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Stressors, psychological distress and health services utilization among an elderly population

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STRESSORS, PSYCHOLOGICAL DISTRESS AND HEALTH SERVICES UTILIZATION AMONG AN ELDERLY POPULATION

by

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for the degree of Doctor of Philosophy

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Abstract

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Although there have been a number of studies linking both stressors and psychological distress to the demand for health services, few studies have examined this relationship among the aged. This issue is important, however, partly because it has been suggested that psychological distress resulting from stressors might cause some individuals to seek unneeded medical care. The financial impact of the aged seeking unneeded care on Medicare is thus a matter of public concern. This study explores the relationship between stressors, psychological distress and health services utilization among a random sample (N=490) of Medicare enrollees aged 65 and over in Cuyahoga County. More specifically, this study examines four hypotheses: (1) Higher levels of stressors will be associated with higher levels of utilization of health services when controlling for demographics, self

assessed health and perceived socsupport (2) Higher levels of stressors will be associated with higher levels of psychological distress when controlling for demographics, self assessed health and perceived social support, and (3) Higher levels of psychological distress will be associated with a higher levels of utilization of health services when controlling for demographics, self assessed health and perceived social support. The findings indicate that there is not a direct relationship between stressors and utilization of health services when controlling for demographics, self assessed health and perceived social support. However there is support for a direct relationship between stressors and psychological distress when controlling for demographics self assessed health and perceived social support. There is also support for a direct relationship between psychological distress and utilization of health services when controlling for demographics, self assessed health and perceived social support. Thus, the elderly experiencing life situations or changes with which they have difficulty coping become emotionally distressed. Elderly females are more likely than the males to become distressed from the life situations or changes. Also, those elderly experiencing higher levels of psychological distress, are more likely to use more health services than those experiencing lower levels of psychological distress.

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Chapter I

INTRODUCTION

Although there have been a number of studies linking stressors and psychological distress to the demand for medical services, few studies have examined this relationship among the elderly. This issue is important, however, partly because it has been suggested that psychological distress (i.e, subclinical depression and anxiety) resulting from psychosocial stressors might cause many elderly persons to seek unneeded medical care. The financial impact of the aged seeking unneeded care on Medicare is thus a matter of public concern.

The purpose of this study is to determine whether stressors (i.e.,life events and hassles) and psychological distress (i.e., depression and anxiety) affect the use of medical services among the elderly. The elderly were selected as the target group because they have rarely been included in studies of stress and health despite their vulnerability to major life events (e.g, widowhood, retirement, change of residence, declining health and loss of loved ones). Research indicates that the elderly may also experience more daily strains or hassles from neighborhood deterioration, limitations of chronic disease,

decreased mobility and economic constraints. The effects of these problems on psychological distress and in turn on utilization of medical services are areas of study that can help clarify issues affecting the quality of life of older Americans. Because the elderly have rarely been included in studies of stress and health, little is known regarding the effects of psychosocial factors and psychological distress on their illness level and illness behavior. Research suggests that loss is a major life event (change) which produces stress, and losses inevitably increase with age. Life events and daily hassles are frequently associated with decreased levels of physical and emotional well-being. Due to the amount of losses experienced by the elderly, they are at relatively high risk for developing affective disorders, including anxiety and depression. Moreover, it is well documented that psychological distress is associated with higher levels of utilization, thus the elderly may be prone to use their primary care physicians for emotional distress needs. To the extent that psychologically distressed persons seek general medical care in the absence of serious medical problems, such use may be inappropriate. As a result, the cost of medical care, due to psychological distress, could far exceed costs of mental health care due to psychological distress. Therefore, it is particularly important that the role of psychosocial stressor and psychological distress in the demand for medical care be

analyzed. Further, any impact that distress might have on the aged's demand for medical services will have important consequences both for the provision and financing of appropriate services to the aged. Research indicates that physicians spend a high proportion of their practice treating psychologically distressed individuals, even though the treatment may not necessarily be directed toward the distress. The costs of medical care are very high, relative to the costs of mental health services. Therefore, understanding the relationship between psychosocial stressors, psychological distress, and utilization of health services; along with other variables hypothesized to influence this relationship can further explicate the processual links that affect older peoples' well being. These considerations lead to the following research questions:

1) What are the effects of stressors on utilization of health services among the elderly?

2) What are the effects of stressors on psychological distress?

3) What are the effects of psychological distress on utilization of health services?

The answers to the aforementioned research questions are significant for a number of reasons: First, answers to these questions may enhance the explanatory power of current models in use. Developing better

models of the factors influencing individual response to symptoms will contribute to better health planning processes for the general public as well as for the elderly. Secondly, if psychological distress is a contributing factor in health services utilization among the elderly, mental health services may be more appropriate than primary care services. Thus, mental health counseling may reduce the demand for more costly medical services. Finally, if the elderly physical complaints are psychosocial in origin, attention to these causative factors may eliminate a search for a biological cause of the physical symptoms, which is often expensive and time consuming, thus contributing to the well-being of the elderly.

This dissertation is organized in the following manner: Chapter I contains the introduction and the overview and statement of the problem. Chapter II reviews the literature on stressors, psychological distress and utilization of health services. The various models and approaches used in understanding the use of health services is also presented in this chapter. Chapter III contains the hypotheses, methods, research design, sample, operational definitions and the validity and reliability of the measurements. Chapter IV contains the analysis of the

study variables. Chapter V contains the results and interpretation of the data analyses. Chapter VI contains implications, limitations and suggestions for future research.

OVERVIEW AND STATEMENT OF THE PROBLEM

Utilization of health services by the aged is a national issue, and planning health care services for the elderly will be a major challenge of the upcoming decades. During the course of the 1980's, considerable attention has been given to health care utilization patterns among older adults, because they use more health care than other adults and contribute disproportionately to medical care expenditures (Hulka & Wheat, 1985; Hansell et al.,1991). Although currently comprising approximately 12 percent of the population, the elderly occupy about one-third of all hospital beds and account for one fourth of the total health care expenditures in this country (Monk et al., 1990).

As the number of elderly and their proportion in the population increases, it is expected that their disproportionate consumption of health services will increase as well. It is estimated that health care cost will dominate the gross national product and that the nation will have few discretionary resources to tend to other pressing needs/concerns. Such projections have created much concern among health care providers and administrators because older adults comprise the largest single group of consumers of health care services.

The rising cost of social and health services, particularly among the elderly, emphasizes the importance of understanding the factors that

influence health services utilization. Because the majority of elderly persons depend on Medicare to pay for their health care, it is important that the factors affecting the demand for physician services among the aged be understood. Moreover, better understanding of the predictors of health services utilization patterns among the elderly is necessary for setting rates for Medicare reimbursement policy (Freeborn et al.,1990). Although a great deal is known about the volume and cost of health services used by the elderly, it is quite apparent that our understanding regarding factors that influence utilization of health services by older persons remains limited (Krause,1988). According to Haug (1981), the reason why it has been difficult to forecast utilization is because prior studies of health behavior fail to differentiate the reason for physician visits.

Numerous types of broad initiatives have been undertaken to help alleviate this concern. These initiatives have ranged from modification of the Medicare system (such as the introduction of the prospective payment system for hospital services) to encouraging older persons to enroll in Health Maintenance Organizations (HMOs), which have a greater interest in and financial incentive to support health promotion, illness prevention, utilization review, and coordination of health care services (Krause, 1988).

Demographic trends. It is quite apparent that life expectancy is steadily increasing and that the proportion of older adults relative to the total population is also expanding. Approximately 31 million Americans who are 65 or older constitute 12% of the national population. In just 22 years, the first members of the large baby boom will begin turning 65, ushering in an era of intense change. By 2025, the number of elderly will increase to 60 million, and one of every five Americans will be 65 or older. Those who will be among the elderly in 2025 will have more years of life ahead of them than do their counterparts today. By then, projected life expectancy at age 65 will extend at least 2 years beyond what it is for contemporary 65-year-olds. For some, these added years will be mostly healthy and active; for others the years will be a burden of ill health and functional impairment (Morrison, 1990). The increasing number of survivors age 75 is currently an important demographic issue. Between 1960 and 1970 this population grew at a pace three times as great as the 65-74 cohort. By year 2030, it is estimated that approximately 10 percent of the total population will be in this age group. Moreover, the population that is 85 years and older constitute today about 1 percent of the total population, some 2.2 million. It is estimated that this age cohort will increase fourfold by 2030, thus comprising 4 percent of the projected population (Monk, et al., 1990).

Statistics like these have heightened public awareness of population aging as a national phenomenon.

Research indicates that women outlive men and more older persons, regardless of gender, are living alone. In 1950, one in every seven lived alone; 30 years later, the percentage doubled to nearly 30 percent, or approximately one in three. The 30 percent who live alone are chiefly women, or a total of 8 million in 1982, compared to 14% of the older men living alone. Of those 75 years and over, 50 percent of the women and about 20 percent of the men live alone (U.S. Bureau of Census, 1982,1983) and very few live in multigenerational households. It is well documented that individuals living alone use more health services than those who are married or living with a family member.

Because older age is associated with higher rates of illnesses and disabilities, the increasing numbers of very old people is expected to lead to substantial increases in multiple chronic conditions and disability rates (Monk et al., 1990). The Health Interview Survey of 1981 confirmed that the mean number of bed-disability days per year was 11.5 for the 65-74 cohort (National Center for Health Statistics, 1981). For the 75 and older group the average climbed by 70 percent to 18 days. The use of hospital services also increased with age. Discharge rates for persons over 85 years of age are 77 percent higher than for the 65-74 age

cohort.

To summarize, the number and proportion of older persons in the American population are continuing to rise and more elderly persons are living alone. Most of these individuals will depend on Medicare to pay for their health care. Thus, there is great concern that American health care resources will be increasingly strained in future decades.

Health Needs and Patterns of Elderly. Older persons double or nearly double the rates of chronic conditions afflicting the adults 45 to 64 years of age. In the case of arthritis, it is 443 per thousand people 65 and over, as compared to 253 people 45 to 64. A similar pattern is seen with heart disease (274 versus 128 per thousand), visual impairment (118 versus 58); diabetes (80 versus 58), and hypertension (385 versus 214 per thousand) (National Center for Health Statistics, National Ambulatory Medical Care Survey, 1981).

Older adults have higher rates of physician contact. They have a greater reliance on direct contact with their physicians but rate below the total population in their utilization of hospital outpatient services. However, they use inpatient hospital services with greater frequency than other age cohorts. According to Granick and Short (1985), persons aged 65-79 spent on the average almost 11 days in short term hospitals, a 30 percent increase over the 8.4 days for those 40-64 years of age.

Older adults have higher average number of diagnoses (3.1 versus 2.5), and fewer surgical procedures are performed on this group (41.5 versus 52.2).

Three times as many elderly as the middle agers 40-64 years of age are discharged from the hospital to another health facility, rather than to their homes in the community (6.3 percent versus 1.7 percent). Elderly have lower rates of admission to both inpatient and outpatient mental health services than virtually any other age group. Seemingly, the elderly use their primary care physicians rather than psychiatrists, social workers or other professionals for their mental health needs. Blixen supports this notion based upon findings from the National Medical Care Survey (NAMCS) as well as on mental health visits to hospital clinics and emergency rooms in New York City during a three month period in 1984. She observed that almost half of all visits to a physician resulting in a mental disorder diagnosis were to non-psychiatrists. Similarly, she documented that elderly persons are the lowest ranking consumers of mental health services (cited in Monk, 1990). However, older adults tend to use more intensive specialized psychiatric clinics than general medical clinics. Blixen contends that the higher use of specialized mental health clinics among the elderly may simply be the outcome of "prevailing clinical referral practices". In short, once the tranquilizers and anti-

depressants prescribed by primary care physicians prove to be ineffectual, physicians have no other recourse but to refer individuals to more specialized settings. Another explanation is that the elderly are creatures of habit and when afforded the opportunity, they would return for all their needs,including the mental health ones,to the general hospital's outpatient clinics and emergency rooms (Monk et al.,1990).

Determinants of health services utilization. There is an extensive literature dealing with sociocultural, organizational and psychosocial factors affecting the lay definition of illness and the decision to use services. Factors such as ethnicity, household structure, values and attitudes, learned inclinations, informal influences, social distances, access to medical care and situational stress have been identified as playing a role in the decision to use health services (cited in Mechanic, 1979). In contrast, multivariate studies comprised of large samples and powerful statistical techniques find such factors, to the extent that they are included, insignificant as determinants of medical care use in the general population as well as among the elderly population (Andersen and Newman,1973; Mechanic, 1979).

Determinants of medical care use among the elderly have not been widely studied. Although few longitudinal studies of the elderly have been conducted, cross-sectional studies are more common in attempts

to identify the determinants of utilization among the elderly. Several findings from these studies are noteworthy. First, health status appears to be more important in explaining utilization than is access to medical care (Wan, 1982; Hansell et al., 1991) a finding that is similar to patterns found in younger populations. Also, as elders become widowed or live alone, their health care service is also affected (cited in Coulton and Frost, 1982). Research by Haug (1981) suggests that being married was the strongest predictor of under-utilization of medical care for serious health problems in persons over 60 (problems for which contacting a doctor is usually recommended).

Some researchers suspect that a good deal of the medical care use by the elderly involves either nonserious complaints or complaints arising from psychological distress (Krause, 1988). General practitioners have long recognized that a significant proportion of complaints presented by the elderly patients are psychological in origin. Moreover, researchers are becoming increasingly aware that older adults are especially likely to express their psychological problems in physiological terms (cited in George, 1989). However the precise mechanisms linking their psychosocial problems with increased health care use remain unclear. Although there is evidence suggesting that elderly persons tend to translate psychological distress into physical symptoms, data on the

use of social services indicate that elderly people are less likely to be referred for psychological services than are younger people with similar levels of psychic distress (cited in Coulton & Frost, 1982).

High versus low users. Research indicates that not all elderly persons are high consumers of health services and that a relatively small proportion use a high percentage of both inpatient and outpatient care. The majority use approximately the same number of services as younger individuals. The literature suggests that there are consistently high and low users of health services. Consistent high users appear to be older than low users and females. They report more total medical conditions and are more likely to make visits to primary care physicians for follow-up, chronic diseases, depression and anxiety. They have significantly more medical needs, tend to rate their health as poor and ambulatory care costs are usually higher. In a study conducted by Freeborn et al., (1990), the average ambulatory care costs were more than four times greater for the high users compared with the low users. Research by Haug (1981) indicated that the most important factor distinguishing high utilizers for both symptomatic and asymptomatic ailments was a chronic condition.

Ross and Shapiro (1981) found that less than one-third of the elderly respondents in their Canadian National Survey accounted for

almost three quarters (71%) of all physician visits among older adults (cited in Freeborn, 1990). McCall and Wan (1983) analyzed the utilization patterns of a medicare group that was continuously enrolled in the program for a four year period. Similarly, they found that 18% of the beneficiaries accounted for 80% of the cost of services delivered. Consistently high, as well as low users were found in these groups, which matches with other studies in non-elderly populations. In a study by Anderson and Knickman (1984) a small minority of an aged population continued to utilize outpatient medical services over an extended period. Research by Lin et al., (1985) suggests that patients with somatization are high users of health care services and represent a major burden for the health care system. They account for 50 percent of ambulatory care cost in the United States. Lin and associates (1985) write "Somatization is characterized by expression of personal and social distress in an idiom of bodily complaints and medical help-seeking". Individuals with somatization may have no detectable disease or may amplify existing physiologic changes. It has been estimated that 30 to 80 percent of patient visits to primary care clinics have a psychosomatic origin (Katon, Ries, & Kleinman, 1984).

In summary, the few existing studies on the elderly population indicate that a minority of the elderly account for a significant proportion of all

physicians' visits, medical procedures and hospital days. These individuals appear to be older females with significantly more health problems, and suffering from more depression and anxiety.

Chapter II

LITERATURE REVIEW

There is no consensus among researchers as to how stress should be conceptualized or measured. Stress in its broadest term is a condition that challenges or threatens personal well-being (George, 1989; House & Robbins, 1983; Edward & Cooper, 1988). Much of the stress-health literature is weakened by the reliance, for a stress measure, on stressful life events, accepting the thesis that any change is stressful, whether on-time, off time, welcomed or rejected. In some circles life events inappropriately have become a metaphor for stress research.

Types of stresses. A review of the literature suggests that there are three types of stresses, **life events, hassles** and **chronic stresses** (Pearlin,1989). Life events (LE) are identifiable discrete changes in life patterns that disrupt usual behaviors and can threaten or challenge individuals' physical and psychological well-being (e.g., divorce, major illness, permanent cut in income etc.) LE vary widely in intensity and importance. The available literature is vague regarding the expected duration of life events. Most life events measures inquire about events experienced during the recent past because recent stress is expected to be most relevant to current well-being.

Life events have occupied by far the most research attention in

the past 20 years. There are primarily three reasons for the surge of life events research in the past two decades. First, the pioneering work of Hans Selye (1956) provided the needed theoretical foundation for life events research. Second, in response to the theoretical framework espoused by Selye a method was developed to assess the magnitude of eventful change experienced by individuals. Third, interest in research into life events was spurred by its early success in showing relationships between scope of eventful change and various indicators of health (Pearlin, 1989). Thus, Pearlin contends that stress researchers who attempted to identify and measure stressors found a theory to stimulate their work, a method by which to carry it out, and empirical results as a reward for their efforts.

The Holmes and Rahe (1967) Life Event Scale has served primarily as the operational model for measuring life events for the past 20 years. The Holmes and Rahe scale fits a biogenic model of illness onset, developed by Meyer in which the greater the magnitude of expected adjustment to events (life change units) the more likely that subsequent illness will be observed. According to Holmes and Masuda (1974) life change events, evoke adaptive efforts by the organism. The adaptive efforts evoked are faulty in kind and duration and lower "bodily resistance and enhance the probability of disease occurrence". The

preliminary application of this scale in diverse contexts indicated that the assessment of life-change units could be used to account for subsequent illness (Lin et at.,1986).

Although the predominant approach to stress measurement continues to involve the administration of life events lists based on the original work of Holmes and Rahe, several important questions concerning the adequacy of this conceptualization of stress have been raised. One such question is whether measuring stress primarily in terms of major life events has led to a relative inattention to other types of stressors, such as more minor but more common life events or relative unchanging life conditions such as being unemployed. These latter types of stressors are not directly assessed with existing life events measures. It may be that long-term or chronic stressors give rise to acute life changes (e.g., divorce or job loss) or to relatively minor everyday stress (e.g., arguments with spouse). Alternatively, minor daily stresses may represent a qualitatively different type of stress from either long-term life conditions or major life changes in terms of their origins or their effects on health or health-related behaviors. The question of the relative dependence or independence of different types of stressors and their relative impact on health outcomes, including the utilization of health services, therefore becomes an important theoretical consideration. The

most persistent criticism of the Holmes and Rahe scale revolves around the definitional assertion that events are related to the onset of illness regardless of their desirability. Weinberger and colleagues (1986) have shown that life events, viewed as negatives, affected self-assessed health among a sample of elderly public housing tenants. Conversely, McFarlane and colleagues (1983) note that the effect of life events (changes) on psychological distress was not limited to events considered negative in a sample of patients. Despite these differences, life events (changes) however poorly measured, cannot be ignored, particularly among the elderly who may suffer many such changes.

Hassles are defined as "irritating, frustrating, distressing demands and troubled relationships that plague us day in and day out" (Lazarus & Delongis 1983). Hassles are considered to be long-term or ongoing sources of stress lacking in the intensity and discrete occurrence of the LE and chronic stressors. Thus, they represent a relatively low-intensity transaction with environment (e.g., misplacing things, traffic, neighborhood running down and annoying neighbors). They are the most commonly experienced stressors and the least studied.

Current research tends to be dominated by an instrument "Hassles Scale" developed by Lazarus & colleagues (Lazarus & Folkman, 1984; Dohrenwend, 1984). Holmes and Holmes (1970) contend that hassles

are associated with minor complaints including the common cold. According to Lazarus and Folkman (1984), day to day hassles correlate with the physical and emotional well-being of middle-aged men and women. Hassles by definition are intended to represent a subjective assessment of daily frustrations. The limited research based on measures of daily hassles reveals no attention to the issue of objective versus subjective assessment. Within the field of Gerontology, there has been little interest in microlevel stressors until comparatively recently. Chronic stressors refer to long term conditions that challenge or threaten personal well-being (e.g., work stress, financial deprivation and interpersonal and role strains). The very number and diversity of this type of stressor and the formidable measurement problems that they entail are among the reasons why life event inventories, by comparison, are so inviting a research tool (Pearlin, 1989). Chronic stressors are of longer duration than life events and vary in intensity. The available literature provides no guidelines regarding the length of time required for a stressor to qualify as chronic. Studies of chronic stressors in older populations have been found to predict physical, mental and social dysfunctions such as coronary heart disease (Markides & Cooper, 1989) general psychiatric symptomatology (Chiriboga, 1984) and depression. Both life events and hassles will be utilized in this study, but chronic

stressors will be omitted due to their imprecise measurement

Objective versus subjective. Researchers differ in the extent to which stress is viewed as an objective condition external to the individual versus the degree to which it is conceptualized as a subjective evaluation of life circumstances (George 1989; House, 1981). Some investigators view stress as an external condition, as a life situation that is by definition stressful. This perspective has been characteristic of the traditional life event checklist. For these investigators, the more life changes individuals experience, the more likely their coping or resistance resources will be overtaxed and illness will follow. In other words, life events equal stress and no life event equals no stress.

Other investigators believe that stress is a subjective state and that the same life event may or may not be stressful depending upon its meaning for the individual. From this perspective, subjective evaluations of life events are a necessary component of stress assessment. Examples of the kinds of subjective assessments obtained include ratings of desirability (i.e. positive vs negative) of the stressful experience. Support for these competing perspectives has been mixed. The proposed study utilizes the objective assessment of stress approach which implies that the essence of stress is disruptive of usual behavior patterns, thus taxing individual adaptive resources. It does not matter whether the

change is desirable or undesirable, normative, expected or unexpected.

Aggregate vs single-stressors. Researchers also differ in the extent to which they focus upon aggregate levels of stress versus the effects of single, specific stressful experience. Thus the literature includes studies based on summary scores of the number of Life Events experienced by respondents in the recent past, and studies that examine the effects of one specific type of stressor (e.g., widowhood, divorce).

There is considerable debate in the literature regarding the advisability of these approaches (George,1989). Aggregate and single-stressors studies are designed to answer distinct and equally meaningful questions. Studies using aggregate stress measures are designed to investigate the effects of cumulative stress on personal well being, whereas studies based on the examination of a single stressor are designed to depict the consequences of a specific kind of stressful experience.

Although both approaches can lead to information about the consequences of stress, both approaches have methodological concerns. Researchers using the aggregate approach must be aware that ignoring the nature of specific stresses experienced by individuals may mask underlying patterns. For example, some of the stresses that have been aggregated may be important for physical health outcomes whereas

others may be relevant only to mental health outcomes. Single-stressor studies should take into consideration other types of stresses that are not of immediate interest to the investigators. For example, studies of widowhood should take into consideration measures of other sources of stress so that the effects of widowhood are distinguished from those of other stressors (George, 1989).

The proposed study utilizes the aggregate level of stress approach primarily because this researcher is interested in the effects of cumulative stress in relationship to psychological distress and health services utilization. Similarly, aggregate measures of hassles will be utilized and single summary scores will be generated for both types of stressors. Few studies have attempted to examine more than one type of stressor at a time, and those that have were concerned mainly with the impact of stress on psychological symptoms (Gortmaker & Eckenrode, 1982).

STRESS AND THE ELDERLY

Stress and the elderly. While much research has been generated around the issue of stress and illness, little research has dealt specifically with the effects of life event (change) on the elderly's illness level and illness behavior, yet this group experiences life changes of considerable magnitude (e.g., widowhood, retirement, and change of residence). A

study by Pearlin and associates (1981) suggest that older persons interpret physical and mental ailments as normal concomitant of the aging process, and resign themselves to conditions that could actually be reversed. They tend to confide in their physicians, relatives and friends and other professionals about physical symptoms, but conceal, or withhold information regarding emotional concerns. They also believe that the practitioners are not really interested in elderly patients and that a sense of futility prevails regarding curing, recovering and restoring of functioning. There is evidence that older adults report fewer stressful experiences than younger adults, older adults are more vulnerable to the effects of the stressors that confront them, and they experience greater unhappiness and more intrusion on their lives as a result of life events (Chiriboga & Dean, 1978; Lazarus and Delongis, 1983). Perhaps one reason for these findings is that feelings of self-mastery decline with age, and it is possible that social as well as biological factors combine to make older adults feel less in control of the events in their lives (Krause, 1988). They may also be more vulnerable because they lack the structure of a daily work routine and the supportive social networks associated with employment (Mumford et al., 1984). Limited information is available concerning age differences in experience of daily hassles.

Pearlin and associates (1981) address loss as one of the major life

circumstances that produce stress, and losses inevitably increase as one age. Declining health, loss of vigor, and the loss of the ability to perform activities of daily living adds to the daily stresses and strains encountered by older adults. Displacement from roles and statuses increases with age as well, leaving a vacuum in the lives of many older adults, which could lead to feelings of alienation and a sense of worthlessness. Bodily changes also occur with age, one does less than he/she once did and with greater effort (cited in Wykle, Kahana, & Kowal, 1992). Research indicates that many older adults may have special mental health needs resulting from emotionally distressing life events (e.g., declining health, and loss of loved ones), chronic illnesses and disabilities, being victims of crimes and having to relocate (Wykle, Kahana & Kowal, 1992). Consequently, the elderly are at relatively high risk for developing affective disorders including depression and anxiety. The 1975 Harris Poll Survey showed that 8% of respondents 65 and older reported that they have no close person to talk to compared with 5% of respondents under 65. Such losses may lead to feelings of depression and anxiety which are often translated into physical symptoms, thus leading to medical visits (Waxman, 1983).

In short, aging brings loss with it, and loss can be very stressful. Thus, the older adults are a very vulnerable population in our society.

This vulnerability is manifested in increased psychological distress, physical illness and increased health services utilization.

PSYCHOLOGICAL DISTRESS

Psychological distress is defined as the intensity of negative affective states, chiefly depression and anxiety, and loss of emotional and behavioral control (Manning et al.,1987). Psychological distress is presumably one of the major links by which environmental "stressors" result in physical disorder (Aneshensel et al., 1984). The proposed study utilizes depression and anxiety as indicators of psychological distress. The decision to focus on depression and anxiety in this study versus other psychiatric disorders rests on the fact that most studies based on specific psychiatric conditions focused on depression and anxiety, especially samples of older adults. Additionally, the effects of stress appears to be stronger for depression than for other kinds of psychiatric disorders (Wheaton, 1983; Cronkite and Moos, 1984; Kessler and McLeod, 1985). Surveys indicated that most elderly persons suffering from depression are not receiving any formal psychiatric treatment. Roughly 15% of the elderly are depressed, and 2 to 3 percent are severely depressed. More than three-quarters responded well to therapy (Mumford,1984).

Depression is usually conceptualized in the literature in primarily

two ways: as depressed moods (e.g., large number of depressive symptoms) and as psychiatric disorders that meet conventional diagnostic criteria (e.g., major depressive disorder) (Ross & Mirowsky, 1984; George, 1989). Most research conducted by social scientists focuses on depressed mood and uses measures of depressive symptomatology. Among the measures most commonly use are the CES-D (Center for Epidemiologic Studies-Depression Scale) (Radloff, 1977) the Zung Self-Rating Depression Scale (George, 1989) and the Health and Daily Living Form. The above symptom scales cover the entire range of depressive symptomatology and the measures are based on a continuous metric appropriate for use with a broad range for statistical techniques. As with most measurement scales, there are some disadvantages. The aforementioned scales do not measure depression in ways compatible with conventional diagnostic criteria (e.g., clinical depression) and the validity of the symptom scale remains rather vague (George, 1989).

Anxiety refers to the experience of fear in the absence of any objectively noticeable fear stimuli. It is characterized by cognitive apprehension, neurophysiological arousal, and a subjective experience of tension or nervousness (Salzman, 1990 & Turnbull, 1989). Among the elderly, normal stresses of old age, the loss of friends and loved ones,

poor health, problems in the environment and apprehension about the future may lead to anxiety. Survey data suggest that 10% to 20% of elderly patients, especially women, experience significant anxiety, but anxiety disorders have received less attention than other syndromes until recently (cited in Wykle & Musil, 1993). However, in the elderly, anxiety symptoms are usually mixed with symptoms of depression (Salzman, 1990). The contribution of anxiety to the development and maintenance of a variety of somatic symptoms is frequently overlooked during the diagnostic workup. Anxiety may lead to chronic and exaggerated effects involving the secretion, mobility, and vascularity of various organs (Turnbull, 1989). According to Turnbull (1989), anxiety about disrupted relationships is common among chronically ill persons who fear that they will become unacceptable to those who are close to them, thus losing their company. There is evidence which suggests that therapy can help the elderly face threats (if the threats are actual), rationally and realistically.

STRESS AND PHYSICAL HEALTH

The effects of stress on health has been documented by numerous researchers, specifically in terms of stress and its relationship to disease. The research findings dealing with stress and illness are voluminous, comprehensive, and broadly published (Warheit, 1979). Kasl (1984) in

a review of the stress literature reports on conditions such as peptic ulcers, infarcts, and Crohn's disease which are commonly associated with stress. Most stress investigators conceptualize stress as a stimulus, thus triggering very active research on possible connections between stress and bodily illness. For example, Meyer argued that certain life events (changes), such as changes of habitat, births, deaths, and new jobs affect the balance between health and illness (cited in Markides & Cooper, 1989). Holmes and Rahe (1967) examined this view in a series of studies geared to determine whether changes in a person's life could be statistically correlated to illness. The psychosomatic medicine movement has long before associated certain internal psychological conflict with predispositions to particular diseases (e.g.,asthma,ulcers,ulcerative colitis) (Vingerhoet & Marcelissen, 1988). Cassell (1976) suggests that psychosocial processes, acting as conditional stressors, increase the susceptibility of the organism to noxious stimuli by altering the endocrine balance in the body and thus enhancing susceptibility to disease in general.

The life event research model hypothesized that it is possible to make predictions about stress and susceptibility to a much wider array of diseases (infectious, neoplastic, autoimmune) by determining the magnitude of critical life changes taking place within a limited span of

time. Rahe writes:

> These psychophysiological studies indicate that naturally occurring and experimentally induced life situations, which threaten the security of the individual and evoke significant alterations in the functions of most bodily tissues, organs, and systems. These physiological changes in turn will lead to lowering of body's resistance to disease. The greater the magnitude of such life changes, the greater the risk of acquiring an illness of a serious nature (Holmes and Rahe, 1967).

Utilizing the Social Readjustment Rating Scale, Holmes and Rahe (1967) were able to determine the temporal relationship between a clustering of life events and the onset and severity of illness. They discovered a strong relationship between major health changes and life crises, the latter defined as an accumulation of at least 150 life change units (LCU's) during a period of one year. Meyers and Haggerty contend that stress has been implicated in the causation of illness, and in heightening symptom sensitivity, thus exhibiting an indirect effect on utilization (cited in Creed, 1985). The experience of major life events, such as widowhood or change in residence has been associated with increased morbidity and mortality among the aged (Cutrona & Russell, 1986). Similarly, Curtona & Russell (1986) found that the experience of more

minor "daily hassles" by the elderly was negatively related to measures of physical health and morale.

Parkes et al., demonstrated that mortality among widowers over 55 years of age was raised by 40% during the six months following bereavement, but not thereafter. The commonest causes of death were myocardial infarction and other complications of Atherosclerosis (cited in Creed, 1985). Clayton found no clear relationship between bereavement and mortality (cited in Creed, 1985). Helsing (1981) found that mortality among widowers, in certain age groups only, was increased for 12 years.

To summarize, stress is conceptualized by most researchers as a stimulus. This notion of stress as a stimulus has generated much research on the connection between stress and illness. Thus stress has been implicated in the causation of illness, thus exhibiting an indirect effect on use of health services.

STRESS AND HEALTH SERVICES UTILIZATION

Research suggests that increased life stress is associated with greater use of medical care services. Several studies have documented that persons undergoing stress tend to use more health services. In a study by Gortmaker et al., (1982), their finding that daily stresses and life events variables each had an independent effect on utilization

suggests that these measures tapped qualitatively different types of stress. Moreover, it is likely that the processes linking daily stress to utilization of services are somewhat different from those accounting for the relationship between major life events (i.e., death of a spouse) which may represent a major change in a person's social network and support system, leading to changes in health status. Daily stresses on the other hand, may influence utilization through their effect on the person's or household's daily routines or on transient psychological states or moods (Gortmaker et al., 1982). Roghmann and Haggerty (cited in Gortmaker & Eckenrode, 1982) showed that increased utilization of certain types of services was associated with minor, every day stresses. Research by Krause (1988) indicated that stress affects the utilization of family health services even when the influence of a variety of other background variables were controlled. Among the background variables, the measure of life events was one of the best predictors of future utilization. The effect of daily stresses, although not as strong as the effect of the symptoms variable was significant and influenced utilization more than other variables measured on a daily basis. These studies provide evidence for a direct relationship between stress and utilization of services. Other researchers have documented an indirect relationship between stressors and utilization of services. These researchers argue

instead that stressful life events appear to lead to increased use of health services when the elderly person is particularly vulnerable due to a low level of social support. This suggests that social support serves as an important coping resource to older persons which in turn enables them to cope with stressful life events without resorting to entering the medical care system for assistance. This consistent finding clearly suggest that both life events and social support should be included in studies of the elderly's use of medical care services. Additionally, the results of the study also suggest that older persons with less social support may be turning to physicians not only for assistance with medical problems but also with psychosocial issues as well.

Most of the research on the influence of life stress on the decision to seek medical care has been done with members of the general population, especially children (Gortmaker,Eckenrode,and Gore, 1992). Perhaps more important is that none of these researchers examined the role of coping resources in this process. Thus, it is not surprising that results have been mixed, with some studies finding that stress leads to increased physician use, whereas others have been unable to find a significant effect.

To summarize, there is documented evidence for both direct and indirect effects of stress on utilization. Additionally, a more

comprehensive analysis of the effects of stress on utilization also requires a consideration of other factors known to influence coping resources, i.e., social support.

STRESS AND PSYCHOLOGICAL DISTRESS

Many studies have documented the relationship between stress and depression in the context of multivariate models. The evidence is generally consistent, stress is robustly related to depression. This conclusion applies to studies based on samples of adults of all ages, specifically older adults (Cronkite & Moos, 1984). Despite such evidence, however, the major current models of health services utilization have not explicitly included stress as a determinant. It is for this reason that stressful life events assumed a primary role in the present study. Norris and Murrell (1987) have shown that depression follows undesirable life events among a sample of elderly, but do not evaluate the effect of the psychological problem on physical illness. Most investigators expect stress to have significant direct effects on depression, with higher levels of stress increasing the risk of depression. Research has also indicated that the number of recent stressful life events reported by elderly persons is predictive of deterioration in mental functioning.

There is evidence to suggest that the three types of stressors (life

events, hassles, and chronic stressors) differ in the size of their effect on depression. For example, several studies suggest that chronic stress has stronger effects on depression than life events. A number of studies concluded that daily hassles are more strongly related to depression than are life events. These studies are also based on adults of all ages. A study conducted by Holanhan et al., (1984) based on a sample of older adults reached the same conclusions. Similarly, Kanner et al., (1980) in an investigation of different stress experiences on psychological health found that a measure of "daily hassles" was a more powerful predictor of psychological symptoms in adults than previous stressful life events. The findings suggested that daily events (hassles) may have reflected the effects of more major life events. The conclusion of this study suggests that stressful life events did not contribute significantly to explaining variations in psychological symptoms when other types of stress measures were considered. Studies by Kanner and associates (1980) show the need for the inclusion of diverse measure of stress within the same study.

PSYCHOLOGICAL DISTRESS AND HEALTH SERVICES UTILIZATION

Recently, a number of studies have linked psychological distress to the demand for physician services. For example, the relationship between distress and increased use of general medical services has been

found in studies that used direct measures of psychological distress, studies that measured distress by use of psychiatric or mental health services, studies that used psychiatric diagnoses based on entries in the chart and studies that related illness with emotional components and use of services for other illness (Thoits, 1982; Tessler et al., 1976; & Waxman 1983). Although there have been numerous studies of the use of physician services among the aged, the extent to which either psychological distress or diagnosable mental disorder affects the aged's demand for medical care is not clear from existing data. Few studies have examined the link between distress and demand for services among the elderly. There is considerable research supporting the hypothesis that psychologically distressed persons disproportionately use medical care services and report more symptoms (Waxman, 1980; & Tessler et al., 1976). These studies have their limitations, such as: confounding measures of psychological distress with measures of utilization, not examining the influence of distress in conjunction with a wide variety of other variables describing personal inclination, iliness, and most studies have been retrospective rather than prospective. Nevertheless, these studies have shown that psychological distress is associated with higher levels of utilization. Thus, there appears to be some validity regarding this relationship. However, there are diverse interpretations of the

identified relationship between psychological distress and utilization (Tessler et al., 1976).

One possible explanation for the diverse interpretation is that psychological distress is a causal factor in illness and that higher levels of illness among the distressed accounts for the commonly observed association (cited in Tessler et al., 1976). A second interpretation is that distressed persons are likely to have a higher propensity to seek medical care, and less perceived control over illness, and thus their different reactions to illness and medical care explain the observed association. Still a third perspective is that persons who are distressed, or who otherwise face life problems with which they have difficulty in coping, deal with such situations in part by seeking medical care (Mechanics, 1972). This third perspective emphasizes the latent functions of medical care (Tessler & et al., 1976). The vague physical symptoms brought on by psychological distress account for a high use of health services, estimated as 50 percent of U.S. ambulatory care cost. Lin et al., (1985) indicate that when patients with depression or anxiety are treated effectively, both their somatic complaints and their subsequent utilization of health care services diminish.

Arling (1985) in a study that examined utilization patterns of older adults concluded that there is a relationship between psychological

distress and use of physician services among older adults, but she does not discuss the process by which psychological distress causes more physician visits. Similarly, Levkoff and associates (1987) using a sample from a Health Maintenance Organization (HMO) found that distress, as determined by the Langner scale, had a larger effect on physician visits among individuals under 50 years of age than among those aged 65 and older. On the other hand, Coulton and Frost (1982) in a study of a sample of older adults age 65 and over in Cleveland, Ohio found that psychological distress does not have a direct effect on medical care utilization. Berkanovic and Hurwicz (1992), examining life events, daily strain, and depressive symptoms, found no relationship between these indicators of distress in either patient-initiated or physician requested medical visits. Further, Wolinsky and associates (1983) using a revision of the Philadelphia Geriatric Center Morale Scale also found no relationship between demoralization and any of the five indicators of utilization they examined.

The effect of psychological distress on physical illness has also been widely studied (Kathol & Petty, 1981). The link is frequently characterized as "somatization" (Katon, Ries & Kleinman, 1984), vague physical symptoms or bodily complaints in the absence of any detectable disease. In this context somatization has been viewed as the translation

of emotional distress into physical ailments not necessarily diagnosable as disease. Somatization accounts for a high use of health services, estimated as 50 percent of the U.S. ambulatory care costs (Barsky & Klerman, 1983; Katon, Ries, & Kleinman, 1984). To summarize, among medical care attenders, the distressed attend more frequently than the nondistressed and tend to identify more symptoms.

THEORETICAL FRAMEWORK

Various models have been utilized for understanding health services utilization. Rosenstock's Health Belief Model emphasizes the importance of individual perceptions in explaining decisions to seek health care. Understanding of subjective assessment will give valuable information regarding the health utilization process (Gortmaker & Eckenrode, Gore, 1982). The Health Belief Model espoused by Becker et al. emphasizes individual health-related motivations and perceptions as the direct causes of health or illness behavior (Gortmaker et al., 1982).

Another line of research emphasizes the significant role of psychological distress in influencing general use of medical services. Unrecognized and untreated depression in patients seeking or using medical care is a frequent epidemiologic finding. For example, Waxman (1980) found that older persons with more symptoms of depression average four times as many medical visits as those with fewer symptoms. Thus, some researchers suspect that a good deal of the medical care use by the elderly involves either nonserious complaints or complaints arising from psychological distress (Goldberg, 1980).

Economists and health services researchers have generated much data supporting the relationships between health services utilization and

such factors as income, insurance coverage and accessibility of providers (cited in Manning, 1987).

Other researchers argue that more attention should be paid to the influence of psychosocial stressors and minor hassles experienced by the elderly. Research by these investigators suggests that increased life stress is associated with greater use of medical care services (Gortmaker, Eckenrode, and Gore, 1982). Therefore, it is particularly important that the role of psychosocial factors in such demands be analyzed as well. It is for this reason that stressors assume a primary role in the proposed study.

The behavioral model espoused by Andersen and colleague (1973) has been more widely used in understanding the utilization of health services for the general population as well as for the elderly population. Andersen and associates have formulated a multivariate model that attempts to capture the complexity of the factors influencing health services utilization. According to this model, most of health services utilization is explained by perceived health status. This conceptual framework contends that there are three major groups of health services utilization determinants: predisposing factors, enabling factors, and need for care factors. The predisposing factors are individual characteristics that exist before the onset of illness, such as demographics, social

structural characteristics and beliefs and attitudes about illness and medical care. Several researchers have hypothesized that such predisposing factors such as gender and education are no longer important in predicting physician use because insurance coverage has reduced the influence of all such income related measures (Wolinsky, Coe, Miller, 1983). Enabling factors are certain conditions which either hinder or facilitate services use among those who are predisposed to seek care (e.g., income, insurance, coverage and availability of care). Likewise several researchers argued that such enabling factors may no longer be important in explaining the elderly's use of health service because most hospitals and physicians services are covered by either private or public health insurance programs (Wolinsky, Coe, Miller, 1983). Need factors refer to self-perceived or physician-evaluated health which include measures such as bed days, number of self-reported symptoms and a number of medical conditions or diagnoses. Need is usually measured using physical health measures. All of the above factors are hypothesized to influence a person's propensity to use health services prior to the onset of a specific illness episode.

Continued use of the behavioral model as a framework for studying older persons' use of health services has resulted in a number of important accomplishments. First, the breadth of the behavioral

model allows researchers to study the impact of a large number of different types of predictor variables simultaneously. Second, studies utilizing this conceptual approach have often examined large study samples including a small number that are nationally representative of the entire population of elderly in the American population. Finally, the model has been used by numerous researchers to study the utilization of formal health services as well community-based health services and social service agencies (Counte and Glandon, 1991).

In spite of the usefulness of the behavioral model, a series of critical issues emerged during the last decade concerning its continued refinement. For instance, despite the large number of predictor variables that are typically examined, the explanatory power of the model remained somewhat modest. In other words, the vast majority of the variance in utilization behavior remains unexplained. Mechanic (1979) suggested that improved understanding of physician utilization would occur if researchers would extend their attention beyond personal attributes and organizational factors to situational factors that may affect levels of physician utilization. More specifically, he argues that more attention should be paid to personal life stresses and the presence of coping resources such as social supports.

Similarly, other researchers have shown that the explanatory power of the models used for utilization behavior could be enhanced by inclusion of the influence of psychosocial stressors (Gortmaker et al., 1982) and psychological distress (Tessler et al., 1976). Gortmaker and associates write : "one of the most serious omissions in existing health care utilization models is the failure of researchers to recognize the influence of psychosocial stressors". According to these researchers, increased life stress is associated with greater use of health care services. Other studies have also documented that persons undergoing stress tend to use more health services (Tessler, et al.,1976; Waxman, 1983; Mechanic, 1982; & Levkoff et al., 1987). Similarly, Hibbard and Pope (1986) write: "primary care may be too much oriented to a biomedical rather than a psychosocial model of health and that medical care systems that fail to integrate a concern with mental or emotional states may unnecessarily stimulate utilization".

Although Andersen's Behavioral Model of Utilization is the guiding conceptual framework for this study, this model is not being tested in the proposed study. The proposed study seeks to determine if stressors and psychological distress are significant predictors of utilization of health services. However, if these variables are found to be significant predictors of utilization, future test of Andersen's Behavioral Model of

Utilization with the inclusion of stressor (need factor) and depression (predisposing factor) may enhance the explanatory power of this model.

Chapter III

METHODOLOGY

The proposed study aims to identify the relationship between stressors, and health services utilization among the elderly, with psychological distress serving as the link between stressors and utilization of health services.

RESEARCH HYPOTHESES AND RATIONALE

The following hypotheses have been formulated as responses to the research questions.

Question: 1. What are the effects of stressors on health services utilization among the elderly.

H1. Higher levels of stressors will be associated with higher levels of health services utilization, when controlling for demographics, self assessed health and perceived social support.

Rationale: There is documented evidence for both a direct and indirect effects of stress on utilization. Rohmann and Haggerty showed that increased utilization of certain types of services was associated with minor, every day stresses (cited in Gortmaker et al.,1982). Similarly, research by Gortmaker, Eckenrode, and Gore (1982) suggests that increased life stress is associated with greater use of medical care services. In a study of 187 elderly public housing tenants, data

were collected about the extent of life changes in 14 areas by means of the Multilevel Assessment instrument to derive estimates of self-assessment of physical health and social support experienced by the individuals within the past year. Findings indicate that positive changes in life events, as well as negative changes, have a direct effect on self-reported health of the individual. Changes that the individuals perceived as negative were most predictive of poorer health (cited in Turnbull, 1989).

Question: 2. What are the effects of stressors on psychological distress?

H2. Higher levels of stressors will be associated with higher levels of psychological distress when controlling for demographics, self assessed health and perceived social support.

Rationale: Many studies have documented the relationship between stress and depression in the context of multivariate models. The evidence is generally consistent, stress is robustly related to depression. This conclusion applies to studies based on samples of adults of all ages, specifically older adults (Cronkite & Moos, 1984). According to Dohrenwend and Dohrenwend (1978) stressful life events, especially negative ones has a significant effect on depressed mood and anxiety.

Question: 3. What are the effects of psychological distress on utilization of health services?

H3. Higher levels of psychological distress will be associated with higher levels of utilization of health services, when controlling for demographics, self assessed health and perceived social support.

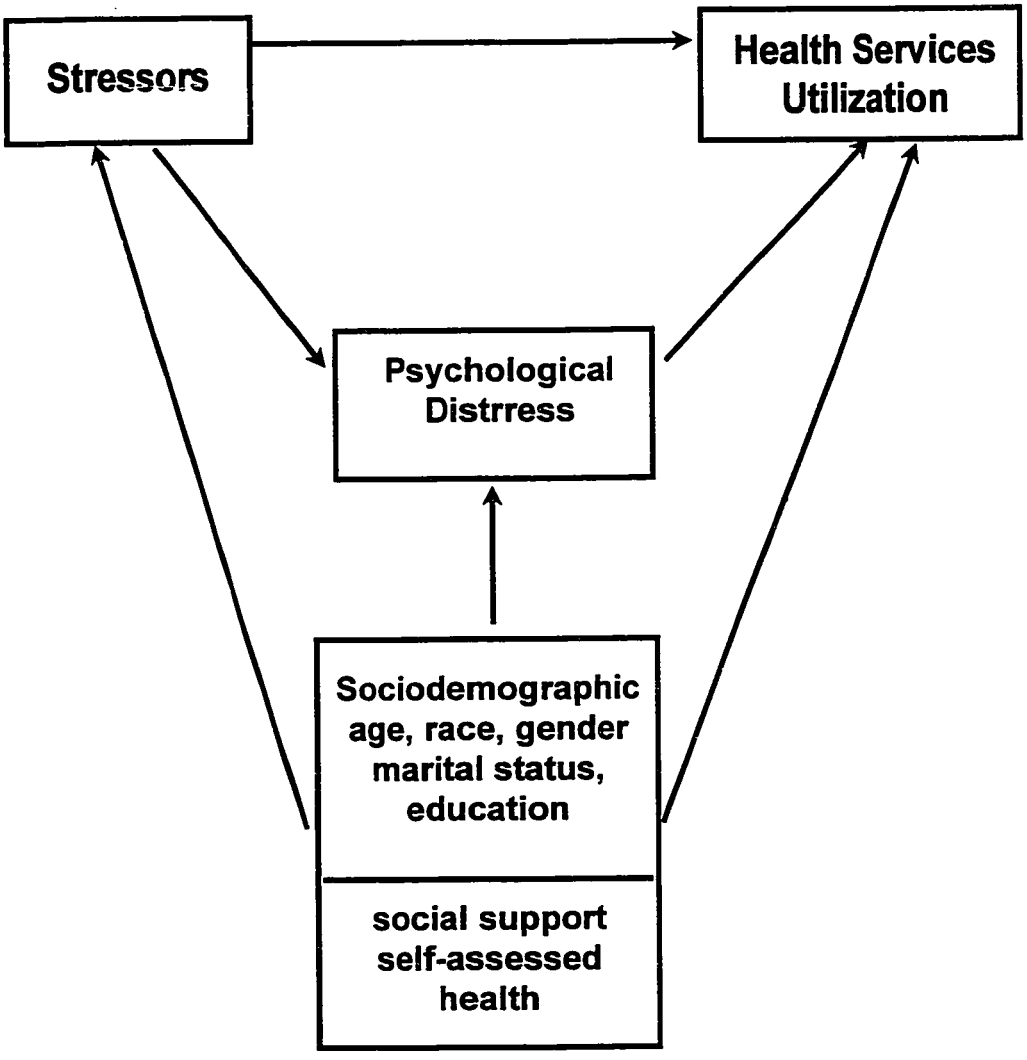
Rationale: There is considerable research supporting the hypothesis that psychologically distressed persons disproportionately use medical care services and report more symptoms (George, 1989; Waxman, 1980 & Tessler et al.,1976). Waxman (1980) found that older persons with more symptoms of depression average four times as many medical visits as those with fewer symptoms. Tessler et al., (1976) reported that psychological distress is associated with higher levels of physician utilization even when health status has been statistically controlled.

RESEARCH DESIGN

A secondary analysis of data from a larger study was used for the proposed study. The data for the study were collected for a research project being conducted by Case Western Reserve University's Center on Aging and Health in conjunction with Frances Payne Bolton School of Nursing. This researcher was the Graduate Research Assistant on the research project. This researcher assisted in the development of the instrument, pre-testing of the instrument, training of the interviewers, data collection process, data entry and cleaning and preliminary

analyses. The proposed study utilizes a cross-sectional research design. A conceptual model that builds these variables into the design is presented in Figure 1. The design indicates that stressors, psychological distress, demographics, self-assessed health and perceived social support are antecedents to utilization of health services. Thus these variables are conceptualized as having explanatory potential in understanding variations in the level of health services utilization among the elderly.

Figure 1


Stressors
Health Services Utilization
Psychological Distrress
Sociodemographic age, race, gender marital status, education
social support self-assessed health

STUDY SAMPLE

The sample elected at random included 493 respondents age 65 and over residing independently in Cuyahoga County. The sampling frame consisted of a list of Medicare enrollees for Cuyahoga County. The list was obtained through the National Institute on Aging. A request was made in writing to the Health Care Financing Administration (HCFA) from the National Institute on Aging, specifying the information needed on the prospective respondents (e.g.,names, addresses, sex, race and birthdays). In order to reduce the likelihood of including both members of a marital couple in the list, the Health Care Financing Administration was asked to delete from the submitted sample all persons with the same last name at the same address. Due to the fact that every individual is covered by Medicare at age 65, the sample is broadly representative of the elderly population in Northern urban areas with some slight underrepresentation of those turning 65 since the list was prepared. Data collection was undertaken from February, through May, 1992. A total of 493 respondents were interviewed, however data from only 490 respondents were retained for analyses. Three respondents were not included in the analyses. It was discovered that they resided in nursing/group homes. The selected sample included respondents from three ethnic backgrounds: Caucasian, Hispanics and African Americans.

The sample was checked for representativeness of Cuyahoga County by racial and gender composition (Bureau of Census,1990). Table 1 below compares the study sample with the population receiving Medicare in Cuyahoga County by racial and gender composition.

TABLE 1

Racial and Gender Composition of the Subsample, Compared with Cuyahoga County

	% Female	% Blacks
Cuyahoga County	61.3%	16.2%
Study Sample	61.2%	17.3%

INSTRUMENT

The data collection for the study was accomplished through face-to-face interviews using a somewhat structured questionnaire. The instrument is comprised of both open-ended and closed-ended questions. The items on the questionnaire were selected based on existing literature and research that have either been identified as having explanatory potential for assessing utilization behaviors or were found to be correlated with health service utilization among the general population as well as the elderly population.

The instrument was pretested with a subsample of the random sample and these individuals were not included in the study. The instrument was pretested to determine the length of time it takes to complete the interview, and to identify items which may be unclear or difficult for the respondents. The information collected at this phase was tested for its reliability and validity in a variety of ways. Items that were confusing, too difficult to understand, or seemed inconsistent with concepts being measured were discarded. Corrections were also made on some of the scale items to increase clarity. The pretested instrument was then used to collect the final data. The respondents selected to participate in the pretesting of the instrument had demographic characteristics similar to the sample population under study. To help

respondents remember the response options, the responses were written on a 5x7 card and given to respondents during the interviewing process. This procedure was expected to increase the reliability of responses. In addition to the study-related items in the questionnaire, also included were questions to be answered by the interviewers about the respondents' attitudes toward the interview, their understanding of the questions, and their cooperation with the interview. As can be seen, the large majority of respondents' attitudes were rated by interviewers as friendly and interested. In fact only .8% were considered irritated or hostile. Approximately 84% of the respondents reported having no difficulty understanding the questions. Similarly, about 85% reported having no difficulty hearing questions. Allowing for the fact that these ratings are subjective, the overall pattern nevertheless is indicative of high respondent interviewer rapport and an interest on the part of respondents. Table 2 below provides information regarding respondent's profile.

TABLE 2

RESPONDENT'S PROFILE

What was the respondent attitude during the interview?

Friendly and interested	88.2%
Cooperative but not particularly interested	09.9%
Indifferent or bored	01.0%
Often irritated or hostile	00.8%

Did the respondent have difficulty understanding the questions?

Yes, great difficulty	01.4%
Yes, some difficulty	14.4%
No, none at all	84.2%

Did the respondent have difficulty hearing the question?

Yes, great difficulty	01.4%
Yes, some difficulty	13.0%
No, none at all	85.6%

SURVEY PROCEDURE

The data for the proposed study were collected from 493 Medicare enrollees through face-to-face interviews. Prospective respondents received a letter from Health Care Financing Administration (HCFA) informing them that HCFA is cooperating with Case Western Reserve University (CWRU) in a study authorized by the Public Health Service Act (09-25-0130). The letter informed them how their names were selected and that an interviewer from CWRU Center on Aging and Health will be contacting them to arrange an interview appointment. They were told that they did not have to participate in the study, and that there are no penalties for non-participation. Respondents were instructed to contact the Principal Investigator or the Project Director if they had any questions. A second letter from the project office was sent to prospective respondents one week after the HCFA letter, inviting them to participate in the study. They were informed that they would be compensated $15.00 for the face-to-face interview. Overall, respondents were cooperative, friendly and eager to talk.

Experienced interviewers were recruited and trained at Case Western Reserve University in a two-day workshop. They were given information regarding the nature of the study, interviewing techniques, the objectives of each item on the questionnaire, allowable probes,

recording skills, the importance of confidentiality and protection of participants' rights. Interviewers were compensated for the two-day training session and they also received $30.00 for each interview attempted and/or completed. Interviewers were required to attend a " Debriefing Session" to discuss stressful interviewing experiences and other concerns they may have. They received $15.00 for attending the Debriefing Session. Respondents who the interviewer assessed as being cognitively impaired did not have to complete the interview. However, both the interviewer and the interviewee received the designated amount mentioned above. The interviewers were closely monitored during the data collection process to maintain consistency in the procedures.

CONCEPTUAL AND OPERATIONAL DEFINITIONS

CONTROL VARIABLES

Demographic Variables. Information regarding respondents' 1) age, 2) education 3) marital status, 4) gender and 5) race were obtained through respondents' self-reports or by interviewer observation. The above variables have been hypothesized to influence utilization of health services.

Perceived Social Support. Perceived social support is defined as the cognitive appraisal of availability of support should an event arise which calls for assistance (Lin et al., 1986). This variable is measured using a modified version of the Duke's Social Support Index. This three point scale is comprised of 7 items. Respondents were told: "For the next few questions, I'm going to ask you how often something happens". The response alternatives included 1 (hardly ever), 2 (some of the time) and 3 (most of the time). Respondents' scores were determined by summing up the number of responses selected. The higher the score the lower the perceived social support available. This scale demonstrated an alpha coefficient of .79 in a prior study (Blazer, 1990; George and associates, 1989). This scale has been used with the general population as well as with the elderly population (Blazer, 1990).

Self Assessed Health. Self assessed health is defined as the subjective evaluation of one's health. The standard measure of perceived health, whether it is 4) excellent, 3) good, 2) fair or 1) poor, was used. The initial scoring of the scale is reversed. The usefulness of this single-item indicator as a measure of health among older adults has been demonstrated in several studies (Krause, 1988).

This item invites the respondent to provide a broad evaluation of his/her health. This subjective evaluation has been shown to reflect objective health conditions. Most researchers found consistent but hardly perfect correlations between the respondents' self-ratings and the assessment made by physicians on the basis of physical examinations (Idler et.al., 1991).

INDEPENDENT VARIABLES

Stressors

Two measures of stressor were used in this study: life events and daily hassles. Life events are identifiable discrete changes in life patterns that disrupts usual behaviors and can threaten or challenge individuals' physical and psychological well being. Life events are measured and operationalized using The Geriatrics Stressful Life Event Scale developed by Kahana, Fairchild & Kahana (1982). This scale has omitted items that are not applicable to the elderly. Respondents were asked if they have

experienced any of a list of life events in the past nine months, if yes, how much change did it bring into their lives 1 (little change) 2 (some change) and 3 (a lot of change). This scale was used in a study of 248 elderly persons to measure the amount of stress, or readjusmtmet, that results from various life events (Kahana and associates, 1982). Hassles are defined as "irritating, frustrating, distressing demands and troubled relationships that plague us day in and day out". Hassles were measured and operationalized using the Hassle Scale, an adaptation of the scale developed by Kanner, Coyne, Schaefer and Lazarus (1980). The scale was modified to omit items irrelevant to the elderly (e.g., work and schooling roles). Its discriminant validity is evident in the relationship between the scale and levels of well-being among the elderly (Dunkie, Roberts, & Haug, 1981). Respondents were asked if they have experienced any of a list of 37 hassles in the past month. If yes, respondents were asked how troublesome was the hassle and the response alternatives were 1 (not troublesome) 2 (somewhat troublesome) 3 (moderately troublesome) and 4 (extremely troublesome). Both the life event and the hassle scales were treated as interval level.

INTERVENING VARIABLE

Psychological distress is defined as the intensity of negative affective states, chiefly depression and anxiety, and loss of emotional and behavioral control (Manning et al., 1987). It is conceptualized as an intervening variable. Thus, stressors are directly related to psychological distress and in turn related to utilization of health services. There are two measures of psychological distress: depression and anxiety.

Depression. The CES-D scale was used to measure depressed feelings in the past week. This scale was developed by the Center for Epidemiological studies for the assessment of depression symptoms in a community population. This 20 item scale has high alpha reliability (.84 to .90), as well as discriminant validity (Radloff, 1977). Respondents were presented with a list of ways they may have felt or behaved during the past week. They were asked to indicated how often during the past week they felt this way from the following response alternatives 1 (rarely or none of the time), 2 (some of the time), 3 (occasionally), and 4 (most of the time). The higher the score the greater the depression. This scale has been widely used with the general population as well as with the elderly (George and associates, 1989;& Lin and associates, 1986).

Anxiety. The anxiety subscale of the Derogatis SCL90 was used to measure levels of anxiety. Again this scale does not measure clinical

anxiety, but simply anxious feelings. This subscale has an internal consistency reliability of .81, and has demonstrated discriminate validity (Derogatis and Cleary, 1977). Respondents were told " I am going to read another set of problems that people can have. For each one, please tell me how distressed you were by this problem in the past week", on a scale ranging from 1 (not at all) to 5 (extremely). The higher the score, the higher the anxiety experienced by respondents. Both depression and anxiety were treated as interval level. The usefulness of this scale as a measure of anxiety among older adults has been demonstrated in several studies (Derogatis and Cleary, 1977).

DEPENDENT VARIABLE.

Health services utilization involves contact with a physician for a symptom (bodily change) within the past four months. Respondents were presented with a list of 15 symptoms and asked if they had experience any of the symptoms in the past four months. If respondents answered yes, they were asked if they contacted a doctor for the symptom.

Chapter IV

Analysis of the Study Variables

In this chapter the analysis and findings of the independent and dependent variables are discussed. The information on the key variables conceptualized to be important for the purpose of this study were retrieved from the data collected for the original study and from the literature. All of the information about the clients were self-reports and is considered to be subjective in nature. Statistical analyses of the independent and dependent variables included multivariate and reliability analyses. Factor analysis was not performed on the scales used in this study because the scales are widely used, thus dimensionality has already been established for these scales.

ANALYSIS OF INDEPENDENT VARIABLES

The independent variables conceptualized to be important in having potential power to explain variation in the dependent variable included stressors, psychological distress, basic demographic characteristics, self-assessed health and perceived social support. Descriptive statistics along with the results from the multivariate analyses for each of the independent variables are presented.

Respondents' Demographics

Of the 490 respondents in the sample, 38.8% were males and 61.2% were females. Both white and non-white (African Americans and Hispanics) were interviewed. Of the 490 respondents, 81.8% were white, 17.3% were African Americans, and 8% were Hispanics. The breakdown of the sample by age, gender, and race is typical of the Medicare enrollees in Cuyahoga County. Of the 490 respondents, 35.3% indicated that they graduated from high school. About 36% reported having an 11th grade education or less, and 28% reported having some college education. Of the 490 respondents, 52.4% reported being married, 36.7% were widowed, 6% were separated, 6.7% divorced and 3.5% were never married. Tables 3,4,5,6 and 7 provide information on the distribution of scores for race, sex, age, education and marital status of the respondents.

RACE OF RESPONDENTS

TABLE 3

RACE	N	Percent
White	401	81.8
African American	85	17.3
Hispanic	4	.8
Totals	490	99.9

GENDER OF RESPONDENTS

TABLE 4

GENDER	N	PERCENT
MALE	190	38.8
FEMALE	300	61.2
TOTALS	490	99.9

AGE CATEGORIES OF RESPONDENTS

TABLE 5

Age Category	N	Percent
65-69 YEARS OLD	85	17.3
70-74 YEARS OLD	168	34.3
75-79 YEARS OLD	114	23.3
80-84 YEARS OLD	74	15.1
85+ YEARS OLD	49	10.0
TOTALS	490	100.0

MARITAL STATUS OF RESPONDENTS

TABLE 6

Marital Status	N	Percent
Married	257	52.4
Widowed	180	36.7
Separated	3	.6
Divorced	33	6.7
Never Married	17	3.5
Totals	490	100.0

Education of Respondents

TABLE 7

Education	N	Percent
less than 8th grade	34	7.0
8th grade	42	8.6
9th to 11 grade	105	21.5
High school Graduate	173	35.4
Some college	74	15.1
College Grad or more	62	12.4
Totals	490	100.0

STRESSORS

LIFE EVENTS

Respondents were asked if they have experienced any of a list of 25 life events in the past nine months. If respondents answered yes, they were then asked how much change did the life event bring into their lives 1 (little change) 2 (some change) and 3 (lot of change). The life event scale was slightly skewed in the positive direction. The mean score was 4.32, (SD = 4.50), the median was 3 and the mode 0. The scores ranged from 0 to 23. The higher the score, the more change brought on by the life event.

HASSLES

Respondents were asked if they had experienced any of a list of 37 hassles in the past month. If respondents answered yes, they were asked to report how troublesome the experience was 1 (not troublesome) 2 (somewhat troublesome) 3 (moderately troublesome) and 4 (extremely troublesome). The higher the score, the more troublesome the hassle. The mean score for this scale was 21.6 (SD = 16.9) the median was 17 and the mode was 0. The scores ranged from 0 to 88. From the two measures of stressors, a summary index was constructed. For each individual measure (i.e., life events and hassles), the distribution of responses was divided as equal as possible into thirds (high, medium

and low stressors). A score of three was assigned to responses that fell into the high category, two for responses that fell into the medium category, and one for responses categorized as low. In this way each measure of stressors received equal weight in the construction of the summary index. The scores on the individual measures of stressors were added together and a single summary score was then assigned to each respondent. The higher the score, the higher the level of stressor indicated. For the sake of convenience, much of the analysis will focus on the summary index rather than each of the individual measures. Table 8 contains the distribution of scores for the stressor summary index.

TABLE 8

TOTAL SCORE FOR STRESSOR SUMMARY INDEX

Value	Frequency	Percent
2.00	98	20.0
3.00	97	19.8
4.00	107	21.8
5.00	97	19.8
6.00	90	18.6
TOTALS	490	100.0

The higher the score the higher the level of stressor.

Mean = 3.9
SD = 1.39
Median = 4.0

PSYCHOLOGICAL DISTRESS

Depression. Respondents were presented with a list of ways they might have felt or behaved during the past week. They were asked to report how often during the past week they felt this way 1 (rarely or none) 2 (some or little) 3 (occasionally) and 4 (most or all the time). Total scale score is the sum of the individual items after each item has been recoded as instructed. The higher the score, the higher the level of depression. The mean score was 27.1, (SD = 7.0) the median was 25 and the mode was 0. The scores ranged from 20 to 57.

Anxiety. Respondents were asked to indicate how distressed they were in the past week using a five point scale ranging from 1 (not at all) to 5 (extremely). The higher the score, the higher the level of anxiety. The mean anxiety score was 12.3, (SD = 4.0) the median score was 11 and the mode 10. The score ranged from 10 to 42. From the two measures of psychological distress, a summary index was constructed. Again, for each individual measure, the distribution of responses were divided as equally as possible into thirds (high, medium and low). A score of three was assigned to responses that fell into the high category, two for responses that fell in the medium category, and one for responses that fell in the low category. In this way each measure of psychological distress received equal weight in the construction of the summary index.

The scores on the individual measures of psychological distress were added together and a single summary score was then assigned to each respondent. The higher the score, the higher the level of psychological distress. For the sake of convenience, much of the analysis will focus on the psychological distress summary index rather than on each of the individual measures. Table 9 contains the distribution of scores for the psychological distress summary index. The procedures used for the construction of the stressors and psychological distress summary indices were identical to those reported by other researchers (Tessler and associates, 1976).

TABLE 9

SCORES FOR THE PSYCHOLOGICAL DISTRESS SUMMARY INDEX

Value	Frequency	Percent
2.00	136	27.8
3.00	110	22.4
4.00	85	17.3
5.00	72	14.7
6.00	87	17.8
TOTALS	490	100.0

The higher the score the higher the level of psychological distress

Mean = 3.7
SD = 1.45
Median = 3.00

SELF ASSESSED HEALTH

The variable self assessed health was conceptualized as a key factor in the utilization of health services. Self-rated health was measured with a single item that asked respondents to rate their health in the past month, 4 (excellent), 3 (good), 2 (fair), or 1 (poor). The majority of the respondents (40%; N = 194) reported their health as being good. The next largest majority reported their health as being fair (31%; N = 150). Only 7.3% (N = 36) respondents reported their health as being poor. The mean score was 2.77 (SD = .88). The scores ranged from one to four.

These findings were consistent with other studies. Research suggests that the elderly population is not as likely to reflect negative views of their own health as the younger population. In fact, in spite of the difficulties that they experience due to physiological disorders, they tend to express a more positive view of their own health (Ider et, al., 1991). This variable was treated as interval level. Table 10 below provides information regarding the distribution of self assessed health scores.

SCORES FOR SELF-ASSESSED HEALTH

TABLE 10

Self-Assessed Health	N	Percent
Excellent	110	22.4
Good	194	39.6
Fair	150	30.6
Poor	36	7.3
Total	490	100.0

PERCEIVED SOCIAL SUPPORT

The variable perceived social support was conceptualized as a key factor in the use of health services among the elderly. This scale was skewed in the negative direction. Log transformation and square root transformation did not reduced the skewness to an acceptable level. Therefore the untransformed variable was used in order to simplify interpretation of the results. The scores for this scale were dichotomized into impaired (18 and over) and not impaired (less than 18) social support. Since the mean is more sensitive to skewness, the distribution of the scores were dichotomized at the median. The mean score for the perceived social support was 17 (SD 1.9) the median was 18 and the mode was 19. Of the 490 respondents, 32.9% (N = 192) reported not having impaired social support systems and 60.8% reported impaired social support systems. Table 11 below provides information regarding the distribution of perceived social support.

SCORES FOR PERCEIVED SOCIAL SUPPORT

TABLE 11

Perceived Social Support	N	Percent
Not Impaired	192	39.2
Impaired	298	60.8
Totals	490	100.0

DEPENDENT VARIABLE

Utilization of Heath Services was operationalized as the number of contacts with physicians for a perceived symptom in the preceding four months. Visits made for routine check-ups or physical examinations were excluded from the analysis. The respondents in this study reported that they had contacted their physician for a symptom on an average of .937 times in the past four months (SD = 1.47). Contacts with physician ranged from 0 to 9. Upon analysis of the distribution of the utilization measure it was quite apparent that the measure of utilization of health services was not normally distributed. For example, the majority (87.8%) of the respondents reported zero to two visits (N = 490). Approximately five percent of the respondents reported three visits (N = 23) four percent reported four visits (N = 20), one percent reported five visits (N = 8) and one person reported nine visits (.2%). Thus, the distribution was found to be positively skewed. To correct for this problem, a variety of transformations was conducted on physician contact including logarithmic and square root transformations, but the results were unacceptable. For this reasons, physician contact was recoded into a dichotomous variable, with code zero representing the absence of physician contact and code one representing the presence of physician contact. Table 12 contains the complete distribution of scores for this

variable before utilization of services was transformed into a dichotomous variable. Thus, hypotheses testing involving this variable used logistic regression analysis, a procedure designed specifically for binary dependent variables.

TABLE 12

DISTRIBUTION OF SCORES FOR PHYSICIAN CONTACTS

# OF CONTACTS	N	PERCENT
0	284	58.0
1	85	17.1
2	62	12.7
3	23	4.7
4	20	4.1
5	8	1.6
6	3	.6
7	5	1.0
9	1	.2
TOTALS	490	100.0

Distribution prior to transformation of data (N = 490).

Results of Scale Testing

The scales used in this study included: the Geriatrics Life Event Scale, Kanner and Associates Daily Hassles Scale, Center of Epidemiological Studies Depression Scale, Derogatis SCL90 Anxiety Scale and The Duke's Subjective Social Support Scale. Factor analysis was not performed on the above scales used in this study. These scales have been used in a variety of studies, thus dimensionality has been established.

Theoretically, items in life events and hassles scales should be independent of one another, thus alpha coefficients should equal zero (Thoits, 1983). Hence, there is no logical reason why items on both life events and hassles scales should be internally consistent (Thoits, 1983). Some researchers argue that alpha coefficients for life event and hassle scales are inappropriate tests for scale reliability. Thus, no internal evaluation of items such as factor analysis or inter-item correlation matrices, would be expected to reveal any internal structure. The various attempts to do factor or cluster analyses of the life-event scale have shown unenlightening results (Thoits, 1983 & Lin & Associates, 1986).

Many researchers, however, have attempted to determine alpha coefficients for life event scales. The alpha coefficients range from .07 to .51. Thus far no attempt to determine alpha reliability of the hassle scale has been found. These findings reinforce the conclusion that this scale does not fit the definition of internal consistency. Thoits (1983) argues that life event scores have produced strikingly consistent findings on their relationship to psychological disturbance, thus demonstrating validity. Several test-retest reliability analyses have been attempted for the life events measures, with the majority in the low to moderate range, between 30 and 60. Because scores from life events and hassles were combined to form a stressor summary index, psychometric properties for the stressor summary index are presented in Table 15 (See Appendix A).

The CES-D scale has been validated in household survey as well as in psychiatric settings. Split-half correlations were .85 for patient groups and .77 for normal groups. The CES-D has high alpha reliability coefficients (alpha = .90) as well as discriminant validity for both normals and patients (Radloff, 1977). Radloff also reported test-retest reliabilities ranging from .32 for 12 months to .67 for 4 weeks. The alpha reliability coefficient obtained in this study was .826, which is considered to be quite reliable.

The SCL 90 anxiety subscale has an internal consistency reliability of .81, and has demonstrated discriminate validity (Derogatis and Cleary, 1977). Because depression and anxiety scores were combined to form a psychological distress summary index, the psychometric properties of the psychological distress scale are presented in Table 14 (See Appendix A).

The Duke Subjective Social Support scale is one of the four subscales comprising The Duke Social Support Index (DSSI). The rationales for these four subscales are partly conceptual and partly empirical. The social support scales were derived through factor analysis (orthogonal, varimax rotation) of responses from 3,484 ECA Wave 1 community respondents residing in North Carolina with complete data on the social support items. The factor structure for the DSSI was similar for responses one year later from the Wave 2 ECA community-based respondents (N = 2,966). Cronbach's Alpha coefficient for the social support data in this study was .55 (Hughes and Associates, 1990). Psychometric properties for this scale are reported in Table 13 (See Appendix A).

Chapter V

Analysis: Testing the Study Hypotheses

This chapter reviews the procedures undertaken to test the hypothesized relationship between the independent and the dependent variables in this study. It also discusses the results of this research study which sought to identify the relationship between stressors, psychological distress and health services utilization. Three hypotheses were tested.

The first hypothesis explores the relationship between stressors and the use of health services.

H1. Higher levels of stressors will be associated with higher levels of health services utilization when controlling for demographics, self assessed health and perceived social support.

The second hypothesis explores the relationship between stressors and psychological distress.

H2. Higher levels of stressors will be associated with higher levels of psychological distress when controlling for demographics, self assessed health and perceived social support.

The third hypothesis explores the relationship between psychological distress and health services utilization:

H3. Higher levels of psychological distress will be associated with higher levels of health services utilization when

controlling for demographics, self assessed health and perceived social support.

Logistic regression was used to test hypothesis 1 and 3. Hierarchial multiple regression was used to test hypothesis 2. Logistic regression is designed specifically for binary dependent variables. Because the dependent variable can take only two values, some of the results are different from linear regression. The logistic model is assessed by means of a chi-square test. This test is comparable to the F test for the R Square in hierarchical multiple regression (Norusis, 1990). The logistic regression coefficient (b) can be interpreted as the change in the log odds associated with a one unit change in the independent variables. The Wald statistic provides a chi-square based test that the regression coefficient (b) for any factor is zero. When the Wald statistic is statistically significant, the null hypothesis of no difference between a coefficient and zero can be rejected. However, this test is not appropriate for large coefficients. An improvement chi-square is reported in the summary tables for the hierarchically entered blocks. The column marked Exp(B) represent the change in the odds of the dependent variable when the independent variables increases by one unit. If Exp(B) is larger than 1, this means that the odds have increased whereas, if it is smaller than 1, then the odds of using care have

decreased. The R statistic provides a measure of the partial correlation between the dependent variable and each independent variable. R can range in value from -1 to +1. A positive value indicates that as the variable increases in value so does the likelihood of the event occurring. If R is negative, the opposite is true. Small values for R indicate that the variable has a small partial contribution to the model.

Prior to subjecting the data to logistic regression analyses, the categorical variables were transformed into dichotomous measures i.e, dummy variables. The transformed variables included sex (0 = male & 1 = female); race (0 = white & 1 = non-white) and marital status (0 = not married & 1 = married). Perceived social support was dichotomized into (1) impaired and (0) not impaired. Also physician contact was dichotomized into (0) no and (1) yes. Age, self assessed health, stressors, psychological distress, and were entered into the logistic regression analyses as interval level variables.

Testing the First Hypothesis (H1)

To test the first hypothesis, logistic regression was used because the dependent variable health services utilization was dichotomous. Health services utilization was regressed on demographics, self assessed health, perceived social support and stressors. Demographics, self assessed health and perceived social support were entered into block 1

of the regression model. These variables produced a model chi-square value that was significant. Using these variables alone, the model successfully predicted the use of health services in 67.48 percent of the cases. The regression coefficient (b) was significant for support ($b = -.61$; $p < .05$) and self assessed health ($b = -.84$; $p < .01$). When stressor was added to the model in Block 2, the addition did not produce a statistically significant improvement in the current model's predictive power. This is evident by the fact that the model's predictive accuracy increased very little. The beta for stressor was not significant ($b = .11$; $p = 16$). Thus, the hypothesis that higher levels of stressors will be associated with higher levels of health services utilization when controlling for demographics, self assessed health and perceived social support was not supported. Of the variables in the model that proved to be statistically significant, self-assessed health was the best predictor of use of services ($R = -.24$) followed by perceived social support ($R = .07$). The findings indicate that stressor does not have a direct effect on the use of services for respondents in this study. One explanation for this finding is that the respondents in this study experienced lower levels of stressors. In a panel study of older persons, life stress exposure had no significant, direct relationship to change in utilization patterns (Counte & Glandon, 1991).

To further explore this relationship, the interaction effect between stressor and perceived social support was examined to determine if social support buffers or reduces the effects of stressors on the use of health services. The addition of the interaction term into the multiple regression model did not produce a statistically significant R square change. Table 16 below contains the results from the logistic regression analysis of psychological distress regressed on demographic variables, self assessed health and perceived social support and stressors.

Table 16

Hypothesis 1

Summary of Hierarchical Logistic Regression of Health Services Utilization (No/Yes) regressed on Demographics, Self Assessed Health, Perceived Social Support and Psychological Distress

Initial -2 Log Likelihood 665.72259

BLOCK 1	B	Sig	Exp(B)
Gender	.0795	.7103	1.0827
Race	-.0383	.8843	.9624
Marital Status	-.1672	.4424	.8460
Education	.0396	.2497	1.0404
Support	-.6087	.0032**	.5440
Age	-.0279	.1005	.9725
Self Assessed Health	-.8359	.0000*	.4335

Block Totals: -2 Log Likelihood 598.236 $p < .01$

Model Chi-Square	17.59
Significance	.0000
Improvement	17.59
Percent correctly predicted	67.48

BLOCK 2	B	Sig	Exp(B)
Stressor	.10	.15	.4593

Block Totals: -2 Log Likelihood 596.230 $p<.01$

Model Chi-Square	54.51
Significance	.0000
Improvement	54.51
Percent correctly predicted	67.69

* $p < .01$
** $p < .05$

Testing the Second Hypothesis (H2)

To test the second hypothesis, hierarchial multiple regression was used. Psychological distress was regressed on demographics, self assessed health, perceived social support and stressor. The control variables gender, race, age, marital status, education, self assessed health and perceived social support were entered into the regression model in Block 1. These variables alone, explained 21% of the variance in psychological distress. Of the control variables in the model, self assessed health ($b=-.60$; $p<.01$) gender ($b=.30$; $p<.05$); support ($b=-.66$; $p<01$ were significant predictors of psychological distress.

When stressor was added to the model in Block 2, the explained variance increased by 14%. The R square change was significant at the

.01 level. Of the variables in the model, stressor was the best predictors of psychological distress (beta = .40), followed by self assessed health (beta = -.22) and support (beta = -.19).

Thus, the hypothesis that higher levels of stressors will be associated with higher levels of psychological distress when controlling for demographics, self assessed health and perceived social support was supported. One explanation for this finding is that when the elderly are faced with life problems with which they have difficulty coping, they become depressed and anxious.

To further explore this relationship, the interaction effect between stressor and perceived social support was examined to determine if social support buffers or reduces the effects of stressors on psychological distress. The addition of the interaction term into the multiple regression model did not produce a statistically significant R square change. Table 17 below contains the results from this multiple regression analysis.

Table 17

Hypothesis 2

Summary of Hierarchical Multiple Regression of Psychological Distress (yes,no) on Demographics, Self Assessed Health, Perceived Social Support and Stressor.

BLOCK 1	B	Beta	Sig
Gender	.2976	.0997	.0203**
Race	.2625	.0696	.0988
Marital Status	.0043	.0014	.9734
Education	-.0040	-.0086	.8424
Support	-.6647	-.2232	.0000*
Age	-.0186	-.0791	.0623
Self Assessed Health	-.5985	-.3613	.0000*
BLOCKS TOTALS:	Multiple R	.4626	
	R Square	.2140	
	Significance	.0000	

BLOCK 2	B	Beta	Sig
Stressor	.4225	.4038	.0000
BLOCKS TOTALS:	Multiple R	.5938	
	R Square	.3526	
	Significance	.0000	
	R Square Change	.1386	
	Significance	.0000	

* $p < .01$
** $p < .05$

Testing the Third Hypothesis (H3)

To test the third hypothesis, health services utilization was regressed on psychological distress, self-assessed health and perceived social support. Psychological distress was entered alone into block 1 producing a model chi-square value that was significant and suggesting that as hypothesized, psychological distress is important in predicting the use of health services. Using psychological distress alone, the model successfully predicted the use of health services in 61.9% percent of the cases. The logistic regression coefficient for psychological distress was significant ($b = 35$, $p < .01$). Thus a one unit increase in psychological distress led to a 1.42 increase in the odds or likelihood of using health services. Gender, race, age, marital status, education, self-assessed health and perceived social support were added to the model in Block 2. These additions produced a statistically significant improvement in the current model's predictive power. This is evident by the fact that the model's predictive accuracy increased from 61.7% to 67.2% correct. After these variables were added to block 2, the regression coefficient for psychological distress decreased somewhat, but remained significant at the .05 level. Of the variables in the model in block 2, self-assessed health was the best predictor of the use of health services ($R = -.22$), followed by perceived social support and psychological distress

respectively (R=.-11; R.06). Table 18 contains the results from the logistic regression of utilization of health services regressed on psychological distress, demographic variables, self-assessed health and perceived social support.

Table 18

Hypothesis 3

Summary of Hierarchical Logistic Regression of Health Services Utilization (No/Yes) on Demographics, Self Assessed Health, Perceived Social Support and Psychological Distress

Initial -2 Log Likelihood 665.72259

BLOCK 1	B	Sig	ExP(B)
Gender	.0795	.7103	1.0827
Race	-.0383	.8843	.9624
Marital	-.1672	.4424	.8460
Education	.0396	.2497	1.0404
Support	-.6087	.0032*	.5440
Age	-.0279	.1005	.9725
Self assessed Health	-.8359	.0000*	.4335

Block Totals: -2 Log Likelihood 598.236 p <.0002

Model Chi-Square	67.487
Significance	.0000
Improvement	67.487
Percent correctly predicted	67.48

BLOCK 2	B	Sig	Exp(B)
Distress	.1729	.0212**	1.1887

Block Totals: -2 Log Likelihood 592.917 $p < .0003$

Model Chi-Square	5.318
Significance	.0211
Improvement	5.318
Percent correctly predicted	66.67

* $p < .01$
** $p < .05$

The results of this analysis provide support for hypothesis three, that higher levels of psychological distress is associated with higher levels of utilization of health services. One explanation of the finding is that physical and psychological health status are closely associated. Thus, psychological distress is often expressed in terms of physical illness symptoms (Mechanics, 1978). The interweaving of perception of physical and psychological health may help to explain why psychological distress predicts utilization.

To further explore this relationship, the interaction effect between psychological distress and perceived social support was examined to determine if social support buffers or reduces the effects of psychological distress on the use of health services. Again, the addition

of the interactive term did not produce a statistically significant improvement in the model's predictive powers.

DISCUSSION

The preceding analyses have yielded some interesting results regarding the use of health services among the elderly. It has been demonstrated that stressors do not have a direct effect on the use of health services among the elderly in this study. One explanation for this finding is that the majority of the elderly in this study experienced lower levels of stressors. However, given another sample of elderly experiencing higher levels of stressors, the relationship between stressors and the use of health services may be statistically significant.

In two other recent studies, the persistent finding was that the effect of stressful life events is not direct. Instead, stressful life events appear to lead to increase use when the elderly person is particularly vulnerable to low social support (Krause, 1988). Similiarly, in a panel study of elderly persons in a Health Maintenance Organization (HMO), life stress exposure had no significant direct relationship to change in utilization patterns (Counte & Glandon, 1991).

Secondly, the findings suggest that those elderly experiencing higher levels of stressors tend to be more psychologically distressed than those experiencing lower levels of stressors. Many studies have documented the relationship between stress and depression in the context of multivariate models. The evidence is generally consistent,

stress is robustly related to depression (George, 1989). Thus, most investigators expect stress to have a significant direct effect on depression, with higher levels of stress increasing the risk of depression (George, 1989; Waxman, 1983). Of the variables in the regression model, stressors were the best predictor of psychological distress, followed by self assessed health, perceived social support and gender. Thus, the elderly who perceived their health to be poor were more psychologically distressed than those elderly who perceived their health to be excellent, good or fair. Also, those individuals with impaired social support systems tend to be more psychologically distressed than those who social support systems were not impaired. Furthermore, the findings from this study suggest that women experience more psychological distress resulting from life situations than men. This may be due to the fact that more women are living alone than men (Monk, 1990). They report higher rates of illnesses, disabilities, and losses. They tend to visit their primary physician for follow-ups, chronic diseases, depression and anxiety (Freeborn, et al., 1990). They are also less likely to remarry once widowed.

Finally, the elderly experiencing higher levels of psychological distress are more likely to use health services than those who are experiencing lower levels of psychological distress. One explanation for

this finding is that elderly persons who are distressed, or who otherwise face life problems with which they have difficulty in coping, deal with such situations in part by seeking medical care (Tessler et al., 1976, & Mechanic, 1972). There is considerable research supporting the hypothesis that psychologically distressed persons disproportionately use medical care services and report more symptoms (Waxman, 1983; Tessler et al., 1976; Arling, 1985 & Levkoff et al., 1987). Perceived health status appears to be the best predictor of use of health services, followed by social support. Thus, those elderly who perceived their health as being poor are more likely to use more services than those who perceive their health as being excellent, good or fair. This finding is well documented in the literature on utilization of medical services (Berkanovic & Margo, 1989; Andersen & Newman, 1973; & Krause, 1988). Also, individuals with impaired social support systems are more likely to contact their doctors than those who social support systems are not impaired. According to researchers, social support serves as an important coping resource to older persons which in turn enables them to cope with stressful life events without resorting to entering the medical care system for assistance (Counte, & Glandon, 1991 & Krause, 1988).

IMPLICATIONS/LIMITATIONS/SUGGESTIONS

IMPLICATIONS

This study attempted to examine the relationship between stressors, psychological distress and the use of health services by the elderly. It reviewed the literature on the antecedents of the use of health services which include: stressors, psychological distress, self assessed health, perceived social support, and demographic characteristics such as race, gender, age, education, and marital status. Various models or approaches to understanding utilization of health services were also presented. The central thesis of this study draws upon Mechanic and other researchers' assertion that improved understanding of health services utilization would occur if researchers would include the influence of psychosocial stressors and psychological distress in existing health care utilization models (Krause, 1988; Mechanic, 1979; & Tessler & et al., 1976). The findings of this study that: 1) Stressors do not have a direct effect on the use of health services, 2) Stressors have a direct effect on psychological distress and 3) Psychological distress has a direct effect on the use of health services have implications for social policy

and service delivery.

Implications for Policy. The literature indicates that consistently high users accounted for a disproportionate share of total outpatient expenditures and hospital admission. These consistently high users are older white women living alone, who have more health problems and suffer from more depression and anxiety. Thus, policies could be developed that routinely identify high users so that they can be referred to appropriate services. Once these individuals are identified, strategies should be designed to encourage their earlier access to both medical and mental health services. To the extent that psychological distress is linked to the use of health services by the elderly, strategies aimed at reducing such demands may be critical in keeping financing mechanisms such as Medicare solvent (Freeborn et al., 1990).

Also, policies could be implemented for training individuals working with the elderly to identify those with mental health problems.

Implications for Service Delivery. The findings have some implications for the so called "Offset" literature. This literature is based on the assumption that a high proportion of medical expenditure is attributable to psychological distress and that psychiatric intervention can reduce medical cost by relieving the distress. This suggest that the provision of counseling services and other support programs that focus on

psychosocial issues may be useful adjuncts to physician services.

Also, more nonmedical support services and better integration of mental health services with ongoing primary care could lead to more appropriate care and possible reduction in use of general medical services. There is evidence which suggest that mental health and other support services, particularly for older adults with specific physical problems, can result in more appropriate use of the medical care system, possibly decreasing overall utilization and costs (Turnbull, 1989; Mumford,1984).

Limitations of the study. The generalizability of the sample may be somewhat limited due to the underrepresentation of those individuals turning 65 since the list of Medicare enrollees was prepared. In addition, retrospective studies in which older adults are asked to focus on an illness episode experience in the past six to nine months may be somewhat biased. Researchers warn that this data collection strategy leads to underreporting of short-term bouts of illness and low grade but chronic conditions (Arling, 1985). Because the data were based upon self-reports of respondents, some caution must be exercised in the generalization of the findings. Poor recall could affect the reliability of the data, particularly among the elderly. Finally, another limitation of this study is that health problems could cause psychological distress, but is

difficult to test using cross-sectional research design.

DIRECTION FOR FUTURE RESEARCH

Most of the literature on the use of health services is based on cross-sectional research designs. Thus, Health Behavior Models failed to explain a large proportion of the variance because most of the research did not examine utilization over time (Wolinsky et al., 1983). Health behavior is a dynamic process and many factors are involved in making decisions about the use of health services. This process is not often captured in large-scales research studies that do not examine change over time. Future research should focus on testing the Andersen's Behavioral Model of Utilization in longitudinal studies that examine several relevant variables and examine change over time. Stressors (need factor) and psychological distress(predisposing factor) should be among the relevant variables included. Inclusion of psychosocial stressors and psychological distress in behavioral models will allow researchers to test Mechanic and other researchers' assertion that the inclusion of these variables will enhance the explanatory power of the current models of utilization. Such studies could provide further insight into why the elderly use health services.

Also future studies of psychosocial stressors and psychological distress on the use of services might offer improved predictive accuracy

through both conceptual and methodologic changes. For example, researchers examining physician use among the elderly might also wish to examine the joint effects of social support and health locus of control on utilization patterns. Persons with an internal locus of control and a strong social support system may have particularly low rates of physician use.

BIBLIOGRAPHY

Anderson, G. & Knickman, J. (1984). Patterns of expenditures among high utilizer of medical care services. Medical Care, 22: 143-153.

Andersen, R. & Newman, J. (1973). Societal and individual determinants of medical care utilization in the United States. Milbank Mem Fund Quarterly, 51, 51-95.

Aneshensel, C. & Stone, J. (1982, December). Stress and depression. Archives of General Psychiatry, 39, 1392-1395.

Aneshensel, C, & Frerichs, R, & Huba, G. (1984). Depression and physical illness: A multiwave, nonrecursive causal model. Journal of Health and Social Behavior, 25, 3350-3370.

Arling, G. (1985). Interaction effect in a multivariate model of physician visits by older people. Medical Care, 23, 361-374.

Barsky, A. & Klerman, G. (1983). Hypochondriasis and somatic styles. American Journal of Psychiatry,140, 273-283.

Berkanovic, E. & Hurwicz, M. (1992, August). Illness Episodes, Physician visits and depressive symptoms. Journal of Aging and Health,4(3)331-348.

Berkanovic, E. & Margo, H. (1989). Psychological distress and the decision to seek medical care among a medicare population. Medical Care, 27(11), 1058-1075.

Blazer, D. & Hybels, C. (1990, April). Duke Social Support Index (DSSI): A working paper. Duke University Medical Center, Unpublished manuscript.

Cassel,J. (1976). The contribution of the social environment to host resistance. American Journal of Epidemiology, 104, 107-123.

Chiriboga, D. & Dean, H. (1978). Dimensions of stress: Perspectives from a longitudinal study. Journal of Psychosomatic Research, 22, 47-55.

Chiriboga, D.(1984). Social stressors as antecedents of change. Journal of Gerontology, 39(4)468-477.

Coulton, C. & Frost, A. (1982,December). Use of social and health social and health services by elderly. Journal of Health and Social Behavior, 23, 330-339.

Counte, M, & Glandon, G. (1991). A panel study of life stress, social support, and the health services utilization of older persons. Medical Care, 29(4) 348-360.

Creed, F. (1985). Live events and physical illness. Journal of Psychosomatic Research, 29(2), 113-123.

Cronkite, R. & Moos, R. (1984) The role of predisposing and moderating factors in the stress-illness relationship. Journal of Health and Social Behavior, 25,(4), 372-378.

Cutrona, C. & Russell, D.(1986). Social support and adaptation to stress by the elderly. Journal of Psychology and Aging, 1(1), 47-54.

Derogatis, L, Cleary, P.(1977). Confirmation of the dimensional structure of the SCL 90: A study in construct validation. Journal of Clinical Psychology, 33 (4),981-989.

Dohrenwend, B. (1973). Life events as stressors, a methodological inquiring. Journal of Health and Social Behavior, 14,167-175.

Dohrenwend, B. & Dohrenwend,B. (1978). Some issues in research on stressful life events. The Journal of Nervous and Mental Disease, 166, 7-15.

Dohrenwend, B., Dodson, M., Dohrenwend, B. & Shrout, P. (1984). Symptoms, hassles, social supports and life events: Problem of confounded measures. Journal of Abnormal Psychology, 93(2), 222-230.

Dunkie,R.,Roberts,B.,&Haug, M.(1989,April). Issues of long term care for the very old. Paper presented at the Ohio Network of Education Consultants on Aging Conference, Oxford, Ohio.

Edward, J. & Cooper, C. (1988). Research in stress, coping, and health: Theoretical and methodological issues. Psychological Medicine, 18, 15-20.

Freeborn, D., Clyde, P, Mullooly, J. & McFarland, H. (1990). Consistently high users of medical care among the elderly. Medical Care, 28(6), 527-540.

George, L. (1989) Stress, Social Support and Depression over the life course. In K.S. Markides & C. L. Cooper (Eds),Aging, stress and health (pp.241-268). John Wiley & Son Ltd.

Georgas, J. & Giakoumaki, E. (1988). Psychosocial stress, physical symptoms, and anxiety in Greek students. Psychotherapy Psychosomatic, 49, 164-170.

Goldberg, E. & Comstock, G. (1980). Epidemiology of life events: frequency in general population. American Journal of Epidemiology, 111, 736-752.

Gortmaker, S, Gore, S, & Eckenrode, J. (1982, March). Stress and utilization of health services: A time series and cross-sectional analysis. Journal of Health and Social Behavior 23, 25-38.

Granick, D, & Short, T. (1985). Utilization of hospital inpatient services by the elderly Americans. In A. Monk, Health Care of the Aged: Needs, Policies and Services (p.8). New York: Haworth Press.

Hansell, S., Sherman, G., & Mechanic, D. (1991). Body awareness and medical care utilization among older adults in an HMO. Journal of Gerontology, 46(3), S151-S159.

Haug, MR. (1981). Age and medical care utilization patterns. Journal of Gerontology, 36, 103-110.

Helsing, K., Szkio, M. & Comstock, G. (1981). Factors associated with mortality after widowhood. American Journal of Public Health, 71, 802-809.

Hibbard, J. & Pope, C. (1986). Age differences in the use of medical care in an HMO: an application of the behavioral model. Medical Care, 24(52),155-187.

Holanhan, C. & Belk, S. (1984). Adjustment in aging: The role of life stress, hassles, and self-efficacy. Health Psychology, 3, 315-328.

Holmes, R. & Holmes, T. (1970). Short-term intrusion into the life style routine. Journal of Psychosomatic Research, 11, 213-218.

Holmes, T., & Rahe,R. (1967). The social readjustment rating scale. Journal of Psychosomatic Research, 11, 213-218.

Holmes, T. & Masuda, M. (1974) Life change and illness susceptibility. In B. S. Dohrenwend & B. Dohrenwend (Eds.), Stressful life events: Their nature and effects (pp. 45-72). New York: Wiley.

House, J. (1981). Work stress and social Support. Addison-Wesley, Reading, MA

House, J & Robbins, C. (1983). Age, psychosocial stress and health. In M.W. Riley, B.B. Hess and K. Bond (Eds) Aging in Society: Selected Review of Recent Research (pp.175-197). New Jersey.

Hulka, B. & Wheat, J. (1985). Patterns of utilization: The patient perspective. Medical Care, 23, 438-460.

Idler, E. & Stanislav, K. (1991). Health Perceptions and Survival: Do Global Evaluations of Health Status Really Predict Mortality? Journal of Gerontology, 46(3),S55-65.

Kahana,E., Fairchild, T. & Kahana, B. (1982). Adaptation. In D. Mangen & W. Peterson (Eds), Research Instruments in Social Gerontology, Vol.1 (pp.145-194). Minneapolis: University of Minnesota Press.

Kanner, A, Coyne, J, Schaefer, C, & Lazarus, R. (1980). Comparison of two modes of stress measurement: Daily hassles and uplifts vs. major life events. Journal of Behavioral Medicine, 4, 1-39.

Kasl, R. (1984). Stress and Health. Annual Review Public Health, 5, 319-341.

Kathol, R. & Petty, F. (1981). Relationship of depression to medical illness: A critical review. Journal of Affective Disorders,3,111-121.

Katon, W., Ries, R. & Kleinman, A. (1984). The prevalence of somatization in primary care. Comprehensive Psychiatry, 25, 208-214.

Kerlinger, F. (1986). Foundations of Behavioral Research (3rd ed.). New York: Holt, Rinehart and Winston.

Kessler, R. (1979). Stress, social status, and psychological distress. Journal of Health and Social Behavior, 20, 259-272.

Kessler, R. & McLeod (1985). Social support and mental health in community samples. In S. Cohen and S. Syme (Eds). Social support and health. Academic Press: New York, pp 219-240.

Krause, N. (1988). Stressful life events and physician utilization. Journal of Gerontology, 43, 853-859.

Lazarus, R. & Delongis, A., (1983). Psychological stress and coping in aging. American Psychologist, 38, 245-254.

Lazarus, R. & Folkman (1984). Stress, Coping and Adaptation. Springer: New York.

Lefcourt, H. (1981). In B.S. Dohrenwend and B.P. Dohrenwend (Eds). Stressful life events and their context (pp. 157-166). New York: Prodist.

Levkoff, S, Clearly, P, & Wetle, T. (1987). Differences in determinants of physician use between aged and middle-aged persons. Medical Care, 25(12),1148-1160.

Lin, N., Dean, A., & Ensel, W. (1981). Social support scales: A methodological note. Schizophrenia Bulletin, 7(1), 73-77.

Lin, N., Dean, A, & Ensel, W. (1986). Social Support, Life Events,and Depression. New York: Academic Press.

Lin, E., Carter, W, & Kleinman (1985). An exploration of somatization among Asian refugees and Immigrants in primary care. American Journal of Public Health, 75, 1080-1084

Manning, W. & Well,K. (1987). The effects of psychological distress and psychological well-being on use of medical services. Medical Care, 30(6), 541-552.

Markides,K. & Copper, C. (1989). Aging,stress and health. New York: John Wiley & Sons.

McCall, N. & Wan, S. (1983). An analysis of the use of medicare services by the continuously enrolled aged.Medical Care 21, 567-576.

McCullough, P. (1991). Geriatric depression: A typical presentations, hidden meanings. Geriatrics, 6(10), 72-76.

McFarlane, A,, Norman, G. & Streiner, D. (1983). The process of social stress: Stable , reciprocal and mediating relationships. Journal of Health and Social Behavior, 24,160-173.

Mechanic, D. (1972). Social psychologic factors affecting the presentation of bodily complaints. The New England Journal of Medicine, 286,(21),1132-1139.

Mechanic, D. (1978a). Effects of psychological distress on perceptions of physical health and use of medical and psychiatric facilities. Journal of Human Stress,26,357-398.

Mechanic, D. (1979, December). Correlates of physician utilization: Why do multivariate studies of physician utilization find trivial psychosocial and organizational effects? Journal of Health and Social Behavior, 20, 387-396.

Mechanic, D. (1982). The epidemiology of illness behavior and its relationship to physical and psychological distress. In David Mechanic (Ed.), Symptoms,Illness Behavior and Help Seeking (pp.1-24). New York Prodist.

Monk, C. (1990). Health Care of the Aged. Needs, Policies, and Services. New York: Haworth Press.

Morrison, P. (1990). Demographic factors reshaping ties to family place. Research on Aging, 12 (4) 390-408.

Mumford, E., Schlesinger & H., Glass, G. (1984). A new look at evidence about reduced cost of medical utilization following mental health treatment. American Journal of Psychiatry, 141, 1145-1157.

National Center for Health Statistics (1981). NY: Haworth Press Inc.

Norris, F. & Murrell, S.(1987). Transitory impact of life event stress on psychological symptoms in older adults. Journal of Health and Social Behavior, 28, 197-211.

Norusis, M.(1990). Advanced Statistics 4.0. Chicago.

Pearlin, (1989). The sociological study of stress. Journal of Health and Social Behavior, 30, 241-256.

Pearlin, L, Liberman, M, Menaghan, E. & Mullan (1981). The stress process. Journal of Health and Social Behavior, 19, 2-21.

Radloff, L. (1977). The CES-D scale, a self report depression scale for research in the general population. Applied Psychological Measurement, 1, 385-401.

Ross P., & Shapiro, E. The Manitoba longitudinal study of aging. Medical Care, 19,644-652.

Ross, C. & Mirowsky, L.(1984). Components of depressed mood in married men and women. American Journal of Epidemiology, 119(6) 997-1004.

Salzman, C. (1990). Anxiety in the elderly: Treatment strategies. Clinical Psychiatry, 51(10), 18-21.

Sarson, I., Johnson, J., & Siegel, J. (1978). Assessing the impact of life changes: Development of the life experiences survey. Journal of Consulting and Clinical Psychology, 48,932-946.

Sarason, I., Sarason, B., Potter, E., & Antoni, M. (1985, April). Life event, social support, and illness. Psychosomatic Medicine, 47(2),156-163.

Selye, H. (1956). The stress of life. McGraw-Hill, Holt New York.

Seeman, M. & Seeman, T. (1983). Health behavior and personal autonomy: A longitudinal study of the sense of control in illness. Journal of Health and Social Behavior, 24, 144-160.

Snider, E. (1980). Factors influencing health services knowledge among the elderly. Journal of Health and Social Behavior,25, 451-461.

Thoits, P. (1982, June). Conceptual, methodological and theoretical problems in studying social support as a buffer against life stress. Journal of Health and Social Behavior, 23, 145-159.

Tessler, R, Mechanic, D, & Dimond, M. (1976). The effects of psychological distress on physician utilization: A prospective study. Journal of Health and Social Behavior, 17, 353-364.

Thoits, P. (1983). Dimensions of life events that influence psychological distress: An evaluation and synthesis of the literature. In H. B. Kaplan (Ed.), Psychological stress: trends in theory and research. Orlando, Fl: Academic Press.

Turnbull, J. (1989). Anxiety and physical illness in the elderly. Journal of Clinical Psychiatry, 50(11),40-45.U.S. Bureau of the Census 1982.Current population survey (March,1982).

U.S. Bureau of Census 1990. Current population survey (March, 1992)

U.S. Bureau of Census 1982. Current population survey (March,1982).

U.S. Bureau of Census 1983. Current population survey (March,1983).

National Center for Health Statistics, "1981 National Ambulatory Medical Care Survey." Reported in the U.S.Senate Special Committee on Aging, Aging America, 1984 edition.

Vingerhoets, A. & Marcelissen, F. (1988). Stress research: Its present status and issues for future developments. Social Science Medicine, 26(3), 279-291.

Wan, TTH. (1982). Stressful life events, social support networks and gerontological health. Lexington, MA: DC Health

Warheit, G. (1979). Life events, coping, stress, and depressive symptomatology. American Journal of Psychiatry, 136(4B), 502-507.

Waxman, H., Carner, E., & Blum, A. (1983). Depressive symptoms and health services utilization among the community elderly. Journal of American Geriatrics Society, 31(7),417-420.

Weinberger, M., Darnell, J., Martz. B., Hiner S., Neil, P. & Turner, W. (1986). The effects of positive and negative life changes on self reported health status of elderly adults. Journal of Gerontology, 41, 114-119.

Wheaton, B. (1983). Stress, personal coping resources, and psychiatric symptoms: An investigation of interactive models. Journal of Health and Social Behavior, 24, 208-229.

Wolinsky, D., Coe, M. & Miller, K. (1983, December). Health services utilization among the noninstitutionalized elderly. Journal of Health and Social Behavior, 24, 325-337.

Wykle, M., Kahana, E. & Kowal, J. (1992). Stress, health among the elderly. New York: Springer Publishing Company.

Wykle, M. & Musil, C.(Spring,1993). Mental Health of Older Persons: Social and Cultural Factors. Generation, pp.7-19.

APPENDIX A

Psychometric Properties for Perceived Social Support Scale

TABLE 13

Cronbach Alpha Reliability	.55
Standardized item alpha	.51
Mean scale score	17.4
Mean scale variance	3.7
Standard deviation scale	1.9
Range of interitem correlations	-.24 to -.39
Number of Items	7

Psychometric Properties of Psychological Distress Summary Index

Table 14

Cronbach Alpha Reliability	.87
Standardized item alpha	.88
Mean scale score	39.5
Mean scale variance	100.5
Standard deviation scale	10.2
Range of interitem correlations	-.03 to .62
Number of items	30

Psychometric Properties of the Stressor Summary Index

TABLE 15

Cronbach Alpha Reliability	.89
Standardized item alpha	.88
Mean scale score	25.51
Mean scale variance	384.9
Standard deviation scale	19.6
Range of interitem correlations	-.07 to .76
Number of Items	58