significant as the elderly population increases.

The quantitative research presented thus far demonstrates an elderly person's proclivity to become depressed. This increases the probability of an elderly person's becoming suicidal (Fasseler, 1978). Measurable advances in this area have been very slow or negligible. The causes of depression appear to reside in genetic predispositions, environmental stress, and personal lifestyle (Birren & Sloane, 1980). The greatest benefits for the elderly are likely to accrue from efforts to identify factors which may predispose a person to depression. In his research, Nystrom (1975) identified several predisposing factors related to depression, namely, a tendency to ruminate, shyness in company and lack of endurance.

This section has addressed several issues related to depression. Depression has been identified as a major health problem for the elderly. Depression has been linked to physical illness (myocardial infarction). Patients with heart dysfunctions tended to be moderately or severely depressed. Depression was correlated with the severity and length of illness and the frequency of recurrent hospitalization. Coronary death was frequently preceded by a period of depression. The rate of suicide in the elderly is often identified as a by-product of depression. Furthermore, the implications seem axiomatic, that is, the identification

of predisposing factors related to depression will aid in the prevention and treatment of this disorder in the elderly.

Life Satisfaction

One area in gerontological research which has received much attention in recent years is the evaluation of variables associated with psychological well-being or life satisfaction (Adams, 1971, Chatfield, 1977, Edwards & Klemmack, 1973, Knapp, 1976, Larson, 1978, Palmore & Kivett, 1977, Palmore & Luikart, 1972, Spreitzer & Snyder, 1974). For example, Larson (1978) summarized the research on life satisfaction (well-being) in the elderly. His findings indicate life satisfaction to be strongly related to health, followed by socioeconomic factors and degree of social interaction, for the general population of Americans over sixty. That is, advancing age is related to a decline in subjective life satisfaction among persons over sixty. However, other studies do not corroborate their findings. Advancing age does not necessarily result in decrease in life satisfaction (Dillard, 1983).

There are problems in attempting to evaluate life satisfaction. These problems have resulted in a number of constructs, definitions, and evaluations. Most of these constructs are related either semantically or empirically, but some of which are culturally or subculturally biased (Adams, 1971).

The term life satisfaction has been used synonymously with morale, personal adjustment (Birren & Sloane, 1980, Dickie, Ludwig, & Blauw, 1979, Neugarten, Havighurst & Tobin, 1961), and psychological well-being (Larson, 1978). Similar results for measures of these constructs and

high intercorrelations provide a rationale for examining them in terms of a single summary construct (Larson, 1978).

Many researchers have demonstrated increasing interest in the evaluation of life satisfaction with survey research techniques (Adams, 1969 & 1971, Beiser, 1974, Klemmack, Edwards, & Carlson, 1974, Wilson, 1976). These studies provide support for the contention that life satisfaction may be reliably measured if certain restrictions are followed. For example, Klemmack et al. (1974) in an empirical and critical assessment of life satisfaction measures found considerable overlap. Life satisfaction measures were given to a sample of 274 females, of which 86 were over 65, and 283 males, 66 of whom were over 65. These measures were the first 10 items of the life satisfaction scale adjusted by Adams (1969), social isolation by Dean's (1969) willingness to live scale. The findings indicate that the life satisfaction and social isolation scales overlap considerably. Discussion suggested that, if life satisfaction scales are to be used, the measures used should be carefully evaluated to reduce conceptual confusion and measurement redundancy.

Health and Socioeconomic Status

Life satisfaction and its relationship to the elderly has been associated with a number of variables such as health and socioeconomic status. Numerous studies have linked low socioeconomic status to low life satisfaction (Bull & Aucoin, 1975, Bultena, 1969, Cutler, 1972, Edwards & Klemmack, 1973, Kivett, 1976, Medley, 1976, Neugarten et al., 1961, Palmore & Luikart, 1972, Spreitzer & Snyder, 1974). Similar research findings could be reported between life satisfaction and sex,

race, marital status, employment, transportation, residence, activity, and social interaction. The research demonstrates that life satisfaction is strongly related to health (Dickie, Ludwig, & Blauw, 1979, Larson, 1978, Palmore & Kivett, 1977, Sprietzer & Snyder, 1974, & Spreitzer, Snyder, & Larson, 1979).

A fully recursive path analysis model depicted a causative chain between socioeconomic of financial situation and health satisfaction (Kyriakos and Martin, 1979 and Medley, 1976). Health and socioeconomic status were found to be associated with satisfaction (Adams, 1971, Spreitzer & Snyder, 1974). Felton, Hinrichsess, and Tsemberis (1981) found urban aged attain a positive sense of life satisfaction differently from a means through which suburbanites find happiness. The importance of health for morale among the suburban sample was a primary determinant of morale. Dillard (1982) maintains as a result of his findings that counselors can help lessen uncertainties about retirement and, hence, increase morale or life satisfaction. Dillard's findings have implications for improving health among the elderly.

For purposes of exposition, there are several constructs which can be used interchangeably with life satisfaction, namely, psychological well-being, adjustment, and morale. The concept life satisfaction has been investigated using reliable and valid questionnaire research techniques. Life satisfaction in the elderly has been related to a number of variables, such as age, sex, marital status, ethnic group membership, and economic status. The variable identified as a strong predictor of life satisfaction is health. That is, several researchers report health as a powerful predictor for the group over 60 years of age.

Family contacts would appear to be related to both health and life satisfaction in the elderly (Nagy, 1983).

Family Contact

Families are particularly sensitive to the needs and/or demands of the elderly when they are a part of the family. Health and other behavioral problems of the elderly have strong impact on the life of a family. Eyde and Rich's (1982) findings indicate that the aforementioned elderly problems upset the pattern of family activities and seriously upset the rhythms of family life. Furthermore, Eyde and Rich (1982) found depression and anxiety to be most disruptive of family relational patterns.

The converse would also appear to be supported. That is, family contacts should have profound impact on the elderly. Further, the family could play a significant role in reducing the effects of declining health and the associated problems with depression and life satisfaction. Thus, family contact in the elderly person's environment could be important in changing and maintaining desirable behaviors.

Family contact in the elderly environment has been found by Bayne (1971) to be most relevant in changing behaviors in the elderly. Assistance from the family is also relevant.

Other researchers have found that noninstitutionalized elderly received regular assistance from their family members in meeting nonpersonal routine necessities, including housework, shopping, transportation and yardwork (Pihlbad, Hessler, & Freshley, 1975). Family contact is a major source of support for the elderly in times of illness

(Shanas & Maddox, 1976). This would seem most significant for those experiencing a myocardial infarction.

The differences in family contact across elderly groups is related to health and life satisfaction. It would appear that the role of family contact on the elderly adjustment could also be seen in other areas. Namely, locus of control.

Locus of Control

Internal-External (I-E) locus of control is a concept developed by Rotter (1966). Rotter succinctly describes the I-E variable as follows

When a reinforcement is perceived by the subject as following some action of his own but not being entirely contingent upon his action, then, in our culture, it is typically perceived as the result of luck, chance, fate, as under the control of powerful others, or as predictable because of the great complexity of forces surrounding him. . .we have labeled this a belief in external control. If the person perceives that the event is contingent upon his own behavior or his own relatively permanent characteristics, we have termed this a belief in internal control (p. 1).

Rotter (1966) maintains that internally-regulated persons are more striving, more self-confident, and less nervous and apathetic than externals. These research findings using elderly populations have been confirmed by several researchers (Hunter, Linn, Harrish, & Pratt, 1980, Kuypers, 1971, Linn & Hunter, 1979, Luikart, 1971, Palmore & Luikart, 1972, Wolk, 1976). A person that is externally-regulated may be a by-product of learned helplessness.

Learned helplessness, originally evaluated in animals that did not learn to escape shock after being placed in an unavoidable shock environment, has been demonstrated to be experienced by humans (Hiroto, 1974, Seligman, 1975). Some researchers maintain that the concept of

learned helplessness is analogous to the situation in which many elderly find themselves (Birren & Sloane, 1980).

Locus of control may be vital in studying adjustment in the elderly (Fawcett et al. 1980). Felton and Kahana (1974) examined the relationship between perceived locus of control and adjustment among institutionalized elderly. Their findings indicate externality, rather than internality, was found to be related to positive adjustment. Other researchers have found that internal locus of control increased across age (Staats, 1974), decreased with age after 60 (Bradley & Webb, 1976), or was not related to age (Duke, Shaheen, & Nowicki, 1974, Kuypers, 1972).

Nehrke, Hulica, and Morganti (1980) investigated the question of age differences in life satisfaction, self-concept, and locus of control in three "close" cohorts of elderly persons. Their findings indicate that internal control was associated with high life satisfaction. These findings are consistent with earlier findings (Nehrke, Belluci, & Gabriel, 1977). Niederehe (1977) found that there was an interaction of stressful events with locus of control in depressives among older people. Those individuals with a strong internal locus of control tended to show less depression than those whose reinforcement was external and dependent on the vicissitudes of life. Similarly, Fawcett, Stonner, and Zepelin (1980) found life satisfaction to be associated with internality (belief in personal influence) and negatively correlated with externality. Costa, McCrae, and Norris (1981), using slightly different measures of personal adjustment to aging, found neuroticism was negatively related to extraversion. Extraversion was related positively to life satisfaction.

Duke, Shaheen, and Nowicki (1974) found that white females 65 to 99 were not different in their overall locus of control orientation compared to college students. Wolk (1976) found that the degree of internal control in an elderly population may be associated with environment restrictions with increased environmental restrictions facilitating a more external orientation. Houston (1972) states that the individuals with more internal orientation were less aroused during time of stress than those persons with an external orientation. According to Lazarus (1966), the less control a person perceives himself or herself having, the more stressful an event may be experienced for that person. Kuypers (1971) contends that elderly with appropriate coping techniques, such as greater flexibility, less sensitive, and greater activity, are more reflective of an internally than externally-oriented elderly person. Smith (1970) maintains that individuals in crisis who were overwhelmed by external forces were more externally oriented. One may be able to speculate that those elderly with a more internal health locus of control orientation would report good overall health and shorter and less intense psychological reactions to physical illness.

In short, locus of control plays a significant role in understanding the adjustment capacity of the elderly. Those with a more internal locus of control appear less vulnerable to stress associated with the aging process. Understanding the role locus of control assumes in the elderly has implications for health.

Health Locus of Control

There is research evidence to support the notion that internality is correlated with less severe psychological and physiological reactions to

events. Ziegler and Reid (1979) maintain as a result of their findings that internality in an elderly group is associated with better health. Strickland (1978) provides a review of the literature related to locus of control and health. A summary statement of this review is that persons who perceive they have control over outcomes (internal) have better adaptation to physical and psychological events. Additionally, Bolye and Sielskis (1981) found "health externality was associated with increasing rated disability" (p. 90). More specifically, the relationship between health-specific locus of control and self-concept functional disability, and selected demographic indexes were observed in a group of 111 institutionalized elderly veterans (mean age of 57). The findings indicated internality correlated with increased educational achievement, and externality correlated with an increased length of stay in the institution. In a related study, Finlayson and Rourke (1978) indicate, through their research, internality was associated with greater success in rehabilitation. The aforementioned research supports the notion that a person with a more internal health locus of control may be less prone to react negatively to stressful events. The reverse may also hold true, that is, a person with a more external health locus of control would appear to be more susceptible to stress.

This section explored the concept of locus of control as it has been used in the area of health. Some of these areas include weight (Balch and Ross, 1975, and Wallston, Wallston, Kaplan & Maides, 1976), and following medical regimens (Lewis, Morisky, and Flynn, 1978). Locus of control is associated with a person's ability to manage stress which is particularly relevant to the elderly.

Stress and the Elderly

A large amount of previous research has focused on life-events and psychosocial adaptation with a crisis orientation. This review will analyze stress as it relates to psychological and medical events (i.e., myocardial infarction) in the elderly.

A stressor can signify a threat to an elderly person. This stressor may be life threatening, predict a loss of a relationship, object, or represent an attack on one's concept of self (Birren & Sloane, 1980). According to Birren and Sloane (1980), "How the individual manages external or internal stressors depends on his cognitive appraisal of each particular situation which in turn is largely dependent on past experiences and emotional state" (p. 312). Life events are frequently associated with physical and psychological illness and is generally conceptualized as stress (Chiriboga & Dean, 1978, Hurst, Jenkins, & Rose, 1976, Rahe, 1979).

One model of psychological stress postulates an event or situation that precipitates an emotional response such as anxiety or depression (Roseweld, 1961). Chiriboga and Dean (1978) found a causal link between social stress and mental and physical problems. Additionally, Dillard (1983) found "that social stressors play some role in affecting the psychological stress of Black aged as a group" (p. 12). Serious personal illnesses were experienced significantly more frequently by depressives than by the general population controls (Paykel, 1976). Chiriboga and Dean used depression as a dimension of stress and found that the stress dimension provides high multiple regression coefficients for depression. Rahe (1979) reports

In addition to a lowering of bodily resistance for depressive disorder, recent life change events, along with subjects perceptions of these events, appear to exert an influence upon symptom formation. There is some suggestion that the correlation between subjects symptomatology may be a higher order in depression and neurosis than in schizophrenia or physical illness (p. 9).

The impaired ability to deal with stress is one of the hallmarks of the elderly (Birren & Sloane, 1980, Eisdorfer & Wilkie, 1977). Between 60 and 85 percent of the elderly subjects are able to identify the specific event or stimulus that precipitated feelings of depression (Post, 1965). Physical illness may be a frequent and recognizable precipitant of depression in the elderly (Raskin & Jarvik, 1979). Abrahams and Patterson (1978) identified one of the three major stresses of aging as chronic illness.

The research reviewed yields insight into why stress in the elderly is particularly debilitating. An example of elderly stress includes a myocardial infarction. This stressor initiates a chain of psychological events. These events include anxiety and depression. A by-product of these psychological events is a depletion of an elderly person's energy for physical rehabilitation. Thus, the effects of cardiovascular dysfunction is further exacerbated by the psychological reaction. Much of the research examined in this section has implications for subsequent sections which explore health and cardiovascular dysfunctions.

Psychological Depression and Cardiovascular Dysfunctions

Palmore (1974) has demonstrated that health is strongly related to life satisfaction and other measures of adaptation in later life. Luke, Norton, & Denbigh (1981) interviewed 200 people over 80 years of age and

found a positive relationship between psychological impairment and poor physical health.

Konu (1977) examined prognosis in elderly who experienced a myocardial infarction. Other researchers (Bigos, 1981, Garrity & Klein, 1975, Mayou, 1978, 1979, Peach & Pathy, 1979, Pathy & Peach, 1981, Philip, Cay, Stuckey, & Vetter, 1981) examine reactions after the myocardial infarction. In general, their research findings indicate that the period following a myocardial infarction is a psychologically distressing period. A case in point, Pathy and Peach (1979, 1981) found that a myocardial infarction causes psychological impairment. For instance, 50 percent of the elderly myocardial patients reported anxiety or depression about having had a myocardial infarction. There are positive correlations among psychological and social variables.

Philip, Cay, Stuckey, and Vetter's (1981) research indicates psychological and social variables most commonly associated in rehabilitation studies frequently correlate with each other as well as the outcome. These correlations, while statistically significant, are sometimes quite small in absolute terms.

It is clear that the phase followed by a myocardial infarction or stroke is characterized by a period of depression (Martin & Grosz, 1964, Forbes & Chaney, 1980). Forbes and Chaney (1980) found depressed patients' blood pressure levels to be significantly higher during their depressed mood than when they had no detectable emotional reaction. Furthermore, they point out that the body's response to depression may, when superimposed on an already compromised cardiovascular system, initiate even more damage which could prove fatal.

Theorell, Lind, Fröberg, Karlson, and Levi (1972) conducted a longitudinal study of patients who survived myocardial infarctions. They found that those who survived myocardial infarctions had catecholamine excretions raised when there was a build up of psychological stress. In addition, serum triglyceride levels were increased in those patients found to be depressed as compared to those patients who were not depressed. Rahe and Bennett (1974) also measured recent life events in survivors of myocardial infarctions. They discovered a significant increase in life events in the myocardial infarction group and the group that had died suddenly of coronary disease. Similar results were found by Theorell and Rahe (1975).

It may be useful, as peroration, to state in the definitive manner some generalizations and implications about stress. Stress has been identified as a significant problem for the elderly (Birren & Sloane, 1980). The psychological stress (e.g., depression and life events) usually precede and follow physical illness. This stress can lengthen an elderly person's recovery period (Birren & Sloane, 1980). Furthermore, stress can prove to be fatal, particularly in the elderly who have been identified as stress-prone (Birren & Sloane, 1980). This has been demonstrated with patients experiencing myocardial infarctions (Pathy & Peach, 1981). From the foregoing discussion of the research literature, it is apparent that an elderly person's negative reactions to stress could be minimized, thus promoting a better profile of health (Birren & Sloane, 1980).

Health and Self Ratings of Health

Health promotion is a contemporary concept developed by health providers in reaction to a multitude of interrelated concerns facing

society (Dwore & Kreuter, 1980). The following abstracted definitions express the contemporary conceptualization of health. The definition provided by the World Health Organization (WHO) (1947) describes health as a condition of physiological, intellectual and social well-being and not exclusively the lack of disease or infirmity. Parsons (1958) refers to it as a time of maximum potential for effective achievement of valued endeavors. Dubos (1962) indicates that health is a reflection of the degree to which the person and the social body sustain readiness the means necessary to meet the exigencies of events to come. McDermott (1977) defines it as a relative condition which corresponds to the extent which a person may function effectively within the circumstances of his or her hereditary succession and his or her physical and cultural environment.

Developing a consensus on a precise explanation is not as relevant as arriving at a mutual conceptualization about the multifaceted components of health in contemporary society. The components of health may be reduced to include the capacity to adjust to altering situations, the ability to carry out important duties, changing levels of negative and positive states, multidimensional causality, and a relative state (Dwore & Kreuter, 1980). The aforementioned components of health are particularly relevant to the elderly, especially how they rate their own health.

Blazer and Houpt (1979) interviewed 997 elderly persons, 719 without impaired health. A total of 14 percent perceived their physical state to be poor. The physically healthy who perceived their physical state to be poor were more depressed, more hypochondrical, and more dissatisfied with life. Psychological health was significantly impaired in these persons.

Maddox (1962), Tissue (1972), and Friedsam and Martin (1963) found the perception of poor health in the healthy aged to be associated with female gender, depression, concerns about health, displeasure, anomia, desires to be youthful once more, poor adjustment to the environment, and high somatic worries. Furthermore, Maddox (1962), in an investigation of the elderly, discovered perceived health was less positive among elderly with a history of depression who felt neglected by others, and who had reduced life satisfaction.

The research literature examined in this section are fundamental to an understanding of how health may be described as the physical or psychological well-being of an individual. Included in this would be the capacity to meet the demands of everyday living. The elderly with poor health are often depressed and demonstrate poor adjustment to normal demands of living. Therefore, evaluating the health of the elderly serves an important function in service delivery to this population.

Self-Ratings of Health

Subjective ratings of health states is a factor often used in the evaluation of community populations (Blazer & Houpt, 1979). Self ratings of health in the elderly, compared to objective evaluation, have been examined in several studies of elderly populations (Ferraro, 1980, Friedsam & Martin, 1963, Heyman & Jeffers, 1963, LaRue, Bank, Jarvik, & Hetland, 1979, Maddox, 1964, Maddox & Douglass, 1973, McCrae, Bartone, & Costa, 1976, Suchman, Phillips & Streib, 1963). These researchers found that most elderly individuals accurately rate their health status. A variety of studies on the elderly have reported correlations ranging from 60 to 71 percent between physicians' global ratings of health and

persons' global ratings (Friedsam & Martin, 1963, LaRue et al., 1979 Maddox, 1964, Maddox, 1973, Suchman et al. 1958).

Maddox (1964) and Maddox and Douglass (1973) found that when individuals were evaluated with a physician's measurement of the objective functioning, two out of three individuals evidenced a realistic evaluation of their health status. Schach (1976) generally found that the more traumatic and incapacitating the duration and more costly an event is, the more precisely the physical event seems to be expressed in interviews. Respondents seem to report more precisely those events that are more relevant to them. Those events, for example, that have been more damaging, required treatment and more medical doctor visits related to them, or been associated by recent impact such as physical discomfort, psychological stress, or time in bed (Schach, 1976).

McCrea, Bartone, and Costa (1976) maintain that self-rated health is related to actual physical health and also to trait anxiety. Self-assessments of health of elderly in the community and institutions were compared with objective measures of their health (Fillenbaum, 1975). He found self-assessment to be related to the objective measures among community residents, but not among those in institutions. There is research to suggest that health self-ratings do have utility as an evaluation of health in survey research, possibly expressing not only perceived health status but also consolidating with objective and subjective components of health (Maddox & Douglass, 1973, Tissue, 1972).

LaRue, Jarvik, and Hetland (1979) designed a study to provide information on the relationship between self-ratings of health and physicians' evaluations in an elderly population. Self-ratings were found to be significantly correlated with ratings assigned by

a physician. Furthermore, self-ratings can provide a valid cost-effective means of health evaluation in research where other sources of health data are unavailable. Similar findings were reported by Ferraro (1980).

In short, health is a significant component facing the elderly in our society. Health and the self rating of health is particularly related to the elderly. The research indicates that those elderly with poor health perceptions had concomitant depression and low satisfaction with life. Conversely, those elderly with good perceptions of health evidenced a more positive outlook in general. The self-ratings of health in the elderly were found to concur with the objective ratings by physicians. The use of self-ratings of health in the elderly may prove to be an important means of providing health services to this population, particularly those elderly who have experienced cardiovascular dysfunctions.

Cardiovascular Dysfunctions and the Elderly

Of all patients who died in their 80s, 85 percent were found to have cardiovascular and renal pathology (White, 1971). There is little doubt that cardiovascular dysfunction (i.e., myocardial infarctions) is a major risk factor in the mortality of the elderly (Konu, 1977, Philip, Cay, Stuckey, & Vetter, 1981, Radin & Black, 1981). Epstein (1965) reports the prevalence of ischaemic heart disease (i.e., coronary heart disease) in men 60 to 69 years of age to be about 180 per 1000 patients per year. For women the prevalence in the 60 to 69 and 70 to 80 age categories was 165 and 110 per 1000 patients per year respectively.

Myocardial infarction is one of the most common conditions with which elderly patients are referred to acute geriatric medical units and over 50 percent of the patients who reach a hospital alive survive the acute episode to be discharged (Konu, 1977). This clinical problem will be of increasing importance as the proportion of elderly in the population increases from the present 10 percent by the year 2025 (Radin & Black, 1981). Emotions are a factor in the pathogenesis, onset, and complications of acute myocardial infarction (Garrity & Klein, 1975, Perlman et al., 1971, Byrne & Whyte, 1980).

This section reports several issues related to the elderly. The incidence of cardiovascular disease is correlated with aging. That is, the longer an individual lives the higher the probability of developing cardiovascular dysfunctions. Emotional factors play an important role in cardiovascular dysfunctions. This is particularly relevant to some of the problems associated with cardiovascular dysfunctions. A major concern is what examine factors occur before and after a myocardial infarctions.

Complications Associated With Cardiovascular Dysfunctions

Konu (1977) recorded the incidence of myocardial infarction in a elderly population 65 and over. He examined the mortality, survival rate, and prognosis for the period of one year. Calculations were made examining the signs and symptoms associated with mortality, along with the clinical course and complications related to mortality. Parenthetically, Konu (1977) mentioned factors preceding infarction and the significance of personal habits (e.g., consumption of coffee, sugar, and fat).

In a 9-year follow-up study on about 5000 widowers, as mentioned earlier, two-thirds of them died during the first 6 months of bereavement (Parkes, Benjamin, & Fitzgerald, 1969). The death rate was 40 percent more than the expected rate for married men at the same age. The chief reason of death was coronary thrombosis and other arteriosclerotic and degenerative heart disease. Another interesting discovery was that 27.5 percent of the deaths were in the same diagnostic category as the cause of death of the wife. After 6 months, the death rate fell slowly and obtained the identical level as that of married men. This study implies that grief can cause mortality and that the most relevant mechanism is cardiac. Byrne and Whyte's (1980) findings indicate that life event exposure in the year preceding the illness onset as being particularly emotionally distressing. Furthermore, it was stated that epidemiological theory stresses a multifactorial etiology. This is particularly interesting since the relative contribution of metabolic risk factors is considered to explain about half of the variance to the onset of myocardial infarction (Byrne & Whyte, 1980).

For the purpose of exposition, there are a variety of complications associated with cardiovascular dysfunctions. These factors include personal habits, death of a spouse, and the interpretation of life events. In the final analysis, myocardial infarction is multi-determined. Nevertheless, there are some predisposing factors which are associated with cardiovascular dysfunctions.

Predisposing Factors Associated With Cardiovascular Dysfunctions

Several researchers have reported factors associated with congestive heart failure and better prognosis. Perlman, Ferguson, Bergum,

Istenberg, and Hammerstein (1971) reports that emotional factors antedated the hospitalization of 49 percent (51 of 105) of the group with congestive heart failure. Schor, Shanl, and Modan (1975) report a higher mortality for women. They also identified factors associated with relatively better prognosis, namely, age (the younger the better prognosis), sex (male), marital status (married).

A related risk factor for myocardial infarction is hypertension. Hypertension may be defined as a systolic pressure of 160mm Hg., a diastolic pressure equal to or greater than 95mm Hg., or both. It is present in up to 50 percent of persons over the age of 65 and is a significant cause of death in the elderly (Radin & Black, 1981). There are a number of studies examining patients' reactions after myocardial infarctions and predictions of disability, survival, along with psychological responses (Konu, 1977, Pathy & Peach, 1981).

Mayou (1979) was able to identify factors in premorbid psychosocial state predictive of outcome and characteristic patterns of coping. Predictive factors were analyzed under three broad headings. They are medical state, factors in the patient, and factors in the social situation. Ratings taken at 2 months associated with physical activity and planning appeared a useful indication of early prognosis (Mayou, 1979). Pathy and Peach (1981) found the only clinical feature noted on admission whose frequency differed significantly between the elderly group who died and those who lived was systolic blood pressure of 160mm Hg. or more on admission to the hospital. Pathy and Peach (1981) underscore the importance of being able to predict those who will have intense and long psychological recovery associated with the myocardial infarction. Peach and Pathy (1979) describe a three-stage incidence,

survey of disability and psychological impairment following discharge from geriatric wards after an acute myocardial infarction. They further suggest that there is need for an appraisal of the degree of psychological impairment and disability among elderly patients for several months after an acute myocardial infarction. Additionally, there may be a need to provide counseling after discharge from the hospital (Peach & Pathy, 1979).

This section examined several of variables associated with cardiovascular dysfunctions. Among these variables are hypertension and premorbid psychosocial state. The experience of cardiovascular dysfunction in the elderly also causes various psychological reactions.

Psychological Reactions Associated With Cardiovascular Dysfunctions

Mayou, Foster, and Williamson (1978) describe the psychological and social outcome in patients a year after the illness. The predominant symptoms were mixed anxiety and depression with little evidence of separate patterns of psychological outcome. One year after a first myocardial infarction, psychological distress and changes in social activities and relationships are described in both patients and their families. It was also evident that premorbid adjustment and other life events and difficulties are significant in determining adjustment at 1 year (Mayou, Foster, & Williamson, 1978). In a follow-up study 6 months after discharge of acute myocardial, Garrity and Klein (1975) report that patients showed that 41 percent of those classified as nonadjustors died within 6 months of discharge as compared with only 81 percent of the adjustors. Other findings indicate that patients who showed early

adjustment to threats and assorted losses implied in myocardial infarction were more likely to survive to 6 months than those not evidencing early adjustment.

Bigos (1981) described the behavioral adaptation during the acute phase of a myocardial infarction. Myocardial patients in their 50's were more depressed than younger and older patients. Major findings were the prevalent use of denial during the acute phase of a myocardial infarction. In addition, patients hospitalized for more than one myocardial infarction had significantly higher intake of tranquilizing medications than first myocardial infarction patients during the first 5 days of hospitalization. Predicting outcomes after myocardial infarction is further demonstrated by the use of regression analysis techniques.

Philip, Cay, Stuckey, and Vetter (1981) used regression analysis to predict, psychological, and social results in 72 patients 1 year following myocardial infarction. They successfully predicted employment prospects, continuing upsets, the patients' attitude to, and complaints about residual problems and difficulties. A series of studies have supported the relationships of psychological and social factors in recovery and rehabilitation after myocardial infarction (Cay, Vetter, Philip, & Dugard, 1973, 1972, Philip, Cay, Stuckey, & Vetter, 1981).

It may be useful for insight to indicate that myocardial infarction may be called a major health problem in the elderly. It contributes significantly to the mortality rate in the elderly. Myocardial infarction's devastating effects are complicated by hypertension, premorbid adjustment, and personality. Several factors have been identified to predict reaction to myocardial infarction. It has also been demonstrated that some patients experiencing myocardial infarction are depressed. This

depression can contribute to the length and intensity of the psychological impairment of elderly with cardiovascular dysfunction.

Summary

This chapter reviews the relevant quantitative research related to depression, cardiovascular dysfunction, and the elderly. The following discussion evaluates all the major topics as they relate to the proposed investigation delineated in the review of the literature.

The first section defines depression as a state characterized by feelings of sadness, disappointment, hopelessness, and helplessness. Depression is particularly debilitating for the elderly. Depression is identified as one component of stress. The psychological impairment caused by depression has a positive relationship with suicide. Additionally, it was indicated that depression is related to physical illness, an example of this is cardiovascular dysfunctions. The research suggested that depressed patients had heart rates and blood pressure levels which were significantly higher during their depressed mood. Furthermore, coronary death was frequently preceded by a period of depression.

There are areas of comparison and contrast with the research literature reviewed and this investigation. Comparatively, several researchers used instruments to exclude participants with possible organic dysfunctions. Similarly, this study will use the Mental State Questionnaire (Pfeiffer, 1975) to exclude those elderly with possible organic dysfunctions. Other investigators, like this investigation, used the Self-rating Depression Scale (SDS) (Zung, 1965) to assess levels of depression. There are also several areas of contrast between the quantitative literature reviewed and this investigation.

Ratings of the severity of depression, unlike this investigation, were made largely on the basis of qualitative statements. This investigation excludes those participants who are presently taking reserpine. Reserpine is a drug prescribed to treat hypertension. With one exception, none of the studies reviewed accounted for the effects reserpine has on depression. This investigation differs from those reviewed in the literature, for example, it analyzes the differences between a myocardial and a nonmyocardial elderly group. One of the other variables researched in the present investigation is life satisfaction (or psychological well-being).

The second section of the review of the quantitative literature examined life satisfaction and the elderly. Life satisfaction, often used synonymously with psychological well-being and morale, was found to be related to age, sex, marital status, and ethnic group membership. There are many similarities and differences found in the literature reviewed when compared to the this investigation.

Several investigators found a positive relationship between life satisfaction and health. The present investigation uses health as a variable. The present investigation will use Manova to analyze the data collected. This procedure contrasts with several studies reviewed which used multiple regression techniques. There were other contrasts found in the life satisfaction literature when compared to this investigation such as socioeconomic background. Low socioeconomic status is associated with low life satisfaction.

Some of the research reported high socioeconomic factors to be positively correlated with high life satisfaction. Some of the previous research on life satisfaction among the elderly has been limited to

cross-sectional analysis of life satisfaction at one point in time, whereas others use the variable of social activity. The present investigation uses life satisfaction as one of the component of stress variables and excludes social activity and socioeconomic factors.

The third section of the review of the quantitative literature examined family contact as expressed in social stress and the elderly. Some of the previous research indicated social support from family (social stress) were important in effecting changes in an elderly person's life satisfaction and health. The present investigation will also examine the role of family contact, life satisfaction and health in the elderly.

The studies reviewed in contrast with the present investigation did not examine differences in family contact of cardiac and non-cardiac elderly groups. Some of the previous research on family contact used descriptive statistics in reporting data. The present investigation will use MANOVA to analyze the data collected.

The fourth section of the review examines the research literature related to locus of control. Locus of control refers to the extent to which individuals regard the incidents which occur to them as dependent on their own behavior or as a result of chance, luck, fate or powers beyond their personal control and comprehension. There are two primary dimensions of locus of control, internal and external. For the elderly, a positive correlation was found between internality and positive adjustment.

Other psychological factors associated with locus of control were depression and life satisfaction. The research indicated that those elderly with a strong internal locus of control tended to experience less

depression--that is, when they were compared with those whose reinforcement was external and dependent on the vicissitudes of life. Life satisfaction was related positively with internality. Similarly, health locus of control was related to physical and psychological events, for example, externals evaluated physical disabilities as more debilitating than did internals. Furthermore, internals were found to be more willing to participate in rehabilitation behavior to address their dysfunctions. There are some areas of contrast and similarity between the locus of control literature reviewed and this investigation.

Several studies used locus of control as a predictor variable, in contrast with this investigation. Furthermore, a relationship was discovered to exist between locus of control, psychological, and physiological events experienced by the elderly. This is also examined by this investigation. Nevertheless, none of the studies reviewed controlled for the possible effects of an organic dysfunction, as does this investigation. Additionally, there was little research indicating the possible differences which exist between different groups of elderly. Particularly, an evaluation of myocardial versus nonmyocardial elderly groups on a health locus of control instrument were inadequate. This investigation addresses the aforementioned issue by comparing health locus of control scores in the two elderly groups mentioned. Likewise, this investigation uses health locus of control as a multidimensional stress variable. The elderly person with a more internal health locus of control has been identified by the research as being less prone to stress.

Stress and the research literature relevant to it are reviewed in the fourth section. Stress has several dimensions, one of which is

depression. The research indicates a causal link between social stress, mental and physical problems. The elderly are often less adequately prepared to manage stress. Stress is related to myocardial infarction. Several researchers found a build-up of psychological stress prior to myocardial infarction. There are areas of contrast and similarity between the quantitative stress literature reviewed and this investigation such as depression, health and the myocardial infarction.

Both the present investigation and those discussed in the literature review consider depression as one dimension of stress. Like this investigation, the reviewed literature profiled those elderly identified as psychologically impaired with those who were psychologically healthy. The differences exist in the lack of a distinction between myocardial and nonmyocardial elderly groups. The research indicates that stress precipitates the myocardial infarction for some, however, a question which could be raised is to what extent do other intervening variables play a role as precipitants to depression among the elderly. This condition often follows myocardial infarction, and this investigation addresses this issue by identifying the amount of difference between myocardial and non-myocardial elderly on a depression measure. One of the stress variables is self-ratings of health.

Health refers to a condition of physical, intellectual, and social well-being. The elderly who rated their health as poor were frequently found to be depressed, female, poorly adjusted to the environment, and have high somatic concerns. Their ratings of health were found to correlate significantly with those made by physicians.

The similarities in the literature reviewed and this investigation were primarily in the area of depression and life satisfaction. This

investigation examines differences between health ratings and life satisfaction in the two groups being studied. The differences in the literature reviewed were found in the apparent absence of an instrument to screen for organic dysfunction in the participants. This investigation uses the Mental Status Questionnaire (MSQ) to exclude those participants with possible organic dysfunctions.

The last section of the review of the research literature examines cardiovascular dysfunctions and the elderly. Myocardial infarction is one of the commonest conditions for which elderly patients are referred to medical units. There are a number of factors which contribute to cardiovascular dysfunctions such as personal nutritional habits. It was also found that a significant number of widows grieving from the myocardial infarction death of their spouse were also likely to die from the same cause. There are other predisposing factors associated with cardiovascular dysfunctions such as hypertension and the premorbid psychosocial state.

There are psychological reactions associated with cardiovascular dysfunctions. Hypertension is related to the incidence of stroke and myocardial infarction. The predominant psychosocial symptoms were anxiety and depression. Multiple regression analysis was found to be an effective statistical tool in identifying the psychological and social results of myocardial patients one year later, in contrast, the current investigation will use Manova.

Other similarities in the reviewed cardiovascular literature and this investigation were found in the assessment of depression. This investigation examines the differences in the depression levels of an elderly myocardial infarction group and compare their results with a

normyocardial elderly group. Additionally, depression is compared with health, life satisfaction, and locus of control.

The differences in the literature reviewed and this investigation were primarily found in the lack of control reflected in two areas. First, no attempt was made to control for the possible effects of hypertension medication in some studies. Second, no attempt was made to control for possible organic dysfunctions. This investigation controls for hypertension by excluding those elderly who were taking antihypertensive medication which is identified as depression inducing. Additionally, the MSQ is administered to all participants, those identified by a standardized score as having possible organic dysfunctions are excluded from the investigation.

The third chapter will focus on the methods used in the proposed investigation to examine the multivariate aspects of stress and cardiovascular dysfunctions in the elderly. A more detailed description of the instruments to be used will be given.

CHAPTER III

METHODOLOGY OF THE INVESTIGATION

This chapter contains a description of the population and sampling procedures. The procedures for data collection, the instruments used, and their reliability and validity, along with evaluations of each instrument are discussed. Finally, a description of the procedures to be used to analyze the data will be discussed.

Sample

This investigation included 48 voluntary participants. A total of 22 of the voluntary participants are elderly (55 years of age and up) who have experienced one or more myocardial infarctions. The other 26 are those elderly who have not experienced a myocardial infarction (nonmyocardial). The participants are volunteers from senior centers, and other non-nursing home elderly in a large metropolitan area.

The participants of the two groups (myocardial and nonmyocardial) were identified by staff members who have knowledge of the participants' medical history, present physical condition, and their willingness to participate. The range of physical disabilities was varied. Most participants were minimally able to get around with the aid of various handicap devices. None of the sample were bedridden. None of the participants were diagnosed as having central nervous system dysfunctions.

For a complete summary of the demographic data on the sample see Appendixes K1-K12. The mean age for both elderly groups (see Table I) was 72, out of 48 total participants. A total of 50 percent of the participants were married, 40 percent were widowed, 10 percent were never married. The average number of children for both groups was 2.4. The income before retirement indicated 44 percent were at \$7,999 or below, 10 percent between \$8,000-9,999, 12.5 percent between \$10,000-11,999 and 16.7 percent were above \$24,000. A total of 98 percent of the participants were white, the remaining 2 percent were American Indian. A total of 75 percent of the participants were female, the remaining 25 percent were males. Additional demographic data may be obtained in Appendixes K1-K12.

There are several limitations of the sample. All participants met several investigation inclusion criteria. One limitation was a minimum of 8 years of education to insure their ability to read and understand the tests administered. A maximum of three or more errors on the short portable Mental Status Questionnaire (MSQ) was another limitation used for exclusion. That is, generalizations to an elderly person whose test scores obtained were 3 or more on the MSQ were not possible. Pfeiffer's (1975) study indicates that three errors is a cut-off point for dementia. Limitations of the sample included those not taking the antihypertension medication reserpine. Reserpine is associated with the insidious onset of depression (Ruchin & Black, 1980). Another limitation of the sample was a bias introduced because the sample was volunteers and not random. Other sources of information for identification included the data provided by the participants themselves and records obtained with prior written permission from the facility director and participant. In

TABLE I
GENERAL DESCRIPTIVE DATA OF THE INVESTIGATION

<u>Category</u>	<u>N</u>	<u>Result</u>
<u>Mean age</u>	48	72
<u>Marital status</u>		
(1) Married	24	50%
(2) Widowed	19	40%
<u>Average number of children</u>	48	2.4
<u>Income before retirement</u>	48	--
\$7,999 or below	21	44%
\$8,000-9,999	5	10%
\$10,000-11,999	6	12.5%
Above \$24,000	7	16.7%
<u>Ethnicity</u>	48	
White	47	98%
American Indian	1	2%
<u>Sex</u>		
Female	36	75%
Male	12	25%

any identification was maintained confidential. The researcher randomly selected the sites granting permission to participate in this investigation. A table of random numbers was used to select the elderly sites located in a phone directory of the Oklahoma City area.

Instrumentation

There were six instruments used in this investigation (1) Mental Status Questionnaire (MSQ) (Pfeiffer, 1975), (2) Zung Self-rating Depression Scale (SDS) (Zung, 1965), (3) Multidimensional Health Locus of Control scale (MHLC, internal, powerful others, chance) (Wallston & Wallston, 1978), (4) Philadelphia Geriatric Center scale (PGC) (Lawton, 1975), and (5) Duke-University of North Carolina Health Profile (DUNC) (Parkerson, Gehlbach, Wagner, James, Clapp, & Muhlbaier, 1981), and (6) Elderly Interpersonal Experience Inventory (EIEI) (see Appendices A-G).

Mental Status Questionnaire

Rationale. The MSQ was used to screen participants for organic dysfunction. It has been used for this purpose by investigators in gerontological research (Irving, Robinson, & Mendam, 1970, Roth, 1971). It is a short and quick test which is relatively easy to administer. It takes less than 5 minutes to complete. It also measures levels of organicity in the elderly participants of the investigation.

Development of the MSQ. The MSQ was developed by Pfeiffer (1975) to detect the presence of intellectual impairment and to determine its degree of impairment. The MSQ is a 10-item questionnaire. The items chosen for inclusion on the MSQ were derived through various means. Items 1, 3, and 5 to 8 were frequently utilized by clinicians to test

orientation. Item 2 has been utilized as part of the clinician's assessment of orientation and is the Kahn-Goldfarb test. Item 4 was chosen to assess memory ability specifically applicable to the potential for self-maintenance in the environment. Item 9 was chosen as an assessment of remote memory, and item 10 as a test of potential to complete serial intellectual functions. The development of the instrument consisted of administrations of the measure to 997 elderly persons living in the community, and to 141 elderly people

referred for psychiatric and other health and social problems to a multipurpose clinic, and to 102 elderly persons living in institutions such as nursing homes, homes for the aged, or state mental hospitals. It was found that educational level and race had to be taken into account in scoring individual performance (Pfeiffer, 1975, p. 433).

Reliability of the MSQ. Wilson, Ray and Brusill (1973) administered the MSQ four times a week to 55 elderly patients selected because their condition was likely to be stable. Pfeiffer (1975) found test-retest reliabilities of the (MSQ analog) to be .82 in one population of elderly respondents and .83 in another.

Validity of the MSQ. As far as diagnostic validity, Kahn, Goldfarb and Dollack's (1960) findings indicate that when elderly respondents made zero errors on the MSQ, the diagnosis of chronic organic brain syndrome was independently diagnosed by geriatric psychiatrists in 6 percent of such cases. Additionally, when the elderly made as many as 10 errors they were independently diagnosed as experiencing chronic organic brain syndrome in 95 percent of the cases. Other studies by Goldfarb, Fisch and Berger (1966) indicate the prognostic validity of the MSQ.

Evaluation of the MSQ. Goldfarb, Fisch, and Gerber (1966) maintain, as a result of their findings that about 33 percent of those elderly scoring 9 to 10 errors on the MSQ were dead 1 year after the examination.

This research supports the notion that the higher the score on the MSQ, the more pronounced the organic dysfunction. In the aforementioned study it predicted those most likely to die. Wilson and Brass (1973) results indicate that the MSQ correlated with a dementia rating made by a physician more strongly (.82) than other instruments or combination of other instruments. Birren and Sloane (1980) contend that "it appears from the data. . .that the MSQ. . .is a valid test of organic brain syndrome. . ." (p. 680).

Zung Self-Rating Depression Scale (SDS)

Rationale for the SDS. The SDS was used to assess levels of depression among the elderly in this study. It allows depression levels to be evaluated using a Likert scale. Additionally, Salzman, Kochansky, Shader, and Cronin's (1972) findings indicate that among instruments specifically developed to measure depression, the SDS ranks with the best and most practical.

Development of the SDS. William Zung (1965) developed the SDS in 1965 to assess depression. The SDS includes 20 items constructed to measure differences on physical, psychological, and social losses and stresses hypothesized to be related to depression in the elderly. The items reflect four clusters of disturbances associated with depression. The four clusters are pervasive affective disturbance, physiological disturbances, psychomotor disturbances, and psychological disturbances. These clusters were a synthesis of a factor analytic study of depression (Giambra & Traynor, 1978).

Each item on the Zung Self-Rating Depression Scale (1965) has an item format that reflects frequency of occurrence. One-half of the

questions are phrased so that greater frequency is less indicative of depression, while the inverse is used for the questions remaining. Frequencies are assigned values from one to four, one indicates the least likelihood of depression.

Reliability of the SDS. Bluementhal and Dielmen (1975) found means for 22 distinct samples. Their findings are generally reliable when compared with Zung's (1974) suggested cut-off scores. Schurr, Hosken and Jarrett's (1973) findings indicate a consistency reliability of .70 with the Beck depression inventory. They also found correlations of .55 and .54 on the MMPI D and F scales, respectively.

Validity of the SDS. Biggs, Wylie and Ziegler's (1978) findings indicate a correlation of .69 between the SDS and the treating physician's global ratings in 26 depressed outpatients. The SDS was found to distinguish depression from other psychological disorders. These correlations were .43 to .65 with global ratings of depression made by psychiatrists (Goodstein, 1972). Furthermore, correlations between .59 to .75 were found with scores on the MMPI. Finally, the SDS scores were found to be sensitive to changes subsequent to treatment for depression (Goodstein, 1972).

Evaluation of the SDS. Hale's (1982) findings indicate that the SDS was effective in reflecting age-related losses and stresses. For example, Hale investigated the relationship between numerous age-related stresses and depression in the elderly. The Zung Self-Rating Depression Scale was found effective in measuring differences on physical, psychological and social losses and stresses hypothesized to be associated to elderly depression. Similar evaluations were made by Gerner (1979)

and Zung (1980), both of which found the SDS effective in assessing depression in the elderly.

Multidimensional Health Locus of Control (MHLC)

Rationale. The MHLC was chosen for use in this investigation for several reasons. It reduces the difficulty of predicting behavior in a distinct area such as health. Wallston and Wallston's (1976) research was based on the "assumption that a health related locus of control scale would provide more sensitive predictions of the relationship between internality and health behaviors" (p. 580). A norming population included a group of older, primarily Black hypertensive outpatients. By evaluating more than one component of locus of control, the chance of enhancing comprehension and prediction of health behaviors could be furthered.

Other reasons for using the MHLC are concerned with testing time. The testing time was reduced because of the elderly population under study. In general, it did not take more than 7 minutes to take. Hence, the MHLC has two forms which may be used, thus reducing testing time. How these forms are related will be discussed under development.

Development of the HLC and MHLC. The original Health Locus of Control (HLC) scale was developed by Wallston, Wallston, Kaplan and Maides (1976) as a unidimensional measure of peoples beliefs that their health is or is not determined by their behavior (p. 160). The HLC scale was developed to produce a single score comparable to Rotter's (1966) I-E scale. The 11 original items of the HLC scale initiated the development of the new items on the MHLC. The new items consist of the three

components of health locus of control beliefs internality (IHLC), powerful others (PHLC), and chance (CHLC) externality.

According to Wallston, Wallston and DeVellis (1978), item wording was used as a criterion for the purpose of creating the two equivalent forms (A and B). From this criterion "six pairs of items (with items paired on the basis of meaning) were chosen" (p. 163). The equivalent forms were created by assigning items within each pair to forms A or B in such a fashion that the total scores for each form were as similar as possible. The above mentioned six pairs were chosen for three scales (internal, powerful others, chance). These components were initially found by Levenson (1973a, b, 1974). Her findings indicate the "validity and usefulness of the tripartite division in clarifying past findings regarding the multidimensionality of I-E" (p. 377). She developed three 8-item Likert-type scales (Internal, Powerful Others, and Chance--I, P, and O--to assess generalized locus of control beliefs. Wallston, Wallston, and DeVellis (1978) chose to "reconceptualize health locus of control along multidimensional lines paralleling Levenson's (1973a, 1974b) work" (p. 162).

The new items were written in the personal mode and were generally developed for an eighth grade reading level. The actual item pool reading level, calculated using the Dale-Choll (1948) formula, was fifth to sixth grade (Wallston, Wallston and DeVellis, 1978, p. 162).

Reliability of the MHLC. The alpha reliabilities for the MHLC scales ranged from .67 to .77 for the six item scales. When forms A and B were added together to lengthen the test and form an 18-item scale, the alpha reliabilities increased (.83 to .86). Both forms will be used in the present investigation. This data corresponds to Levenson's 8-item I, P, and C scales whose alpha reliabilities range from .51 to .73.

Validity of the MHLC. Wallston and Wallston (1978) found correlations of the MHLC scales with demographic data received from participants yielded a low significant relation with sex. Additionally, only one scale, Form A of the PHLC, yielded a significant relationship with age ($r = .198$) or scholastic level ($r = .222$). There was research, however, indicating the predictive validity. Correlations were obtained between the MHLC scores and health status. A positive correlation was found between IHLC and health status ($r = .403$). As anticipated, there was a negative correlation between CHLC ($r = -.275$) and health status. No correlation was found between health status and PHLC ($r = -.055$).

Hartke and Kunce (1982) found subscale score independence and subscale item groupings in a validity generalization sample. Thus the notion of locus of control, as a multidimensional concept, was supported.

Evaluation of the MHLC. Wallston, Wallston, Kaplan, and Maides (1976) maintained as a result of their findings that the health locus of control scale demonstrated its "functional utility" (p. 584). Additionally, it was found to be more effective than more generalized measures of locus of control. This instrument had two validity studies confirming its ability to measure locus of control beliefs highly valued in health. Similarly, the MHLC was found to be effective in evaluating locus of control related to health. The MHLC, however, was found to be a more comprehensive instrument (Wallston & Wallston, 1978). That is, it assessed more than one dimension of health locus of control.

Germer and Price (1981) found the MHLC effective in assessing the specific characteristics of health fair participants. The MHLC demonstrated that health fair participants exhibited greater internality.

Other data in this study express adequate test-retest reliability.

Germer and Price found the MHLC alpha coefficients comparable to Wallston et al. (1978).

Philadelphia Geriatric Center Scale (PGC)

Rationale for the PGC. The PGC was selected because, when compared with similar scales, it is one of the few that has included social relationship items among its pool for factoring. Additionally, the original PGC was restandardized on 828 elderly people. Three stable and replicable factors (i.e., attitude toward own aging, agitation) were demonstrated in the PGC. More importantly, the PGC was chosen because it measures morale in the elderly (Knapp, 1976, Larson, 1978).

Development of the PGC. The PGC was developed by Lawton in 1972 and revised in 1975. It was developed under the assumption that morale is multidimensional, rather than unidimensional. Larson (1978) reports the operationalization of the construct psychological well-being (life satisfaction) as measured by the PGC as follows "Sense of satisfaction with self, feeling there is a place in the world for self, acceptance of what cannot be changed" (p. 111). Lawton (1975) and Birren and Sloane (1980) use morale and life satisfaction interchangeably.

Reliability of the PGC. Lawton administered the PGC to 828 elderly subjects. Lawton (1975) identified three factors the attitude toward own aging, agitation, and lonely dissatisfaction. He further found these factors possess "a high degree of internal consistency as determined by alpha .85, .81, and .85 respectively" (Lawton, 1975, p. 87). Larson also reports test-retest correlations of .91 and .75 for 5 weeks and 12 weeks, respectively.

Validity of the PGC Birren and Sloane (1980) maintain as a result of their findings that the PGC does measure the demoralization syndrome. Furthermore, it taps "attitude to the quality of the past, present, and future phases of the person's life" (p. 683). Validity statistics reported by Larson (1978) indicate .57 correlations to interviewer's life satisfaction (morale, well-being) ratings.

Evaluation of the PGC. Larson (1978) identifies the PGC as an instrument which effectively isolates empirically the components of well-being. Furthermore, the PGC was found effective in operationalizing the construct of well-being into three components. These components are "(A) sense of satisfaction with self, (B) feeling there is a place in the world for self, (C) acceptance of what cannot be changed" (Larson, 1978, p. 111). It also uses easier response formats and wording than other previously used scales (Lawton, 1975). Lawton's (1975) findings state that the PGC was the only instrument reported that "has included social relationship items among its pool for factoring" (p. 89).

Duke University of North Carolina Health

Profile (DUNC)

Rationale for the DUNC. The DUNC was chosen for use in this investigation because it assesses adult health status on four dimensions Symptom status, physical function, emotional function and social function. Additionally, an elderly population was included in the normative population. Because of the overlap of the DUNC with other instruments used in this investigation (Zung and PGC) only the physical function and symptom status dimensions will be used.

Development. The DUNC was developed by Parkerson, Gehlbach, Wagner, James, Clapp, and Muhlbaier in 1981 to measure adult health status. The DUNC is a brief 63-item instrument. The DUNC assesses health status on four dimensions mentioned above. Parkerson et al. (1981) identified two broad plans in the choice of items.

First, an attempt was made to identify from the literature and clinical experience the most critical subcomponents of each of the four dimensions. . . . Second, to maximize applicability of the DUNC across patient populations, general categories of functioning such as performing usual work, socializing with other people, and caring for one's self, were utilized rather than specific questions itemizing leisure time activities or detailed social contacts (p. 808).

Reliability. Parkerson et al. (1981) findings indicate test-retest correlations ranging from .52 to .82 for the four dimensions. Alpha for internal consistency was .85 for emotional function. Guttman reproductibility coefficients were .98 for physical function and .93 for social function, and the scalability coefficients were .89 for physical and .71 for social. Observed relationships correlated well with those predicted by the investigators (overall Spearman correlation .79).

Validity. Parkerson et al. (1981) were able to establish validity with the DUNC.

Convergent and discriminant validity was supported by strong associations between the components of DUNC and those on the Sickness Impact Profile, the Tennessee Self-Concept Scale, and the Zung Self-Rating Depression Scale" (Parkerson et al. (1981).

Comparing the DUNC with the Sickness Impact Profile yielded correlations which "ranged from .34 to .45, and those for DUNC with Tennessee ranged from .68 to .81" (p. 806). Comparing the "DUNC with the Zung mono-item-method correlations ranged from .54 to .57" (Parkerson et al., 1981).

Evaluation. Parkerson et al. (1981) found the DUNC to be capable of measuring the broad dimensions of health and sensitive to small changes

in health status. They indicate it was suitable "for inclusion as part of the individuals' medical or health record" (p. 808).

Elderly Interpersonal Experience Inventory

(EIEI)

Rationale for the EIEI. The EIEI (see Appendix A) was selected for use in this investigation because it assesses social variables particularly relevant to the elderly population. Some of these variables include age, marital status, income, education, sex, ethnicity, health, and interpersonal interaction. This inventory was also used because an elderly sample was used in the process of its standardization.

Development. The EIEI was developed by Dillard, Johnson, Campbell and Newman in 1983 to determine elderly demographic data and measure elderly interpersonal interactions. The EIEI is a brief 15-item instrument. Dillard et al. (1984) attempted to develop two broad plans in the choice of items. First, an attempt was made to identify from the literature and clinical experience the most relevant demographic data for the elderly population used in this investigation. Second, to maximize applicability and understanding of the elderly studied in this investigation general items of interpersonal interaction such as phone calls from family and visits from family were utilized.

Reliability. Johnson (1984) found of test-retest percentages (one week) of agreement ranging from .80 to .93 in one sample of elderly. This elderly sample of 14 people ranged in age from 57 to 86.

Validity. Johnson (1984) found face validity on the EIEI. The face validity was determined through the use of a panel of experts. The panel of experts was composed of one mental health center director and six

pre-internship doctoral students in counseling psychology (Johnson, 1984).

Evaluation. The EIEI was found by other researchers to be effective in assessing elderly social stress and relevant demographic data. Dillard, Campbell and Chisolm (1984) found the EIEI useful in one investigation of an elderly group. Dillard, Campbell, and Chisolm (1984) found the significant relationships between life satisfaction, educational level, health status and socioeconomic status with elderly with a median age of 71.

Data Collection

Procedure

The data were collected during the summer and fall of 1983 from several elderly non-nursing home facilities and those volunteering from senior centers. Data describing the economic status and other associated information were collected during the testing time (see Appendices K1-K12).

The sites obtained includes both public and private elderly facilities and centers. The sites were randomly selected. Once the previously discussed inclusion criteria were met, participants were assigned to the myocardial group I or non-myocardial group II based on the information obtained through the testing.

A letter of cooperation (see Appendices H & I) was obtained from each elderly institution and elderly participating in the investigation. All data were kept confidential. For the purposes of data collection and analysis, a temporary identification procedure was used to organize the

test data. Once the test data was collected, all identification relevant to the participants' names were discarded.

The paper and pencil instrument package was given using the general instructions standard for all the tests (see Appendix J). All of the instruments required the participants to respond to the items as they apply to them. The five instruments and personal information sheet (see Appendices A-G) were administered by research assistants. The research assistants were graduate students with 12 or more hours in psychology. All research assistants received training (see Appendix K) by the principal investigator in the administration and scoring of the instruments used prior to the data collected. None of the instruments in the investigation required extensive training in test administration. One out of five instruments were randomly checked for errors by the principal investigator. The research assistants traveled to the various assigned sites to administer the instruments.

Given the length of the instruments and the nature of the sample, the total testing time in a single session, for each participant ranged from 25 to 35 minutes. It was not necessary to divide the testing time for any of the elderly in this study. In cases where more than 20 percent of a participant's responses on any one test are missing, that participant's scores were deleted from the investigation.

The Mental Status Questionnaire (MSQ) was the first instrument administered to exclude those elderly with possible organic brain dysfunctions. Following this, the instruments were randomly sequenced for each testing site to minimize possible order effects.

Research Design

This investigation used a causal-comparative research design. There were two reasons for selecting this type of design. First, it uses a descriptive research approach. Second, it attempts to determine reasons, or causes for the current status of stress in the cardiac and non-cardiac elderly in this investigation. The causal-comparative research design allows the investigator to attempt determining the causes, or reasons, for the existing differences between the cardiac and non-cardiac elderly. In this investigation the alleged cause, myocardial infarction, had already occurred and was studied by the investigator in retrospect.

This particular investigation examines a variation of the basic causal-comparative approach. This variation involves starting with a cardiac and/or non-cardiac elderly and determining what effect either of those two groups differ on several multivariate constructs. The first multivariate construct is psychological stress. The second multivariate construct is physical stress. The last multivariate construct is social stress.

There are several biases, weaknesses and/or limitations involved in causal-comparative designs. The controls normally present in experimental studies cannot be used in causal-comparative studies. The results in causal-comparative studies must be interpreted cautiously. The cause-effect relationship may be different than what it appears. The causal-comparative approach establishes a relationship, "not necessarily a causal one" (Gay, 1981)

Data Analysis

The .05 level of significance was established as necessary to reject or not reject the null hypothesis.

Research Hypothesis 1. There are differences between the myocardial and nonmyocardial participants on the multivariate construct physical stress where this construct is composed of self-ratings of health and health locus of control.

Research Hypothesis 2. There are differences between the myocardial and non-myocardial elderly on the multivariate construct of psychological stress where this construct is composed of depression and life satisfaction.

Research Hypothesis 3. There are differences between the myocardial and non-myocardial elderly on the multivariate construct of family contacts where this construct is composed of family visits and family phone calls.

The test data for hypotheses 1, 2, and 3 were analyzed by multivariate analysis of variance (MANOVA) to determine if significant differences exist between a myocardial infarction elderly group and a non-myocardial infarction elderly group on the multivariate constructs physical stress, psychological stress, and family contacts. Additionally, means, standard deviations and other descriptive statistics were reported for relevant data

Design Summary

The participants of this investigation consisted of two groups of elderly (N = 48) 55 years of age and older. Measures were taken to evaluate their levels (variables) of depression, health locus of control,

self-ratings of health, organicity, social stress, and life satisfaction (morale). A causal-comparative research design was used in this investigation. The data were analyzed using multivariate analysis of variance (MANOVA) to determine if there are differences between elderly myocardial and non-myocardial groups. The next chapter contains a discussion of the results of the statistical analyses of the data collected in this investigation.

CHAPTER IV

RESULTS OF THE INVESTIGATION

Introduction

This chapter contains a discussion of the results of the statistical analyses of the data collected in this investigation. More specifically, three research hypotheses were tested, and three research questions were addressed using the obtained scores on various instruments. The instruments measured the multivariate construct of stress in one group of non-myocardial elderly and one group of myocardial elderly. The error correlation matrices (K13-15) indicate the need for using MANOVA in analyzing the data. In general, the study was designed to determine if differences existed between the aforementioned elderly groups.

The first section presents the statistical hypotheses of the investigation. The second section includes a summary of the major research questions. The third section includes summary.

Major Statistical Hypotheses

Research Hypothesis 1. There were no differences between the myocardial and non-myocardial elderly groups on the multivariate construct social stress where this construct is composed of visits from family and phone calls from family.

Hypothesis 1 poses the notion that social stress is a multivariate construct. That is, social stress can be experienced in a variety of ways. Two ways used in this investigation are visits from family and phone calls from family. The Elderly Interpersonal Experience Inventory (EIEI) was used to collect data on family visits and phone calls from family. The means for visits from family were 2.64 and 3.35 for the myocardial and non-myocardial groups, respectively. The means for phone calls from family were 3.00 and 4.11 for the myocardial and non-myocardial groups. The instrument was coded (e.g., 2-3 times a week = 1, once a week = 2, 2-3 times a month = 3, once a month = 4, 2-3 times a year = 5), with 1 indicating a higher value. To determine if differences exist between the two groups, a multivariate analysis of variance (MANOVA) was applied to the data. Table II demonstrates a significant global F ($F = 3.92$). Examining the univariate F's it can be observed in Table II that phone calls from family is contributing more to the overall significance of the construct. The results reported in Table II indicate significant differences between the myocardial and non-myocardial elderly on visits from family. The myocardial group is better. The strength of association was 16 percent. Thus hypothesis 1 is rejected.

Research Hypothesis 2. There are no differences between myocardial and non-myocardial elderly on the multivariate construct of physical stress where this construct was composed of self-health ratings, and health locus of control.

A multivariate analysis of variance (MANOVA) ($F = .47, p > .05$) was used to test hypothesis 2 for MHLC and DUNC mean score differences between cardiac and non-cardiac differences. The resultant data are

TABLE II
SOURCE TABLE FOR SOCIAL STRESS

Multivariate		Multivariate F = 3.92**			
Social stress	Hypothesized		Error		
	SS	MS	SS	MS	
<u>EIEI*</u>					
Visits from family	6.00	6.00	120.98	2.63	2.28
Phone calls from family	14.83	14.83	86.65	1.88	7.87

*EIEI is the Elderly Interpersonal Experience Inventory

** $(p < .05)$

contained in Table III. Table III indicates the multivariate F of the construct physical stress was not significant at the .05 level. Thus, the Hypothesis 2 statement that there were no differences between myocardial and non-myocardial elderly on the multivariate construct of physical stress where this construct was composed of self-health ratings, and health locus of control failed to be rejected.

Research Hypothesis 3. There were no differences between the myocardial and non-myocardial elderly on the multivariate construct of psychological stress where this construct was composed of depression and life satisfaction.

To test hypothesis 3 for significant differences between cardiac and non-cardiac elderly, a multivariate analysis of variance (MANOVA) ($F = 1.04, p > .05$) was applied to the data. Table IV displays the resultant data. Table IV indicates the multivariate F of the construct psychological stress was not significant at the .05 level. Thus, the hypothesis 3 statement that there were no differences between myocardial and non-myocardial elderly on the multivariate construct of psychological stress where this construct was composed of life satisfaction and depression failed to be rejected as shown in Table IV.

Summary of Major Research Questions

Research Question 1. To what extent are cardiac and non-cardiac elderly different on the multivariate construct of Family Contact when this construct is divided into family visits and phone calls from family?

This research question raises the issue as to whether family contact is different when a cardiac and non-cardiac group are

TABLE III
SOURCE TABLE FOR PHYSICAL STRESS

Multivariate		***Multivariate F = .47			
Physical stress	Hypothesized		Error		
	<u>DUNC</u> *	SS	MS	SS	MS
Symptom status	.05	1.63	.05	.03	1.43
Physical functioning	.007	.82	.007	.02	.42
<u>MHLC</u> **					
Internal items	.13	1669.12	.13	36.29	.00
Powerful other items	32.18	1947.73	32.18	42.34	.76
Chance items	46.67	2519.24	46.67	54.77	.85

*DUNC is the Duke-University of North Carolina Health Profile

**MHLC is the Multidimensional Health Locus of Control Scale

TABLE IV
SOURCE TABLE FOR PSYCHOLOGICAL STRESS

Multivariate		Multivariate F = 1.04			
Psychological stress	Hypothesized		Error		
(LS) Agitation*	SS	MS	SS	MS	<u>F</u>
(LS) Attitude toward	22	105.59	.22	2.29	.09
own aging	5.04	110.20	5.04	2.39	2.10
(LS) Lonely					
dissatisfaction	.91	87.57	.91	1.90	.48
Zung self-rating					
depression	.007	.41	.007	.008	.86

p < .05

*LS is life satisfaction

contrasted. The data reported in Table II reveal that significant differences do exist between the two elderly groups studied in this investigation.

Research Question 2. To what extent are cardiac and non-cardiac elderly different on the multidimensional construct of stress where this construct is divided into physical and psychological stress?

The second research question posits the notion that stress is a multidimensional phenomenon. That is, elderly people experience stress from a number of different sources. Hence, depression and life satisfaction comprised the psychological division of stress in this investigation.

The physical dimensions of stress in general represent constructs associated with overall self-ratings of health. In this investigation, the physical dimension of stress was comprised of health locus of control. Multidimensional health locus of control (MHLC) was further divided into internal, chance and powerful others. The other dimension of physical stress was the Duke-University of North Carolina health profile (DUNC). The DUNC was also broken down into two sub-components. The two sub-components were physical functioning and symptom status.

The investigation focused attention on determining if differences existed between the two elderly groups on the psychological, physical, and social dimensions of stress. The MANOVA was the statistical procedure used to determine if differences existed between the cardiac and non-cardiac elderly in this investigation. The results of the MANOVA reported in Tables III and IV reveal that there were no significant differences between the two elderly groups used in this investigation on the multidimensional construct stress where it was

divided into physical and psychological stress. The investigation did find significant differences between the two elderly groups on social stress as shown in Table II.

Summary

There are two major research questions in this investigation. First, to what extent are cardiac and non-cardiac elderly different on the multivariate construct family contact where this construct is divided into phone calls from family and family visits? This hypothesis was rejected. The second research question was To what extent are cardiac and non-cardiac elderly different on the multivariate constructs stress where this construct is divided into physical and psychological stress? Research question 1's underlying assumptions mentioned previously was rejected. Research question 2's underlying assumptions were failed to be rejected.

The next chapter reports a summary and findings of the investigation. Conclusions drawn from the findings presented in Chapter IV are contained in the subsequent chapter.

CHAPTER V

SUMMARY, FINDINGS, CONCLUSIONS AND IMPLICATIONS

This chapter includes a summary and findings of the investigation. Conclusions reached from the findings presented in Chapter IV are contained in this chapter. Within the limitations of the investigation, this chapter also includes suggested implications for counseling psychology practice. Suggested implications for further research are also included in the present chapter.

Summary

There has been an increase of more than 10 percent of the general population for those 65 years of age and above. There is further projection by the year 1985 that those elderly over 65 will increase to over 27 million. Yet even now, the elderly population are placing a heavy demand on the counseling services available.

This projected demand for counseling services challenges counseling psychologists to find more effective means to provide assistance for the elderly. As a group, many helping professionals are not completely aware of the counseling needs of the elderly. There could be a further need to train counseling psychologists to provide appropriate counseling. Part of the treatment plan could provide appropriate counseling. Part of the treatment plan could include addressing an

person's life satisfaction. Many psychologists lack experience in treating the elderly. This under delivery of mental health services may further exacerbate psychological dysfunctions like depression in the elderly.

It seem axiomatic that counselors and psychologists could play an important role in treating the effects of depression associated with the elderly. Depression is a ubiquitous psychological disorder affecting between seven to eleven percent of the general population of the United States (Mintz et al., 1981). Depression is a precursor to suicide in some cases. This indicates the significance depression plays in the stress patterns of the elderly.

Depression is a dimension of psychological stress. It is the psychological condition most commonly associated with suicide among the elderly. In addition, Butler and Lewis' (1973) findings demonstrated many elderly experience significant psychological reactions from stress resulting from various aspects of poor health.

The physical and psychological factors interact with each other to compound a myocardial condition of the elderly. These factors interacting caused more stress and prolonged their physical deterioration. Several constructs were examined in the elderly with cardiovascular dysfunctions and those elderly not having cardiovascular dysfunctions. Examples of some of those factors were health locus of control, depression and life satisfaction.

Health locus of control is a term which applies Rotter's (1966) conceptualization of locus of control to health. The findings of Hunter, Linn, Harris, and Pratt (1980) indicate that persons who were external in their orientation were inclined to report poorer overall

health. Contrawise, self-assessed health was found positively correlated with an internal elderly group. Poorer health was also found to be associated with lower life satisfaction (Larson, 1978).

Purpose

The purpose of this investigation was threefold. The first was to determine if differences exist between the myocardial and non-myocardial elderly groups or the multivariate construct of stress where this construct was composed of self-health ratings. The underlying assumption was that the two elderly groups would vary on the physical stress sub-component which comprised the multivariate construct of stress. The second purpose of the investigation was to determine if differences existed between the myocardial and non-myocardial elderly groups on the multivariate construct of psychological stress where this construct was composed of depression and life satisfaction. The underlying assumption was that the psychological sub-component of stress for the two groups would vary. The third purpose was to determine if differences existed between myocardial and non-myocardial elderly groups on the multivariate construct of social stress. This construct is divided into phone calls from family and visits from family.

Literature and Research

Most of the contemporary research findings related to the dimensions of stress in cardiac elderly when compared with non-cardiac elderly were consistent with the basic underlying assumptions in the present investigation, that is, there are differences in the stress levels of cardiac and non-cardiac elderly groups.

Like the present investigation, other studies considered depression to be one dimension of stress. Like this investigation, the reviewed research profiled those elderly identified as psychologically impaired with those who were psychologically healthy.

The differences in the research literature reviewed and this investigation were found primarily in the lack of control of two areas. First, no attempt was made to control for possible effects of hypertension medication in some studies. Second, no attempt was made to control for possible organic dysfunctions when the specific variables used in the present investigation were being examined. In the present study, both hypertension and organic dysfunction effects were controlled for by screening procedures (see MSQ and EIEI).

Participants

This voluntary sample included 48 elderly males and females 55 years of age and above. Twenty-two of the participants had experienced a myocardial infarction, 26 were non-cardiac. The participants were volunteers from randomly selected senior centers, and other non-nursing home elderly in the Oklahoma City area of Oklahoma.

Instrumentation

The Mental Status Questionnaire (MSQ) was one of six instruments and one information sheet used in this investigation. The MSQ was used in this investigation to assess organic dysfunction in the elderly.

The Zung Self-Rating Depression Scale (SDS) was used in this investigation to assess depression in the elderly. The SDS was developed by William Zung (1965) to measure differences in physical,

psychological, social losses and stresses hypothesized to be related to depression in the elderly.

The Multidimensional Health Locus of Control Scale (MHLC) was used in this investigation to assess internal and external components of health in the elderly. The MHLC was developed by Wallston and Wallston (1976) to assess health.

The Philadelphia Geriatric Center Scale (PGC) was used in this investigation because it measured three factors relevant to life satisfaction (morale). These factors were attitude toward own aging, agitation and lonely dissatisfaction.

The Duke University of North Carolina Health Profile (DUNC) was developed by Parkerson, Gehlbach, Wagner, James, Clapp and Muhlbaier in 1981 to measure adult health status. Part of the norming population included a group of elderly people. The DUNC was used in this investigation to measure physical functioning and symptom status in the two elderly groups.

The Elderly Interpersonal Experience Inventory (EIEI) was developed by Dillard, Johnson, Campbell and Newman, in 1984 to obtain demographic data and social stress. The EIEI required the respondents to provide demographic and social stress data relevant to the investigation. Some of the demographic data asked for on the information sheet included age, sex, race, and education, etc. The social stress data included phone calls from family and visits from family.

Administration of the MSQ, SDS, MHLC, PGC,
DUNC, and EIEI

All of the instruments used in this investigation were paper and pencil in their basic response format. That is, generally the

respondents were given a copy of the tests which contained a brief instruction to place an "X" or "circle" on the response which best described their feeling or opinion toward the stimulus question. None of the instruments required a detailed explanation on how to compute the items on the test. The test was administered by graduate research assistants in psychology. The testing time ranged from 25 to 35 minutes.

Data Analysis

Three one-way Multivariate Analyses of Variance (MANOVA) were applied to the results of the data collection. The first MANOVA examined information obtained in the error correlation matrix for social stress (see Table VI). Based on this data, a decision was made by the investigator to use the univariate F's. The univariate F post-hoc procedures determine which variables contributed to the significance. The other two MANOVA's were applied to the data which was collected on Physical and Psychological Stress.

Findings of the Investigation

This investigation attempted to determine if differences existed between a myocardial and non-myocardial elderly group on several multivariate stress constructs. These multivariate stress constructs were social, psychological and physical respectively.

1. Phone calls from family members was significantly different between the cardiac and non-cardiac elderly groups. In other words, the myocardial infarction elderly group received significantly more phone calls from family members when contrasted with a

non-myocardial elderly group. Therefore, the hypothesis for the multivariate construct of family contact was rejected (16 percent of the variance was accounted for).

2. There were no statistically significant differences between the cardiac and non-cardiac elderly groups on the multivariate construct of physical stress. That is, the mean scores on the sub-components of physical stress (e.g., self-health ratings, and health locus of control) for both groups were very close. This closeness prevented a statistical significance from being detected by the global F test of MANOVA.
3. A non-statistically significant relationship was found between the cardiac and non-cardiac elderly groups on the multivariate construct of psychological stress. This meant that the mean scores of the sub-components of psychological stress (e.g., depression and life satisfaction) were similar. This similarity prevented statistical significance from being detected by the global F test of MANOVA.

Discussion of the Findings

1. The non-cardiac elderly group received fewer phone calls from family members when compared to the cardiac elderly group. These findings are consistent with other research. Shana's (1979) investigation, as was true in the present investigation, found that the family provides significant support for the elderly parent during the time of illness. The present investigation's findings were similar to the results reported by DeMellier (1982). DeMellier's findings indicated that all measures of friendship and

intimacy influenced perceived health and adaptation. The findings on the multivariate construct of family contact has an interesting relationship to the other multivariate constructs of physical and psychological stress. A myocardial infarction is a traumatic experience for any individual, particularly the elderly. The present investigation found significant differences on one component of the multivariate construct of family contact (e.g., phone calls from family members). Phone calls from family members are probably easier to make than visits. This being the case, it is axiomatic that the frequency of phone calls would be greater than visits. In addition to this, the frequency of phone calls from family members, which represent a social stress variable, could, as indicated in the present investigation, represent significant differences between cardiac and non-cardiac elderly groups.

There is one analogy which could be made about the statistically significant differences between the two elderly groups. The calls function as a potential stress suppressor variable. In other words, the myocardial infarction which produces concomitant physical and psychological stress reactions could potentially be suppressed by the frequency of phone calls from family members. This is not to imply a causal relationship. Rather, there is a theorized conclusion which could be made based upon the findings of the present investigation. A conclusion which could be made is that phone calls from family members function as a potential stress suppressor variable and could influence other expected differences between cardiac and non-cardiac elderly

groups. This potential stress suppressor variable could have effects on the multivariate constructs of physical and psychological stress, respectively.

2. The multivariate construct of physical stress which consists of self-ratings of health, and health locus of control appear not to be different when cardiac and non-cardiac elderly groups are compared. The findings of the present investigator relate to the conclusions found by Tracey (1983). Tracey (1983) found elderly patients employ coping behavior which serves as a health protective function. Therefore, the myocardial infarction would seem to cause the elderly person to revert to more stress coping behavior.
3. Psychological stress as a multivariate construct made up of life satisfaction and depression is not different in a cardiac elderly group when contrasted with a non-cardiac elderly group. The findings of the present investigation are in sharp contrast to other research. DeMellier (1982) found perception of good health led to adaptation and life satisfaction. Given DeMellier's (1982) findings, it would be expected that the present investigation would have found poorer adaptation and lower life satisfaction among the cardiac elderly group. The present investigation did not find lower life satisfaction or poor adaptation in the cardiac or non-cardiac elderly groups.

Conclusions and Implications for Psychologists

Considering the findings of the present investigation, the following conclusions and implications are suggested

1. Counseling psychologists should give immediate attention to the impact the multivariate family contact construct, as represented through visits and phone calls from family members, could have as an elderly intervention strategy. That is, from the findings of the present investigation it is apparent that phone calls from family members was significantly different between cardiac and non-cardiac elderly groups. The cardiac elderly group received a statistically significant greater number of phone calls. This finding could have immediate ramifications. It could be postulated that phone calls from family minimizes the effects of physical and psychological stress. The recent concerns about increasing medical cost could also be addressed with knowledge of the role phone calls play in the cardiac elderly. A hypothesis could be offered. This hypothesis could be that "There is a significant difference in recovery time and length of hospital stay between those elderly groups who received a high number of phone calls from family when compared to those who received a low number of phone calls from family members." A similar hypothesis could be initiated for counseling psychologists who recognize the significant role family members' support plays when treating the elderly.
2. Physical stress as it was composed of several dimensions was apparently not as debilitating for the elderly cardiacs in this sample as previous studies have indicated. The underlying assumptions reflected in the health locus of control scale would seem to indicate that those with poorer health would be more influenced by powerful others, external events and by chance. Since this was not the case in the present investigation it would

seem to reduce the significance of using locus of control as an indicator of an elderly person's experience of a myocardial infarction and merit a re-examination of the design of studies which did find significance.

3. Psychological stress as it was comprised of several dimensions was unable to demonstrate much of an impact on elderly cardiacs. The underlying assumption, as supported by the research literature, was that an elderly person who has experienced a myocardial infarction would be more inclined to be depressed and report a lower satisfaction with life. The present investigation, however, did not support this assumption, but suggests that practicing counseling psychologists should focus their attention on factors other than physical condition as contributing to psychological stress in the elderly. For example, some attention could be directed at anxiety and social factors.

Recommendations for Future Research

1. Research should be conducted using an expanded version of the Elderly Interpersonal Experience Inventory which would allow more comprehensive information to be obtained about the elderly participants. For example, when did you last have a heart attack? How long were you unable to perform normal daily functions as a result of your heart attack?
2. Research should be conducted using a less rigorous inclusion-exclusion criterion for education. That is, develop instruments which could be administered to those with less than a sixth grade education.

3. Research should be conducted using less rigorous inclusion criterion on the organic dysfunction measure. That is, since some studies did not use organic dysfunction measures and obtained significant results, it is possible that more useful information could be obtained from the samples when organicity is not critically evaluated.
4. Conduct a more in-depth investigation which examines the impact of visits from family and friends and family support on the elderly with physical illnesses. This investigation would also examine the impact of physical illness of an elderly person on the family. This could be accomplished by conducting evaluations of family members who have an elderly parent currently recovering from a physical illness. In order to effectively implement the proposed investigation, the assessment should be conducted as soon as the family is identified. The family could be assessed several times during the course of the recovery period to determine if time played a role in the effects of the elderly person's illness on the family. That is, does the family's stress reaction increase, decrease, or remain unchanged over time?
5. Replicate this investigation using Blacks, Hispanics, American Indians, Orientals, and foreign refugees. This investigation could utilize psychotherapy as an intervention in those identified as experiencing the negative impact of physical illness. The replication of this study across ethnic groups would allow a researcher to determine which cultural factors play a role in exacerbating or retarding the stress reactions. The psychotherapy could be used as a form of stress intervention. Additionally,

comparisons could be made using younger heart and non-heart patients to determine if the illness has similar physical and psychological effects. This intervention could occur at three levels. The general description given to such an intervention is stress inoculation. Stress inoculation is similar to medical inoculation in that it is designed to reduce the possible negative effects of some stressful event or experience (i.e., myocardial infarction). The primary level of intervention using stress inoculation would be the identification of those currently experiencing, or expected to experience, major medical dysfunctions (e.g., myocardial infarction, cerebrovascular dysfunction, arthritis, general physical dysfunctions) and provide them with brief counseling experiences aimed at teaching techniques for effective management/regulation of the psychological stress associated with physical dysfunctions. Since many of the individuals would already be experiencing psychological stress the focus of the treatment would be at the secondary level. That is, specific stress regulation approaches (e.g., cognitive interventions, biofeedback, and other counseling interventions) could be used at this level of treatment. The tertiary level of treatment would involve essentially a personal application and follow-up for all those who participated in the stress inoculation program. Each individual participating would present a different challenge for the counseling psychologist. This would require the counseling psychologist to develop a program that meets the specific needs of those participating. The last part of the stress inoculation program would essentially require participants to return to the site providing the training

following a given period of time to determine the long-term effects of the stress inoculation. The follow-up could be done by informal contacts made through the mail, by telephone, or brief interviews.

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APPENDICES

APPENDIX A

ELDERLY INTERPERSONAL EXPERIENCE INVENTORY (EIEI)

Elderly Interpersonal Experience Inventory

Time Beginning _____ Time Ending _____ Age _____

Marital status (check one) Sex (circle one) Male Female

Never married _____
 Divorced _____
 Married _____
 Widowed _____
 Separated _____

Race (check one)
 Caucasian (white) _____
 Black _____
 Spanish-speaking _____
 American Indian _____
 Asian _____
 Other _____

Number of living children _____

Education level (check one)

Less than High School _____
 High School Graduate _____
 Some College _____
 Bachelor's Degree _____
 Graduate Degree _____

Income Level (check one)

<u>Before Retirement</u>		<u>Current Status</u>
___ 1. \$7,999 or below	___ 6. 16,000-17,999	_____
___ 2. 8,000-9,999	___ 7. 18,000-19,999	_____
___ 3. 10,000-11,999	___ 8. 20,000-21,999	_____
___ 4. 12,000-13,999	___ 9. 22,000-23,999	_____
___ 5. 14,000-15,999	___ 10. 24,000 or above	_____

Health (check one)

Excellent _____ Good _____ Fair _____ Poor _____ Very Poor _____

Are you taking medication? Yes _____ No _____

If yes, for what ailments? _____

About how often do you get phone calls from members of your family?
 (check one)

2-3 times a week _____ Once a week _____ Once a month _____
 2-3 times a year _____ 2-3 times a month _____

About how often do you get phone calls from friends? (check one)

2-3 times a week _____ Once a week _____ Once a month _____
 2-3 times a year _____ 2-3 times a month _____

About how often do you get visits from members of your family?
 (check one)

2-3 times a week _____ Once a week _____ Once a month _____
 2-3 times a year _____ 2-3 times a month _____

About how often do you get visits from friends? (check one)

2-3 times a week _____ Once a week _____ Once a month _____
 2-3 times a year _____ 2-3 times a month _____

APPENDIX B

MENTAL STATUS QUESTIONNAIRE (MSQ)

Short Portable Mental Status Questionnaire (MSQ)

Instructions Please respond to the following

1. What is today's date (month, date and year)? _____
2. What day of the week is it? _____
3. What is the name of this place? _____
4. What is your telephone number? _____
- 4a. What is your street address? _____
5. What is your age? _____
6. What is your birthdate? _____
7. Who is our current president? _____
8. Who was our president before him? _____
9. What is your mother's maiden name? _____
10. Please count in a series of 3's 0,3,.... _____

APPENDIX C

THE DUKE-UNC HEALTH PROFILE (DUNC)

Duke-UNC Health Profile

Here are a number of questions about your health and feelings. Please read each question carefully and give your best answer. You should answer the questions in your own way. There are no right or wrong answers.

[Symptom Status]

During the past week

How much trouble have you had with

	None	Some	A Lot
1. Eyesight	_____	_____	_____
2. Hearing	_____	_____	_____
3. Talking	_____	_____	_____
4. Smelling odors	_____	_____	_____
5. Tasting food	_____	_____	_____
6. Appetite	_____	_____	_____
7. Chewing	_____	_____	_____
8. Swallowing	_____	_____	_____
9. Moving your bowels	_____	_____	_____
10. Passing water/urinating	_____	_____	_____
11. Breathing	_____	_____	_____
12. Sleeping	_____	_____	_____
13. Walking	_____	_____	_____

During the past week

How much trouble have you had with

	None	Some	A Lot
14. Headache	_____	_____	_____
15. Hurting or aching in any part of your body	_____	_____	_____
16. Itching in any part of your body	_____	_____	_____
17. Indigestion	_____	_____	_____
18. Fever	_____	_____	_____
19. Getting tired easily	_____	_____	_____
20. Fainting	_____	_____	_____
21. Poor memory	_____	_____	_____
22. Weakness in any part of your body	_____	_____	_____
23. Feeling depressed/sad	_____	_____	_____
24. Nervousness	_____	_____	_____

During the past month

How much trouble have you had with

	None	Some	A Lot
25. Weight loss	_____	_____	_____
26. Weight gain	_____	_____	_____
27. Unusual bleeding	_____	_____	_____
28. Sexual performance	_____	_____	_____

[Physical Function]*

During the past week

1. How many days were you in bed most of the day because of sickness, injury or health problems?

_____	_____	_____
none	1-4 days	5-7 days

2. How many days did you stay in your home because of sickness, injury or health problems?

_____	_____	_____
none	1-4 days	5-7 days

3. How much trouble have you had getting around outside your home because of sickness, injury or health problems?

_____	_____	_____	_____
none	1-4 days	5-7 days	can't go outside

Today would you have any physical trouble or difficulty

	None	Some	A Lot
4. Running 4 miles	_____	_____	_____
5. Holding a baby	_____	_____	_____
6. Walking up a flight of stairs	_____	_____	_____
7. Hearing the radio or TV	_____	_____	_____
8. Running a mile	_____	_____	_____
9. Walking the length of a football field (100 yards)	_____	_____	_____
10. Walking to the bathroom	_____	_____	_____
11. Peeling an apple	_____	_____	_____
12. Reading a street sign	_____	_____	_____
13. Running the length of a football field (100 yards)	_____	_____	_____
14. Reading a newspaper	_____	_____	_____
15. Combing your hair	_____	_____	_____

APPENDIX D

MULTIDIMENSIONAL HEALTH LOCUS OF CONTROL (MHLC) SCALES

FORM A AND FORM B

MHLC - Form A

This is a questionnaire designed to determine the way in which different people view certain important health-related issues. Each item is a belief statement with which you may agree or disagree. Beside each statement is a scale which ranges from strongly disagree (1) to strongly agree (6). For each item we would like you to circle the number that represents the extent to which you disagree or agree with the statement. The more strongly you agree with a statement, then the higher will be the number you circle. The more strongly you disagree with a statement, then the lower will be the number you circle. Please make sure that you answer every item and that you circle only one number per item. This is a measure of your personal beliefs, obviously, there are no right or wrong answers.

Please answer these items carefully, but do not spend too much time on any one item. As much as you can, try to respond to each item independently. When making your choice, do not be influenced by your previous choices. It is important that you respond according to your actual beliefs and not according to how you feel you should believe or how you think we want you to believe

	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
1. If I get sick, it is my own behavior which determines how soon I get well again.	1	2	3	4	5	6
2. No matter what I do, if I am going to get sick, I will get sick.	1	2	3	4	5	6
3. Having regular contact with my physician is the best way for me to avoid illness.	1	2	3	4	5	6
4. Most things that affect my health happen to me by accident.	1	2	3	4	5	6
5. Whenever I don't feel well, I should consult a medically trained professional.	1	2	3	4	5	6
6. I am in control of my health.	1	2	3	4	5	6
7. My family has a lot to do with my becoming sick or staying healthy.	1	2	3	4	5	6
8. When I get sick I am to blame.	1	2	3	4	5	6

	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
9. Luck plays a big part in determining how soon I will recover from an illness.	1	2	3	4	5	6
10. Health professionals control my health.	1	2	3	4	5	6
11. My good health is largely a matter of good fortune.	1	2	3	4	5	6
12. The main thing which affects my health is what I myself do.	1	2	3	4	5	6
13. If I take care of myself, I can avoid illness.	1	2	3	4	5	6
14. When I recover from an illness, it's usually because other people (for example, doctors, nurses, family, friends) have been taking good care of me.	1	2	3	4	5	6
15. No matter what I do, I'm likely to get sick.	1	2	3	4	5	6
16. If it's meant to be, I will stay healthy.	1	2	3	4	5	6
17. If I take the right actions, I can stay healthy.	1	2	3	4	5	6
18. Regarding my health, I can only do what my doctor tells me to do.	1	2	3	4	5	6

MHLC - Form B

This is a questionnaire designed to determine the way in which different people view certain important health-related issues. Each item is a belief statement with which you may agree or disagree. Beside each statement is a scale which ranges from strongly disagree (1) to strongly agree (6). For each item we would like you to circle the number that represents the extent to which you disagree or agree with the statement. The more strongly you agree with a statement, then the higher will be the number you circle. The more strongly you disagree with a statement, then the lower will be the number you circle. Please make sure that you answer every item and that you circle only one number per item. This is a measure of your personal beliefs, obviously, there are no right or wrong answers.

Please answer these items carefully, but do not spend too much time on any one item. As much as you can, try to respond to each item independently. When making your choice, do not be influenced by your previous choices. It is important that you respond according to your actual beliefs and not according to how you feel you should believe or how you think we want you to believe.

	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
1. If I become sick, I have the power to make myself well again.	1	2	3	4	5	6
2. Often I feel that no matter what I do, if I am going to get sick, I will get sick.	1	2	3	4	5	6
3. If I see an excellent doctor regularly, I am less likely to have health problems.	1	2	3	4	5	6
4. It seems that my health is greatly influenced by accidental happenings.	1	2	3	4	5	6
5. I can only maintain my health by consulting health professionals.	1	2	3	4	5	6
6. I am directly responsible for my health.	1	2	3	4	5	6
7. Other people play a big part in whether I stay healthy or become sick.	1	2	3	4	5	6
8. Whatever goes wrong with my health is my own fault.	1	2	3	4	5	6

	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
9. When I am sick I just have to let nature run its course.	1	2	3	4	5	6
10. Health professionals keep me healthy.	1	2	3	4	5	6
11. When I stay healthy, I'm just plain lucky.	1	2	3	4	5	6
12. My physical well-being depends on how well I take care of myself.	1	2	3	4	5	6
13. When I feel ill, I know it is because I have not been taking care of myself properly.	1	2	3	4	5	6
14. The type of care I receive from other people is what is responsible for how well I recover from an illness.	1	2	3	4	5	6
15. Even when I take care of myself, it's easy to get sick.	1	2	3	4	5	6
16. When I become ill, it's a matter of fate.	1	2	3	4	5	6
17. I can pretty much stay healthy by taking good care of myself	1	2	3	4	5	6
18. Following doctor's orders to the letter is the best way for me to stay healthy	1	2	3	4	5	6

APPENDIX E

PHILADELPHIA GERIATRIC CENTER MORALE SCALE-REVISED (PGC)

Philadelphia Geriatric Center Morale Scale Revised

Instructions Please circle the answer to the right of the question that fits the way you feel.

LITTLE THINGS BOTHER ME MORE THIS YEAR	YES	NO
I SOMETIMES WORRY SO MUCH THAT I CAN'T SLEEP	YES	NO
I HAVE A LOT TO BE MAD ABOUT	YES	NO
I AM AFRAID OF A LOT OF THINGS	YES	NO
I GET MAD MORE THAN I USED TO	YES	NO
LIFE IS HARD FOR ME MOST OF THE TIME	YES	NO
I TAKE THINGS HARD	YES	NO
I GET UPSET EASILY	YES	NO
THINGS KEEP GETTING WORSE AS I GET OLDER	YES	NO
I HAVE AS MUCH PEP AS I HAD LAST YEAR	YES	NO
LITTLE THINGS BOTHER ME MORE THIS YEAR	YES	NO
AS YOU GET OLDER YOU ARE LESS USEFUL	YES	NO
AS I GET OLDER, THINGS ARE BETTER/WORSE THAN I THOUGHT THEY WOULD BE	BETTER	WORSE
I SOMETIMES FEEL THAT LIFE ISN'T WORTH LIVING	YES	NO
I AM AS HAPPY NOW AS WHEN I WAS YOUNGER	YES	NO
HOW MUCH DO YOU FEEL LONELY?	VERY MUCH	NOT MUCH
I SEE ENOUGH OF MY FRIENDS AND RELATIVES	YES	NO
I SOMETIMES FEEL THAT LIFE ISN'T WORTH LIVING	YES	NO
LIFE IS HARD FOR ME MUCH OF THE TIME	YES	NO
HOW SATISFIED ARE YOU WITH YOUR LIFE TODAY?	SATISFIED	NOT SATISFIED
I HAVE A LOT TO BE SAD ABOUT	YES	NO
PEOPLE HAD IT BETTER IN THE OLD DAYS	YES	NO
A PERSON HAS TO LIVE FOR TODAY AND NOT WORRY ABOUT TOMORROW	YES	NO

APPENDIX F

ZUNG SELF-RATING DEPRESSION SCALE (SDS)

Zung Self-Rating Scale (SDS)

Instructions Rate each of the 20 items as to how it applies to you presently using the following a little of the time, some of the time, a good part of the time, or most of the time.

	A LITTLE OF THE TIME	SOME OF THE TIME	GOOD PART OF THE TIME	MOST OF THE TIME
1. I FEEL DOWN-HEARTED AND BLUE				
2. MORNING IS WHEN I FEEL THE BEST				
3. I HAVE CRYING SPELLS OR FEEL LIKE IT				
4. I HAVE TROUBLE SLEEPING AT NIGHT				
5. I EAT AS MUCH AS I USED TO				
6. I STILL ENJOY SEX				
7. I NOTICE THAT I AM LOSING WEIGHT				
8. I HAVE TROUBLE WITH CONSTIPATION				
9. MY HEART BEATS FASTER THAN USUAL				
10. I GET TIRED FOR NO REASON				
11. MY MIND IS AS CLEAR AS IT USED TO BE				
I FIND IT EASY TO DO THE THINGS I USED				
12. TO				
13. I AM RESTLESS AND CAN'T KEEP STILL				
14. I FEEL HOPEFUL ABOUT THE FUTURE				
15. I AM MORE IRRITABLE THAN USUAL				
16. I FIND IT EASY TO MAKE DECISIONS				
17. I FEEL THAT I AM USEFUL AND NEEDED				
18. MY LIFE IS PRETTY FULL				
I FEEL THAT OTHERS WOULD BE BETTER OFF				
19. IF I WERE DEAD				
20. I STILL ENJOY THE THINGS I USED TO DO				

APPENDIX G

LETTER OF COOPERATION

To Ronn Johnson
Subject Letter of Cooperation

We hereby give you permission to use our senior facility as one of the sites for your dissertation research. We also understand that the data gathered will be given full protection of confidentiality and the anonymity of the elderly participants will be respected. We estimate that 100 elderly will be available to you.

Sincerely,

Site Director

APPENDIX H

LETTER OF COOPERATION AND RELEASE OF INFORMATION-PARTICIPANT

To Ronn Johnson
Subject Letter of Cooperation and Release of Information

I, _____, hereby give you permission to use the data collected on me in your dissertation research. I understand that the data gathered will be given full protection of confidentiality and my anonymity as a participant will be respected.

Sincerely,

(Signature)

Elderly Participant

APPENDIX I

GENERAL INSTRUCTIONS FOR ALL TESTS

-

Thank you for agreeing to participate in this investigation. Your identity will remain confidential. Only your answers to the test questions will be used. You will be given an information sheet and five tests to complete. The information sheet asks for basic information. Again, your identity will be kept confidential. The five tests that you will take require you to read a series of questions or statements and mark (X) on the number that best tells how you feel presently. For example, a question might appear like this

I am Happy		Strongly disagree		Some of the time		Most of the time	
		1		3		5	

You should have placed an (X) over the number that best tells how you presently feel.

If you have any questions, please ask them now or during the test. Please go on to the next page and begin answering the questions.

APPENDIX J

TRAINING PROGRAM FOR RESEARCH ASSISTANTS

The training program consists of several components. Among these components are general information about the investigation, the tests in the package, the general instructions for administering the instruments, addressing questions raised during the testing, and scoring the instruments.

General information about the investigation includes a description of its basic components. This includes the nature of the investigation and the role of the research assistants. The research assistant will be assigned to testing sites for the collection of the data. They will then be provided with the name and phone number of the contact person at the site. Prior to this, the contact person will be notified by the investigator as to the time of the testing and name of the research assistant. The research assistants will then be given a map for locating the sites and copies of the test packages for the elderly participants.

The training in administration of the tests will include each research assistant's taking the entire test package (Appendixes A-F). The investigator will introduce the tests as they will be administered to the elderly participants. This includes giving each research assistant a copy of the "general instructions" (see Appendix I). Following this, the "general instructions" will be read aloud. During the testing time the investigator will address any questions raised. Furthermore, any other issues relevant to the testing procedure proper will also be addressed.

Scoring instructions for each instrument will be discussed by the investigator. The instruments require the responses of the participants to be totalled. The totals for each instrument will then be recorded on each test. The MHLC has three subscales, each of which will be totalled and recorded.

APPENDIX K

FREQUENCY DISTRIBUTIONS

TABLE K1
 FREQUENCY DISTRIBUTION FOR AGE

Value	Frequency	Percent	Valid Percent	Cum Percent
55	1	2.1	2.1	2.1
58	1	2.1	2.1	4.2
59	2	4.2	4.2	8.3
60	2	4.2	4.2	12.6
61	2	4.2	4.2	16.7
62	1	2.1	2.1	18.8
63	1	2.1	2.1	20.8
64	1	2.1	2.1	22.9
66	2	4.2	4.2	27.1
68	1	2.1	2.1	29.2
69	1	2.1	2.1	31.3
70	2	4.2	4.2	35.4
71	3	6.3	6.3	41.7
73	5	10.4	10.4	52.1
74	3	6.3	6.3	58.3
75	2	4.2	4.2	62.5
76	5	10.4	10.4	72.9
77	2	4.2	4.2	77.1

(table continues)

TABLE K1 (Continued)

Value	Frequency	Percent	Valid Percent	Cum Percent
78	2	4.2	4.2	81.3
80	3	6.3	6.3	97.5
81	1	2.1	2.1	89.6
82	2	4.2	2.4	93.8
86	1	2.1	2.1	95.8
87	2	4.2	2.4	100.0
TOTALS	48	100.0	100.0	

TABLE K2
 FREQUENCY DISTRIBUTION FOR CHILDREN

Value	Frequency	Percent	Valid Percent	Cum Percent
0	6	12.5	12.5	12.5
1	10	20.8	20.8	33.3
2	14	29.2	29.2	62.5
3	8	16.7	16.7	79.2
4	3	6.3	6.3	85.4
5	5	10.4	10.4	95.8
6	1	2.1	2.1	97.9
8	1	2.1	2.1	100.0
TOTALS	48	100.0	100.0	

TABLE K3
 FREQUENCY DISTRIBUTION FOR EDUCATIONAL LEVEL

	Value	Frequency	Percent	Valid Percent	Cum Percent
	0	1	2.1	2.1	2.1
Less than H.S.	1	9	18.8	18.8	20.8
H.S. grad	2	9	18.8	18.8	39.6
Some college	3	17	35.4	35.4	75.0
Bachelor's degree	4	6	12.5	12.5	87.5
Grad degree	5	6	12.5	12.5	100.0
TOTAL		48	100.0	100.0	

TABLE K4

FREQUENCY DISTRIBUTION FOR INCOME LEVEL BEFORE RETIREMENT

	Value	Frequency	Percent	Valid Percent	Cum Percent
7,999 or below	1	21	43.8	43.8	43.8
8,000 to 9,999	2	5	10.4	10.4	54.2
10,000 to 11,999	3	6	12.5	12.5	66.7
14,000 to 15,999	5	3	6.3	6.3	72.9
16,000 to 17,999	6	3	6.3	6.3	79.2
20,000 to 21,999	8	1	2.1	2.1	81.3
22,000 to 23,999	9	1	2.1	2.1	83.3
24,000 and above	10	8	16.7	16.7	100.0
TOTAL		48	100.0	100.0	

TABLE K5
 FREQUENCY DISTRIBUTION FOR INCOME AFTER RETIREMENT

	Value	Frequency	Percent	Valid Percent	Cum Percent
7,999 or below	1	23	47.9	47.9	47.9
8,000 to 9,999	2	5	10.4	10.4	58.3
10,000 to 11,999	3	4	8.3	8.3	66.7
12,000 to 13,999	4	1	2.1	2.1	68.8
14,000 to 15,999	5	3	6.3	6.3	75.0
16,000 to 17,999	6	3	6.3	6.3	81.3
20,000 to 21,999	8	1	2.1	2.1	83.3
24,000 and above	10	8	16.7	16.7	100.0
TOTALS		48	100.0	100.0	

TABLE K6
 FREQUENCY DISTRIBUTION FOR SEX

	Value	Frequency	Percent	Valid Percent	Cum Percent
Female	1	36	75.0	75.0	75.0
Male	2	12	25.0	25.0	100.0
TOTALS		48	100.0	100.0	

TABLE K7
 FREQUENCY DISTRIBUTION FOR RACE

	Value	Frequency	Percent	Valid Percent	Cum Percent
White	1	47	97.9	97.9	97.9
American Indian	2	1	2.1	2.1	100.0
TOTALS		48	100.0	100.0	

TABLE K8
 FREQUENCY DISTRIBUTION FOR HEALTH

	Value	Frequency	Percent	Valid Percent	Cum Percent
Very poor	1	1	2.1	2.1	2.1
Poor	2	4	8.3	8.3	10.4
Fair	3	17	35.4	35.4	45.8
Good	4	18	37.5	37.5	83.3
Excellent	5	8	16.7	16.7	100.0
TOTALS		48	100.0	100.0	

TABLE K9
 FREQUENCY DISTRIBUTION FOR PHONE CALLS FROM FAMILY

	Value	Frequency	Percent	Valid Percent	Cum Percent
2-3 times per week	1	7	14.6	14.6	14.6
Once per week	2	5	10.4	10.4	25.0
2-3 times per month	3	7	14.6	14.6	39.6
Once per month	4	10	20.8	20.8	60.4
2-3 times per year	5	19	39.5	39.6	100.0
TOTALS		48	100.0	100.0	

TABLE K10

FREQUENCY DISTRIBUTION FOR PHONE CALLS FROM FRIENDS

	Value	Frequency	Percent	Valid Percent	Cum Percent
2-3 times per week	1	9	18.8	18.8	18.8
Once per week	2	4	8.3	8.3	27.1
2-3 times per month	3	2	4.2	4.2	31.3
Once per month	4	7	14.6	14.6	45.8
2-3 times per year	5	26	54.2	54.2	100.0
TOTALS		48	100.0	100.0	

TABLE K11

FREQUENCY DISTRIBUTION FOR VISITS FROM FAMILY

	Value	Frequency	Percent	Valid Percent	Cum Percent
2-3 times per week	1	16	33.3	33.3	33.3
Once per week	2	3	6.3	6.3	39.6
2-3 times per month	3	5	10.4	10.4	50.0
Once per month	4	12	25.0	25.0	75.0
2-3 times per year	5	12	25.0	25.0	100.0
TOTALS		48	100.0	100.0	

TABLE K12

FREQUENCY DISTRIBUTION FOR VISITS FROM FRIENDS

	Value	Frequency	Percent	Valid Percent	Cum Percent
2-3 times per week	1	8	16.7	16.7	16.7
Once per week	2	6	12.5	12.5	29.2
2-3 times per month	3	7	14.6	14.6	43.8
Once per month	4	3	6.3	6.3	50.0
2-3 times per year	5	24	50.0	50.0	100.0
TOTALS		48	100.0	100.0	

TABLE K13
 WITHIN CELL CORRELATION FOR PSYCHOLOGICAL STRESS

	Agitation	Attitude toward aging	Lonely dissatisfaction	Zung depression
Agitation	1.52			
Attitude toward own aging	.26	1.55		
Lonely dissatisfaction	.31	.31	1.38	
Zung self-rating depression	-.27	-.22	-.43	.09

TABLE K14

WITHIN CELL CORRELATION FOR PHYSICAL STRESS

	Symptom status	Physical functioning	Internal	Powerful others	Chance
Symptom status	.19				
Physical functioning	.26	.13			
Internal	.02	.13	6.02		
Powerful others	-.01	-.30	.39	6.51	
Chance	-.17	-.21	-.09	.21	7.4

TABLE K15
 CELL MEANS AND STANDARD DEVIATIONS FOR DUNC
 SYMPTOM STATUS AND PHYSICAL FUNCTIONING

Variable	Mean	Standard deviation	N
Symptom status factor			
Myocardial	.75	.21	22
Non-myocardial	.81	.17	26
Entire sample	.78	.19	48
Physical functioning factor			
Myocardial	.71	.15	22
Non-myocardial	.73	.12	26
Entire sample	.72	.13	48

TABLE K16
 CELL MEANS AND STANDARD DEVIATIONS FOR LIFE SATISFACTION
 AND THE ZUNG SELF-RATING DEPRESSION SCALE

Variable	Mean	Standard deviation	N
<u>Life Satisfaction Agitation Factor</u>			
Myocardial	4.36	1.65	22
Non-myocardial	4.50	1.40	26
Entire sample	4.44	1.50	48
<u>Life Satisfasction Attitude Toward Own Aging Factor</u>			
Myocardial	2.77	1.54	22
Non-myocardial	3.42	1.56	26
Entire sample	3.13	1.57	48
<u>Life Satisfaction Lonely Dissatisfaction Factor</u>			
Myocardial	5.05	1.00	22
Non-myocardial	4.77	1.63	26
Entire sample	4.90	1.37	48
<u>Zung Self-Rating Depression Scale Factor</u>			
Myocardial	.44	.09	22
Non-myocardial	.47	1.00	26
Entire sample	.45	.09	48

TABLE K17
 CELL MEANS AND STANDARD DEVIATIONS FOR MHLIC
 INTERNAL ITEMS, POWERFUL OTHER ITEMS AND
 CHANCE ITEMS

Variable	Mean	Standard deviation	N
Internal factor			
Myocardial	26.82	6.43	22
Non-myocardial	26.92	5.66	26
Entire sample	26.88	5.96	48
Powerful others factor			
Myocardial	25.18	6.03	22
Non-myocardial	23.54	6.88	26
Entire sample	24.29	6.49	48
Chance factor			
Myocardial	18.86	7.80	22
Non-myocardial	16.88	7.05	26
Entire sample	17.79	7.39	48

TABLE K18
 CELL MEANS AND STANDARD DEVIATIONS FOR CHILDREN, HEALTH,
 VISITS FROM FAMILY AND PHONE CALLS FROM FAMILY

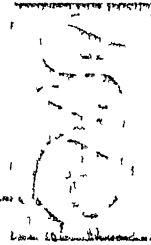
Variable	Mean	Standard deviation	N
Children factor			
Myocardial	2.18	1.33	22
Non-myocardial	2.50	2.06	26
Entire sample	2.35	1.76	48
Health factor			
Myocardial	3.23	.81	22
Non-myocardial	3.88	.95	26
Entire sample	3.58	.94	48
Visits from family factor*			
Myocardial	2.64	1.62	22
Non-myocardial	3.35	1.62	26
Entire sample	3.02	1.64	48
Phone calls from family factor*			
Myocardial	3.00	1.66	22
Non-myocardial	4.11	1.07	26
Entire sample	3.60	1.47	48

*Coded as follows 2-3 times a week = 1, once a week = 2, 2-3 times a month = 3, once a month = 4, 2-3 times a year = 5.

APPENDIX L

LETTERS OF COOPERATION

THE FOUNDATION FOR SENIOR CITIZENS, INC
NON PROFIT
OWNERS AND OPLPA OF



OFFICES 9720 Stuy Court
Oklahoma City, Oklahoma 73137
Telephone (405) 721 3656

July 13, 1983


Mr. Ron Johnson
Central State University
Edmond, Okla

Re: Letter of Cooperation

Mr. Johnson

We hereby give you permission to use our location, at Superbia Retirement Center, as one of the sites for your dissertation research. We do understand that the data gathered will be given full protection of confidentiality, and the anonymity of the elderly participants will be respected. We estimate that 12 elderly people will be available to you.

Sincerely,


J. Wayne Brazel
Activity Director

Edmond Senior Center

25 WEST THIRD

EDMOND OKLAHOMA 73034

PHONE 348 1963



OCTOBER 1 1982

TO: [REDACTED]

FROM: [REDACTED]

We hereby give you permission to use our Senior center as one of the sites for your study. We do understand that the data gathered will be given full protection of confidentiality and the anonymity of the elderly participants will be respected. We estimate that 100 elderly will be available to you.

Sincerely,

Fran Noble

Fran Noble

Senior Center Coordinator

VITA ✓

Ronnie Lee Johnson

Candidate for the Degree of

Doctor of Philosophy

Thesis BEHAVIORAL MEDICINE MULTIVARIATE ASPECTS OF STRESS AND
CARDIOVASCULAR DYSFUNCTIONS IN THE ELDERLY

Major Field Applied Behavioral Studies

Biographical

Personal Data Born in Chicago, Illinois, March 6, 1951, the son
of Dellia and Thaddeus Johnson, married Christy Johnson,
Daughter Rachell Johnson.

Education Graduated from Farragut High School, Chicago, Illinois,
in June, 1968, received a Bachelor of Arts degree from Biola
University in 1973, received a Master of Arts from Bethany
Nazarene College in May of 1975, received a Master's degree of
Education in July of 1975 from Central State University,
received a Master of Arts from Chapman College in 1978,
completed requirements for the Doctor of Philosophy degree at
Oklahoma State University in May, 1986.

Professional Experience Counselor, Bethany Nazarene College
1973-1975, Research Graduate Assistant, Central State
University 1975, Head Resident, Biola University 1976, Social
Science teacher, Brethren High School, 1977, employed by
Central State University Psychology Department 1977-present.