DEPRESSIVE COGNITIVE FUNCTIONING AMONG SPOUSAL CAREGIVERS OF SUSPECTED DEMENTIA PATIENTS:

APPLICATION OF THE HOPELESSNESS THEORY OF DEPRESSION

BY

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ABSTRACT

This study provides the first examination of the hopelessness theory of depression among an older adult population. Adapted from the theory of learned helplessness, hopelessness depression is hypothesized to exist as a specific depressive subtype within a heterogeneous grouping of affective disorders. Salient negative life events are hypothesized to trigger depressive attributional processes among predisposed persons. This entails the propensity to attribute responsibility for negative events to stable and global causes, leading to the generalized perception of hopelessness.

Seventy spousal caregivers of suspected dementia patients were recruited within an outpatient geriatric assessment clinic. One-time interviews were conducted with caregivers at the time of their relative's assessment. Caregivers were grouped within a predetermined matrix on the basis of responses to two depression screening measures. Analyses were subsequently conducted to assess the degree of association between the construct of hopelessness and depressive attributional style.

A second focus of this study was an examination of the relationship between hopelessness and caregiver burden. This analysis suggests the constrained cognitive processes associated with the construct of hopelessness are significantly related to burden among caregivers. It is hypothesized that caregiver burden may be a specific type of hopelessness depression within this population.
The results of univariate and multivariate analyses indicated a strong and significant association between hopelessness and depressive attributional processes. In contrast, depressed persons who do not present as hopeless do not appear to attribute negative events to stable and global causes. These findings provide the first indication that hopelessness effectively differentiates cognitive functioning within this population of older adults.

The construct of hopelessness also appears significantly related to expressed burden among spousal caregivers. The constrained cognitive set epitomized by hopeless ideation may reflect the despair perceived by those caregivers who are overwhelmed by this role. This association appears over and above objective variables related to patient impairment and duration of caregiving.

The sample recruited for the current study was compared against a randomly derived grouping of spousal caregivers from the Canadian Study of Health and Aging (CSHA). Demographic similarity between samples would suggest that caregivers recruited for the current study are representative of Canadian caregivers. Based on this finding, results from the current study can be generalized with greater confidence.
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DEDICATION

In memory,
Violet Rose O'Rourke
(1922 - 1991)

and my father, Norman, who cared for her.

כל ישראל ערבים זה ביניו
Each is responsible for the welfare of others
(Shavuot 39a)
CHAPTER 1 - INTRODUCTION

For the dreadful thing I feared has come upon me; and that which I feared has come to me. I am not at ease, nor am I at rest; nor am I quiet; yet trouble comes.

(Job, Chapter 3: 25-26)

Imagine living in the midst of dense fog. Once familiar faces seem like those of strangers and actions performed a few moments earlier are quickly forgotten. Friends and family gradually slip from view and even one's surroundings soon become unclear. Even one's spouse may be confused with a parent and the memories of children soon slip away. All the while not knowing anything is amiss, the most basic of tasks become unmanageable. It becomes frightening to answer a phone, hygiene becomes unimportant and even bodily functions slowly slip from control. Mortimer and Schuman suggest roughly one person in five who reaches the age of 65 may end their days in this condition (1981).

Description of the Problem

Despite the distress reflected in the above description, the oblivion of dementia provides patients with an ironic degree of security that caregivers are not afforded. The range of cognitive and behavioural disturbances caused by neurodegenerative disorders
such as Alzheimer disease create extraordinary demands for those closest to the patient (DeLongis & O'Brien, 1990; Zarit, Orr & Zarit, 1985). Considering that as many as 83% of demented Canadians continue to live in the community (Jeans, Helmes, Merskey, Robertson & Rand, 1987), and that the average life expectancy is ten to twelve years after diagnosis (Davison & Neale, 1990), it is little wonder Fengler and Goodrich (1979) describe family caregivers as the hidden victims of dementia.

The majority of these caregivers are spouses who themselves are elderly (Canadian Study of Health and Aging Study Group, 1994b; Haley, Levine, Brown, Berry & Hughes, 1987). Although the patient may look unaffected and free of physical impairment, the strain of caring for a demented adult may be akin to that of caring for an infant. As noted by Colerick and George (1986), the primary reason to institutionalize a demented relative is the unrelenting demands of round-the-clock care. Mace and Rabins figuratively equate this role to a 36 hour day (1981).

**Extent of the Problem**

Much of the concern regarding the prevalence of dementia is not simply due to the number of existing cases, but the extent to which the problem is expected to increase. As dementia primarily afflicts older persons, the incidence of conditions such as Alzheimer disease are steadily on the rise (Skoog, Nilsson, Palmertz, Andreasson & Svanborg, 1993). In part, this may be due to improvements in diagnostic effectiveness. Yet, as populations
continue to age in western society, we can anticipate a substantial increase in the prevalence of dementia. As described by Ineichen (1987), this trend is akin to a rising tide.

In Canada, the median age of the population can be expected to increase well into the next century. Based upon recent data, the percentage of persons over the age of 65 continues to increase relative to other groups (Statistics Canada, 1992). Though the total population has increased by 50% since 1961, the proportion of elder Canadians has increased by 128% over this same period. In fact, the most recent census indicates that not only is the population aging, but the fastest growing segment is persons over 84 years.

As noted by Jorm, Korten and Henderson (1987), the proportion of elderly with dementia increases exponentially with age. We can, therefore, anticipate an escalation in prevalence rates not only as a general trend toward an older population but also because of the expanding ranks at the upper end of this continuum.

Many studies have attempted to calculate the existing numbers of demented persons in this country. Yet the results have shown considerable variability. In part, this has been due to researchers' use of different population bases, varying methodologies and inconsistent definitions for inclusion.

Among the strongest studies is the recent Canadian Study of Health and Aging (CSHA; Canadian Study of Health and Aging Working Group, 1994a). This nationwide, epidemiological study derived a random sample exceeding 10,000 Canadians over the age of 64 years. Subjects were identified from provincial health records in
all provinces (except Ontario). Those scoring below a predetermined cut-off point on the screening measure (Modified Mini-Mental State Examination (3MS); Teng & Chui, 1987) were invited to undergo a full clinical examination. On the basis of this detailed assessment (N = 2,420), estimates were derived which suggest the percentage of persons in the community and institutions who currently meet dementia diagnostic criteria ranges from 2.4% of those 65 to 74 years to 34.5% of those 85 years or older (CSHA Working Group, 1994a). Appendix One provides a more thorough description of the aims and methodology of the CSHA.

The figures provided from the CSHA have been applied against population estimates to provide projections for anticipated cases of dementia in Canada. Based upon Statistics Canada estimates (1994), Appendix Two shows how the prevalence of dementia will likely increase in coming years. Not only are close to 300,000 persons now clinically demented, but by the year 2016 we can estimate that over half a million persons will suffer from a form of dementia in this country.

It is important to note that not all these persons will necessarily have Alzheimer disease. Though this is the most prevalent form of senile dementia (American Psychiatric Association, 1994), 70 other illnesses also create similar symptoms. According to Katzman and Jackson (1991), however, Alzheimer disease accounts for roughly two thirds of all dementia cases among older patients. This percentage corresponds to
findings from the CSHA where Alzheimer disease accounted to 64% of all dementia cases (CSHA Working Group, 1994a).

Purpose of the Study

The primary intent of this study has been to examine the postulates of hopelessness theory of depression (Abramson, Metalsky & Alloy, 1989). This hypothesized subtype of depression was believed to exist in this population. Spousal caregivers of suspected dementia patients have provided an ideal subject pool to examine this diathesis-stress model.

According to this theory, cognitive vulnerability exists among a specific subset of persons. Once activated by salient negative events, depressogenic thought patterns lead to a generalized perception of hopelessness and subsequently to depressive symptoms (Alloy, Abramson, Metalsky & Hartlage, 1988). This study sought to identify distinct attributional processes which theoretically should distinguish this population from other depressed subjects and those who are asymptomatic.

Among those who present as hopeless and depressed, the tendency to attribute negative events to stable and global factors should be evident (Abramson, Seligman & Teasdale, 1978). By measuring these attributions at one point in time, support was sought for this theory, which views each of these constructs as interdependent. According to Abramson et al. (1989), it is reasonable to assess depressogenic attributions and hopelessness independently.
As described by Alloy et al. (1988), a flaw of previous studies which have tested attributional models is that stressors required to activate depressogenic attributional style have not been of sufficient magnitude. Therefore, it is necessary for susceptible subjects to view negative events as sufficiently severe to activate a predisposing tendency for depressive cognitive functioning. Certainly manipulation of this intervening variable would be ethically problematic within an experimental setting. In contrast, an Alzheimer outpatient clinic has provided a population of caregivers for whom depression was assumed to exist among a significant percentage according to previous findings (Cohen & Eis dorfer, 1988).

A further objective of this descriptive field study has been to examine the relationship between the construct of hopelessness and burden among caregivers. This marks a more precise and theoretically distinct investigation as compared to existing studies.

Previous research has demonstrated depression is moderately correlated with expressed burden (Anthony-Bergstone, Zarit & Gatz, 1988; Drinka, Smith & Drinka, 1987; Fitting, Rabins, Lucas & Eastham, 1986). The nature of this relationship, however, remains unclear. In contrast, this study has allowed for an examination of burden vis-à-vis depressogenic cognitions and hopelessness. This line of inquiry was chosen to ideally enhance understanding of the nature and etiology of burden among spousal caregivers.
CHAPTER 2 - LITERATURE REVIEW

... there are two forms of death, not one. In one form, everything which holds us in the world, everything we love, may remain precious until the last instant. Everything will stay as it is. Faces will remain what they have always meant to us. In this form of death, life holds all its beauty to the last second.

Then there is the form of dying in which everything familiar becomes strange, everything known becomes unknown, everything true becomes false, everything loved becomes indifferent, everything pitiful becomes pitiless, everything compassionate becomes as hard as a stone. This room will soon become a prison. The door will be locked (Ignatieff, 1993, p 198-199).

Description of Alzheimer Disease

Alzheimer disease is the most prevalent of the dementia syndromes (CSHA Working Group, 1994a; Zec, 1993). Primarily a disorder of later life, onset is generally insidious with a progressive course (McKhann et al., 1984). Incidence increases exponentially with age, yet symptoms may appear as early as one's thirties (Katzman & Jackson, 1991).

Characteristic features entail impairment of cognitive functioning. Though considerable variability occurs, what is generally most apparent is memory disturbance (Strub & Black, 1993). Other deficits may include speech, visuospatial perception, construction, judgment, abstraction, praxis and personality changes (McKhann et al., 1984).
To date, there is no cure for Alzheimer disease. This is due in large measure to the fact that its cause, or causes, are also unknown. What is apparent, however, is that this disorder causes a progressive deterioration of brain tissue over time. Upon autopsy, marked atrophy of the cerebral cortex is evident as sulci have widened, ventricles have become enlarged and gyri have become narrow and flattened (McKhann et al., 1984). This occurs as a result of the loss of neurons, or more specifically, the loss of synapses in the cerebral neocortex association areas and hippocampus (Kowall & Beal, 1988).

Definitive diagnosis requires the identification of neuritic plaques and neurofibrillary tangles upon biopsy or autopsy. Plaques appear as small, round areas consisting of the remnants of lost neurons and tangles are abnormal protein filaments within the cell bodies of neurons. Greatest concentration is generally found in the frontotemporal and parietal regions. These accumulate through the course of this disorder yet may be present 10 to 20 years prior to diagnosis (Selkoe, 1992).

It would appear the presence of these features is a result of pathogenic processes resulting from abnormal protein synthesis. As of late, amyloid precursor protein (APP) has become the focus of studies of the molecular biology of Alzheimer disease (Katzman & Jackson, 1991). Its presence within the plaque and tangles of Alzheimer patients has led researchers to suspect its role is causal.
Evidence that amyloid may play a critical role in the pathogenesis of Alzheimer disease comes primarily from studies of Down's syndrome. Also known as trisomy 21, individuals who reach later life (35-40 years) present many of the same features as Alzheimer patients. In addition to impaired cognition, it would appear all persons with Down's syndrome will develop the plaques and tangles characteristic of Alzheimer disease if they reach middle age (Percy, 1993).

Down's syndrome occurs as a result of an extra chromosome in position 21. Markers for Alzheimer disease have also been located on this location. In fact, the amyloid (APP) discussed above is coded by a gene located on chromosome 21. This has led researchers to consider the operation of a dominant gene in this position as responsible for the onset of Alzheimer disease. This genetic hypothesis is supported by the increased prevalence among first degree relatives of dementia patients.

Yet even among monozygotic twins, complete concordance does not occur. In research cited by Jarvik, Ruth and Matsuyama (1980), concordance among monozygotic twins is significantly greater than for dizygotic probands (42.8% and 8% respectively). Though this would suggest the operation of genetic factors, it is important to note that even among genetically identical persons concordance is not absolute. This may, therefore, suggest the operation of a diathesis-stress relationship in which the interaction of both environmental and genetic factors determines the occurrence of this disorder (Mohs, 1988).
Diagnostic Criteria

According to the most recent Diagnostic and Statistical Manual of Mental Disorders (DSM IV; APA, 1994), diagnosis of dementia of the Alzheimer type (DAT) requires evidence of memory impairment in addition to at least one other deficit in cognitive functioning. This may include abstract thought, impaired judgment, personality change or other disturbances in higher cortical function (e.g., aphasia, agnosia, apraxia or constructional ability). These disturbances must impede work or social activities and not occur as a result of a reduced level of consciousness (i.e., not delirium). Other conditions which produce dementia-like symptoms must also be excluded.

The most common condition misdiagnosed as dementia is unipolar depression. As discussed by Strub and Black (1993), this condition among the elderly has often been referred to as pseudo-dementia because of similarity in presentation between major depression and conditions such as DAT. It is critical to discern this difference, however, as depression among the elderly is most often responsive to treatment whereas dementia is not (Kaszniaik & DiTraglia Christenson, 1994; Strub & Black, 1993).

Few changes are evident between DSM IV and the previous diagnostic manual (DSM III-R; APA, 1987). The most notable revision is that impairment need no longer include remote memory. Also of note, greater emphasis has been placed on disturbance in executive function (i.e., frontal features). Other changes include greater delineation between Alzheimer disease and other dementing
illnesses (i.e., dementia due to HIV disease). In general, these revisions were intended to create greater compatibility with the International Classification of Diseases (ICD-10) and the National Institute of Communicative Disorders and Stroke - Alzheimer Disease and Related Disorders Association (NINCDS-ADRDA; McKhann et al., 1984) assessment criteria.

In 1984, NINCDS-ADRDA devised criteria distinct from those required for diagnosis. Primarily for research purposes, these are intended to distinguish among different presentations of the disorder. In part, this was due to the high rate of false positives based upon previous assessment criteria (McKhann et al., 1984).

As earlier noted, Alzheimer disease can only be definitively determined by biopsy or postmortem. Thus living patients can only receive a probable or possible diagnosis according to NINCDS-ADRDA criteria. The features of probable Alzheimer disease include deficits in two or more areas of cognition, a progressive course and insidious onset.

Between one quarter and one third of Alzheimer patients, however, do not have such typical presentations (Katzman & Jackson, 1991). Possible diagnosis may reflect less gradual onset, plateaus in the course of the illness, only one area of cognitive impairment or the co-existence of other disorders. Though a second illness may be identified, it is assumed the primary cause of impairment is due to Alzheimer disease.
The Study of Caregiver Burden

A 1980 paper by Zarit, Reever and Bach-Peterson is among the most cited in caregiver research. Up until this point, it was generally assumed burden was directly proportional to the level of impairment of the Alzheimer patient. Yet this study refuted this belief by demonstrating that burden is a highly idiosyncratic experience. In effect, this initiated an area of research which has grown to become one of the most widely studied topics in gerontology (Zarit, 1990). Despite this interest, however, the nature of perceived burden as well as its relationship to depression among caregivers, is still not fully understood.

Based on the stress and coping model of Lazarus and Folkman (1984), Zarit (1990) has proposed a framework for the study and understanding of the demands of caregiving. This perspective views specific demands or stressors as being mediated by environmental and cognitive features. Situational factors in this context include primary and secondary stressors, which are moderated by appraisal and mediating factors such as coping and social support. In general, caregiver outcomes such as burden and depression result when contextual features outweigh the buffering effects of protective psychological processes (DeLongis & O'Brien, 1990; Pearlin, Mullan, Semple & Skaff, 1990; Zarit, 1990).

Primary Stressors of Caregiving

Primary stressors refer to the central features of caregiver/patient interaction. These include the demands posed by the
patient's disabilities in conjunction with the contextual aspects of the relationship. For instance, this entails the specific tasks the caregiver must perform as a result of the behavioural and cognitive deficits of one's partner.

As noted by George and Gwyther (1986), the exclusive study of caregiving has often minimized the demands of this role. Looking at this population in isolation tends to underestimate the strain caregivers of dementia patients experience relative to other older adults (Eagles et al., 1987). For instance, a person caring for a spouse with other illnesses such as cancer or diabetes mellitus generally does not have to contend with wandering, lashing out or reversal of sleep patterns. In part, this is due to impairment of cognitive functioning while physical capacity often remains intact until the late stages of a dementing illness.

In their comparison study with age-matched controls, George and Gwyther (1986) suggest caregivers of dementia patients experience three times as many stress symptoms, greatly reduced life satisfaction, higher psychotropic drug use and substantially lower levels of social activity. As compared to cohorts, this population is especially vulnerable to decreased well-being in the areas of mental health and social participation. These results underscore the unique demands of caring for a demented relative.

Research suggests it is not cognitive impairment per se which creates excessive strain, but accompanying behavioural disturbances. In fact, behaviours such as incontinence and aggression correlate more strongly with perceived burden than
functional impairment (Deimling & Bass, 1986; Gilleard, Belford, Gilleard, Whittick & Gledhill, 1984). It has also been suggested these behaviours precipitate the decision to institutionalize a demented relative (Chenoweth & Spencer, 1986).

Though one might assume the extent of behavioural impairment increases with cognitive decline, this has been refuted in recent studies (Teri, Borson, Kiyak & Yamagishi, 1989; Winogrond, Fisk, & Kirsling, 1987). In part, this may account for the weak correlation between functional impairment and perceived burden (Baumgarten, 1989). Underlying the idiosyncratic course of neurodegenerative illnesses, the variability with which behavioural problems occur suggests few consistencies exist.

A further topic related to the contextual features of this relationship deals with the gender of the caregiver. Though women are generally overrepresented as caregivers in most studies (Baumgarten, 1989), comparisons have been made to determine if differences in experience exist (Miller & Cafasso, 1992). In general, the results are conflicting (cf. Anthony-Bergstone et al., 1988; Fitting et al., 1986; Quayhagen & Quayhagen, 1988). In part, this may be due to sampling methods which often are unrepresentative of all caregivers. Though it has been suggested that reporting differences exist between husbands and wives (Verbrugge, 1985; Zarit, Todd & Zarit, 1986), few other conclusions can be made at this time.

One feature related to strain among spousal caregivers is the quality of the premorbid relationship (Williamson & Schulz, 1990).
In contexts where difficulties are reported prior to the onset of dementia, this relates to the perception of burden and depression (Zarit et al., 1986; Gilleard et al., 1984). In part, this may be due to the insidious nature of dementing disorders. According to Woods, Niederehe and Fruge (1985), it is not uncommon to attribute early disturbances to marital factors. Yet caution is required before drawing causal conclusions. Prospective studies do not exist to corroborate this finding. It must also be noted that perceptions of the premorbid relationship may be influenced by the onset of disease (O'Rourke, Hayden, Haverkamp, Tuokko & Beattie, 1995).

Secondary Stressors

Aside from the immediate strain, secondary stressors entail the consequences of providing care in other domains of the caregiver's life. These include restriction of leisure activities, financial strain and the loss of relationship with one's life partner (Woods et al., 1985).

The stress which results from the degeneration of personality may be considerable in the latter stages of the illness. For instance, it is not uncommon for a spouse to be confused with a parent (Zarit et al., 1985). Though the insidious nature of Alzheimer disease often prevents caregivers from noting the progressive change, these episodes strongly reinforce the extent of cognitive decline.

A further area of study addresses the degree of social isolation many caregivers experience. According to numerous
studies, this is a primary correlate to perceived burden (Haley et al., 1987; Pearson-Scott, Roberto & Hutton, 1986; Soldo & Hyllyluoma, 1983). The continual demands of caring for a demented spouse are often attenuated by perceptions of isolation from friends and family. This includes restricted contact with one's support system which otherwise might ameliorate the frustration and strain of providing continual care (DeLongis & O'Brien, 1990).

Mediators of Stressors

The primary mediators proposed in the caregiving literature have been coping and social support. The relationship between these factors and perceptions of strain and burden has enabled researchers to begin to clarify the complex interaction among contextual demands and these buffering factors.

A consistent finding among longitudinal studies relates to the variable nature of burden. Though this may be confounded by behavioural changes over time (Teri et al., 1989), most suggest coping ability among primary caregivers improves through the course of the illness (Haley et al., 1987; Gilhooly, 1984; Pratt, Schmall, Wright & Cleland, 1985; Zarit et al., 1986). This implies a curvilinear relationship between perceived burden and cognitive decline. More precisely, as the demands of this role increase, the caregiver's ability to cope gradually matches, then surpasses, these demands. This corresponds to the adaptation model of coping proposed by Haley and Pardo (1987).
According to Lazarus and Folkman (1984), a distinction exists between emotion-focused and problem-focused coping. The former refers to efforts directed at regulating the emotion itself as opposed to means directed at constructively managing the threatening condition. Though both techniques are instrumental in effective coping, a problem-focused approach is believed to meet the demands of caregiving more effectively (Zarit, 1990). Not only is this a more resilient strategy, but may result in improved management of the demented spouse (Niederehe & Funk, 1987).

It has been suggested that reliance on these distinct coping patterns may change over time. More precisely, caregivers may rely upon emotion-focused coping in the initial stages yet, as familiarity with the condition increases, coping may become more problem-focused. If the latter is a more effective coping technique, as Niederehe et al. suggest (1987), this change over time may account for the curvilinear relationship between burden and functional impairment (Winogrond et al., 1987).

The effectiveness of social support in mitigating burden has likely been the most studied topic in caregiving research. The original report by Zarit et al. (1980) suggests the strongest predictor of caregiver burden is interaction with one's support network. This study states burden is inversely related to frequency of family visits.

Yet this association may be more complex than initially suggested. More recent research indicates it is not volume of contact per se but satisfaction with one's social network which
relates most strongly to perceived stress and coping (Fiore, Becker, Coppel & Cox, 1986; Haley et al., 1987). In fact, a study by Pearson-Scott et al. (1986) demonstrated that the most burdened group among their sample received the greatest amount of contact with extended family.

In relation to depression among caregivers, an association with network satisfaction has also be suggested (Pagel, Erdly & Becker, 1987). Pagel and Becker (1987) provided support for the buffering hypothesis (Cohen & Wills, 1985) by demonstrating network satisfaction mediates the effect of depressogenic cognitions. By interrupting this relationship, perceptions of social support are believed to protect the caregiver from generalizing depressive attributional processes to all facets of his/her life. This longitudinal study suggests depressogenic cognitions can exist among caregivers without leading to psychopathology so long as counteracted adequately by perceived network satisfaction.

Secondary Appraisal

The term secondary appraisal is drawn largely from the work of Lazarus and Folkman (1984). This describes the process by which people evaluate the adequacy of their resources vis-à-vis the threat posed by stressors. In caregiving research, this entails the cumulative perception of how one currently feels about the caregiving situation. The belief one's resources are adequate or inadequate in this context may be a strong predictor of stability or breakdown of the caregiving relationship. To date, this has been
most objectively gauged with respect to the decision to institutionalize a demented relative (Zarit, 1990).

It is the conclusion of Gwyther and Spencer (1986) that the placement decision is a function more of caregiver characteristics than those of the patient. Though most report the patient's level of impairment is the primary reason to place one's relative (Chenoweth & Spencer, 1986; Shulman, Pushkar Gold, Cohen & Zucchero, 1993), the threshold of disruptive behaviours one is able to tolerant varies widely. For instance, Zarit et al. (1986) report high initial ratings of burden were predictive of the decision to place a demented relative.

As discussed above, one's appraisal of social support is likely related to the decision to maintain care within the home. In a longitudinal study by Colerick and George (1986), initial reports of social network satisfaction, oddly enough, were highest for those who later chose to place the demented patient. It was a relative decrease in social support (evident when later measured) which was most strongly related to the decision to institutionalize. This suggests changes in one's ability to cope may lead to a reappraisal of the residency decision.

Caregiving Outcomes

According to Haley, Levine, Brown and Bartolucci (1987), the stress and coping paradigm provides a useful framework for understanding the etiology of various caregiver outcomes. Considering the idiosyncratic nature of perceptions such as burden
and depression (Duijnstee, 1992), this model allows one to better comprehend the cognitive processes which lead to these perceptions.

As noted previously in this discussion, burden among caregivers is generally unrelated to the patient's level of impairment (Gilhooly, 1984). It would seem various cognitive processes play a causal role; however, research has not fully defined the nature of perceived burden. Though the Lazarus and Folkman model (1984) facilitates understanding of how burden, reduced morale or role strain may arise, it does not clearly define what burden is. This conclusion is held by Vitaliano, Young and Russo (1991) in their analysis of burden measures. Though most of these instruments reliably identify the condition, the construct itself remains nebulous.

In part, this is due to the varying manner in which researchers have operationalized burden (Zarit, 1990). Though widely recognized as a common experience among caregivers, definitional differences impede the ability to draw definitive conclusions. The measure most widely used (Burden Interview (BI); Zarit & Zarit, 1990) taps each component of the stress and coping model yet primarily represents a combination of secondary stressors (role strain and conflict) and secondary appraisal. This has been confirmed by factor analysis (Whitlatch, Zarit & von Eye, 1989). Though cognitive theory has successfully identified many of the factors which lead to the perception of burden, the condition itself needs to be defined more succinctly.
**Depression among Caregivers**

One consistent research finding is the degree to which burden correlates with measures of depression (Zarit, 1990). Though some suggest the level may be overstated (Anthony-Bergstone et al., 1988), Cohen, Kennedy and Eisdorfer (1983) believe clinical depression exists among a sizeable proportion of those who care for a demented relative. This has been reported in independent studies where the percentage of caregivers who meet diagnostic criteria range from half to over 80% (Barusch, 1988; Cohen & Eisdorfer, 1988; Coppel, Burton, Becker & Fiore, 1985; Drinka et al., 1987; Haley et al., 1987; Kiecolt-Glaser, Dura, Speicher, Trask, & Glaser, 1991; Rabins, Mace & Lucas, 1982).

One difficulty, however, is defining what constitutes depression within this population (Becker & Morrissey, 1988). Considering the extraordinary demands faced by many spousal caregivers, it is reasonable for depressive symptoms to exist among a significant percentage. It could be argued, in fact, that it would be more aberrant to be asymptomatic in this context.

This relates to a further complication, as noted by Cappeliez (1988). Diagnostic criteria for depression do not differentiate how symptoms are expressed among older persons (DSM IV; APA, 1994), thus failing to acknowledge the unique characteristics of older populations (Gallagher-Thompson & Thompson, in press). From a behavioural perspective, the demands and environmental conditions faced by the elderly must be considered (Teri, 1991). Older persons face health concerns, shrinking social networks and financial
constraints unique to this age group. In addition, the somatic features of depression such as sleep disturbance occur commonly among non-depressed elderly persons (Shaver & Brennan, 1992). These factors complicate the degree to which clinical diagnoses can be made with certainty (Cappeliez, 1988).

However, the research is rife with studies which strive to identify the components of depressive ideation among this population. Within a cognitive framework, this has entailed the study of various attributional constructs which coexist or predict the onset of affective disorders. In their review of the literature, Morris, Morris and Britton (1988) summarize findings which suggest certain attributional processes are correlated with depression among caregivers. More precisely, the tendency to perceive the strain and distress caregivers experience as enduring and likely to impact all other facets of their lives appears to correlate with measures of depression. In separate studies, Morris (1986) and Coppel et al. (1985) demonstrate an association between the extent caregivers generalize attributions to other contexts and the severity of depression. This suggests the subgroup whose pessimism is not limited to the caregiving context are those more likely to become depressed. The tendency to apply depressogenic attributions widely differentiates depressed caregivers from those who are asymptomatic.
Hopelessness Depression

Bloody and bowed by the outrages of life, most human beings still stagger down the road, unscathed by real depression. To discover why some people plunge into the downward spiral of real depression one must search beyond the manifest crisis... (Stryon, 1990, pp. 39-40).

Based on the reformulated theory of learned helplessness (Abramson, Seligman & Teasdale, 1978), the hopelessness model of depression provides a revised framework describing the relation between attributional style and affective disorders. Combining recent developments in cognitive science and findings from empirical studies, this model recognizes the heterogeneity of depressive disorders. According to Abramson, Metalsky and Alloy (1988), hopelessness depression exists as a distinct subtype of depression with a set etiological taxonomy of necessary and contributory elements.

This distinguishes hopelessness depression from the 1978 formulation. For instance, the revised model recognizes that depressive cognitive processes are but one factor contributing to the onset of affective disorders. Defined as the tendency to make negative inferences across different contexts over time, a depressogenic attributional style creates biased thinking among certain populations (Alloy et al., 1988).

Though it is believed some are predisposed to these thought processes, these first must be triggered by salient negative life
events (Alloy, Abramson & Lipman, 1992). This diathesis-stress component suggests cognitive vulnerability exists among predisposed persons. Once primed, depressogenic cognitive patterns are theorized to activate a sequence of events in this causal chain (see Figure 1).

In keeping with the earlier theory, persons susceptible to hopelessness depression tend to ascribe negative events to global and stable causes. More precisely, this suggests negative causal attributions are enduring (stable over time) and generalized over contexts (Abramson et al., 1989). Thus negative events are not seen as isolated incidents, but indicative of one's future.

The perception of hopelessness is the result of this depressogenic attributional style. Defined as the generalized expectancy that desired outcomes will not occur and that no response in one's repertoire will change the likelihood of these outcomes, hopelessness accelerates this downward cognitive spiral. In effect, this perception combines and expands upon global and stable schemata for negative events creating depressogenic synergy between these attributions.

It is important to differentiate between this perceived state of hopelessness and circumscribed pessimism (Alloy et al, 1988). In response to negative events, the latter may arise without affecting causal attributions in other life domains. In contrast, generalized hopelessness creates a sense of powerlessness along with the belief one's future will be bleak. For example, it is not abnormal to become distraught if one's spouse is diagnosed with a
Figure 1. 

Hopelessness Model of Depression *

Adapted from Alloy et al. (1988).
dementing illness. Only when this despair becomes wide ranging does depression occur (Fitting et al., 1986).

In contrast to most diagnostic research, hopelessness depression is grounded in theory as opposed to clinical observation. As such, hopelessness depression is defined by its etiology, not by a distinct constellation of symptoms. This process-oriented approach does not see the symptoms of hopelessness depression as markedly distinct from other affective disorders. What distinguishes this hypothesized subtype of depression is the means by which it arises. This enables researchers to utilize existing assessment measures. For instance, revised versions of the Attributional Style Questionnaire (e.g., Peterson & Villanova, 1988), along with the instruments developed by Beck (1979), remain appropriate in the study of hopelessness depression (Alloy et al., 1988).

To date, the hopelessness theory of depression has not been widely tested. This is due primarily to its recent development. The few studies that exist provide equivocal support for the model. For instance, Alloy et al. (1992) and Metalsky and Joiner (1992) have provided supportive research findings. Yet separate studies by McEvoy-DeVellis and Bablock (1992) and Tiggemann, Winefield, Winefield and Goldney (1991) have challenge the chronology of the model.

The most recent published study by Spangler, Simons, Monroe and Thase (1993) attempted to differentiate patients presenting as hopeless within the population of depressed persons. On the basis
of symptom presentation, levels of hopelessness and the attributional style of subjects was subsequently assessed. This method appeared to appropriately categorize depressed persons on the basis of hypothesized causal factors yet the appearance of symptoms between groups appeared similar. This study, like all others to date, employed a diverse grouping of depressed young adults. The hopelessness model has yet to be tested among older persons.

**Research Questions**

The framework of this revised model suggests that a specific etiology leads to the onset of hopelessness depression (Abramson et al., 1989). Once schemata are triggered among predisposed persons, a proportion will become hopeless and eventually present with depressive symptoms. By approaching this model retrospectively, one can hypothesize that all persons who appear hopeless and depressed operate with these depressogenic cognitions. In contrast, the majority of persons who are neither hopeless nor depressed are likely invulnerable to this diathesis. This suggests that mean differences for the constructs of globality and stability should be evident among distinct participant groupings.

Related to this point, Alloy et al. (1988) state hopelessness depression is but one condition among the heterogeneous grouping of mood disorders. It is, therefore, consistent with the theory to state that depression can exist without the operation of depressogenic thinking. For instance, depression which results due
to organic (Gilley, 1993) or hormonal factors (Manly, McMahon, Bradley & Davidson, 1982) need not require the operation of this cognitive diathesis.

In this study, should the sample be representative of a diverse population of depressed persons, depression should be apparent with and without the presence of hopelessness. This provides the first hypothesis of this study.

\( H_0 \): Among the proportion of caregivers who present as depressed, no significant difference will be evident in their scores on the hopelessness measure.

\( H_a \): Among the proportion of caregivers who present as depressed, a significant difference will be evident in their scores on the hopelessness measure.

Using measures of hopelessness and depression, this study has grouped subjects within a predetermined matrix. Four quadrants were formed in which each subject was placed on the basis of hopelessness and depression scores (neither hopeless nor depressed, hopeless and not depressed, depressed and not hopeless, hopeless and depressed).

At this point, no definitive hypotheses have been proposed regarding subjects who appear hopeless yet not depressed. The chronology between onset of hopelessness and hopelessness
depression is presently unclear. These subjects may remain in this state or eventually adopt depressive symptoms.

For the purposes of this study, the theory can be tested with greatest specificity by examining the attributional constructs among those who are hopeless and depressed as compared to the two remaining groups. The constructs of globality and stability should be more evident among the former group as opposed to other subjects. In order to test the theory under these conditions, the following hypotheses were proposed:

H₀: Means scores for the attributional constructs of globality and stability will not be significantly different between subjects who are hopeless and depressed (HD) as compared to these same means for subjects who are depressed but not hopeless (D-H) and subjects who are neither depressed nor hopeless (-H-D).

H₀: (μ₀, μ₀)hd = (μ₀, μ₀)d-h = (μ₀, μ₀)-h-d

Hₐ: Means scores for the attributional constructs of globality and stability will be significantly different between subjects who are hopeless and depressed (HD) as compared to these same means for subjects who are depressed but not hopeless (D-H) and subjects who are neither depressed nor hopeless (-H-D).
The second intent of this study has been to compare ratings of perceived burden to each of the depressive constructs. These include the attributions of globality and stability as well as hopelessness and overall depression.

As discussed previously, burden is largely described as an outcome of the stress and coping paradigm in which cognitive processes are viewed as highly salient (Haley et al., 1987; Pearlin et al., 1990; Zarit, 1990). Perceived hopelessness is also viewed largely as a cognitive phenomenon (Beck & Weishaar, 1989). If seen as a construct encompassing all depressive thought processes (Abramson et al., 1989), then hopelessness may be strongly related to burden within this population.

As expressed by the theory, depression can also arise due to factors unrelated to cognition (Alloy et al., 1988). Thus if burden is seen largely as a cognitive process, it is theoretically consistent to speculate that this perception is more strongly correlated related to a form of depression assumed to arise from dysfunctional thought processes. This provides the final hypotheses of this study:

\[ H_a: (\mu_g, \mu_s)_{hd} \neq (\mu_g, \mu_s)_{d-h} \]  

or

\[ H_a: (\mu_g, \mu_s)_{hd} \neq (\mu_g, \mu_s)_{d-h} \]

\[ H_0: \text{Perceived burden (b) among caregivers will not be correlated more strongly with hopelessness (h) than other depressogenic constructs [total depression (d), globality (g) and stability (s)]} \]
\( H_0: \ P_{bh} = P_{bd} = P_{bg} = P_{bs} \)

\( H_a: \ \text{Perceived burden (b) among caregivers will be correlated more strongly with hopelessness (h) than other depressogenic constructs [total depression (d), globality (g) and stability (s)].} \)

\( H_a: \ P_{bh} > (P_{bd} = P_{bg} = P_{bs}) \)

Within applied stress and coping models (cf. Pearlin et al., 1990; Zarit, 1990), caregiver burden is believed to result when the demands of this role surpass a subjective assessment of one's resources. In effect, burden results from constricted perception of one's ability to cope relative to the demands of the caregiving context. This is not simply an outcome of an objective appraisal of patient deficits and one's resources, but a more interpretive appraisal of the context and one's future. It is hypothesized that burden may arise because of depressive ideation arising from the demands of this role and the impact upon how one perceives other life events. Similar to the hopelessness model proposed by Abramson et al. (1988), depressive cognitive patterns may be activated by the illness of one's spouse (i.e., salient stressor). This may lead to operation of depressive thought patterns with caregiver burden as an eventual outcome. This specific form of hopelessness depression may be idiosyncratic to the caregiving context.
CHAPTER 4 - METHODOLOGY

The psychiatric literature on depression is enormous, with theory after theory concerning the disease's etiology proliferating as richly as theories about the death of dinosaurs or the origin of black holes. The very number of hypotheses is testimony to the malady's impenetrable mystery (Styron, 1990, p. 77).

Subjects

From February to December 1994, 70 spousal caregivers (23 men and 47 women) were interviewed for this study. This total represents 88% of those entering the Alzheimer Clinic who met initial study criteria (all but nine eligible participants). Three caregivers chose not to be interviewed, two interviews were discontinued due to poor English comprehension, two because of effective anti-depressant use, one due to cognitive impairment (i.e., lack of capacity for abstract thought), and one because of a pronounced personality disorder (Cluster B, presentation as confirmed with Clinic Psychologist).

Subjects for this study, in effect, were derived indirectly. As caregivers fall into this category due to their relatives' condition, they likely represent a highly heterogeneous population.

The Clinic for Alzheimer Disease and Related Disorders receives referrals from all regions of British Columbia. General practitioners, neurologists and other physicians direct patients to this facility in order to undergo a complete assessment. Both the
patient and a caregiver meet with professionals from various disciplines over a two day period. These include geriatric medicine, speech pathology, neurology, neuropsychology, social work, genetics and psychiatry.

Collaboratively among disciplines, patients' current level of functioning is rated along various dimensions (Functional Rating Scale (FRS); Tuokko, Crockett, Beattie, Horton & Wong, 1986). Diagnoses are made in keeping with National Institute of Communicative Disorders and Stroke - Alzheimer Disease and Related Disorders Association assessment criteria (NINCDS-ADRDA; McKhann et al., 1984). According to Katzman and Jackson (1991), the validity of NINCDS-ADRDA criteria exceeds 90% in multidisciplinary settings.

Only spouses who identified themselves as the primary caregiver for community-residing patients were included in this sample. This protocol also excluded other family members (i.e., daughters, daughters-in-law). As recently noted by Hooker, Frazier and Monahan (1994), other informal caregivers may represent a distinct population as personality variables often determine who cares for a demented relative when a spouse is incapable or unavailable.

It was initially proposed that participation be limited to caregivers of persons diagnosed with probable or possible Alzheimer disease. It was assumed this would provide the strongest test of the diathesis-stress model. Upon further reflection, however, this criterion was deemed unnecessarily
stringent. For one reason, the diagnosis is not presented to patients and their families until roughly two months after to their visit to the clinic (and subsequent to this interview for this study).

It must also be noted that an initial diagnosis of not demented does not necessarily mean the patient is cognitively intact. The insidious nature of neurodegenerative disorders may cause deficits to be subtly present several years before a diagnosis can be made (Selkoe, 1992; Zec, 1993). Within this facility, 38% of a recent sample of persons who did not meet criteria at the time of their first assessment were diagnosed with dementia 22 months later (O'Rourke, Tuokko, Hayden & Beattie, 1995).

A final participation criterion related to the efficacy and use of anti-depressant medication by caregivers. More precisely, subjects were excluded where this medication was deemed to be effective. This was determined by their responses to the depression measures (i.e., two caregivers scoring below cut-off on both instruments were excluded). In contrast, those who presented as currently depressed were included along with other caregivers as it would seem the medication was ineffective. Within the current data set, one caregiver presented as hopeless and depressed and a second presented as hopeless but not depressed. These subjects thus met inclusion criteria. (The efficacy of anti-depressant medication upon attributional processes is the topic of a current study for which funding has recently been received from The National Health Research Development Program (Health Canada; NHRDP #6610-2140-55).
Design

Eligible subjects were identified on the basis of their scheduled appointments within this setting. During the data collection period, spousal caregivers were invited to participate in this study in accordance with the approved research protocols (UBC Behavioural Sciences Screening Committee, B93-0783; University Hospital Screening Committee, 93.56). This methodology reflects a linear systematic sampling technique (Borg & Gall, 1989). Since the time in which patients and their caregivers enter the clinic does not reflect a discernible pattern, it is believed this sampling procedure did not introduce a significant confound.

To test the primary hypotheses of this study, subjects were categorized within a 2 x 2 research matrix. Dependent variables were scores on the Beck Hopelessness Scale (BHS; Beck, Weissman, Lester & Trexler, 1974) and the Geriatric Depression Scale (GDS; Yesavage et al., 1983). Participants who scored above and below the suggested cut-off points on each measure were placed in one of four quadrants (neither hopeless nor depressed, N = 54; hopeless and not depressed, N = 1; depressed and not hopeless, N = 10; hopeless and depressed, N = 5).

It should be noted scores on these measures do not provide definitive indices that subjects met diagnostic criteria for depression. As noted by Robinson, Berman and Neimeyer (1990), however, depression screening measures adequately correspond to formal diagnoses. More precisely, instruments of this nature possess concurrent validity as compared to psychiatric assessment.
Subsequent to this categorization, means from the revised Attributional Style Questionnaire (ASQ; Koch, 1985), were analyzed among subjects from three of the four quadrants. The primary research question was addressed on the basis of mean scores for globality and stability as obtained from the ASQ. It was hypothesized that mean differences on the response measures would be evident among the various quadrants.

**Data Collection Procedures**

During the clinic's two day assessment, patients undergo neuropsychological testing for roughly an hour and a half. At this time, the caregivers were idle and available to take part in this study.

It was explained that participation was entirely voluntary. Unlike the other interviews in which the caregiver is requested to participate, it was explicitly stated that the questions asked in this assessment were separate from other clinic activities and intended solely for research purposes.

With written consent obtained, questionnaires were administered in the order presented in Appendices Four through Nine. The Burden Interview (BI; Zarit & Zarit 1990) was administered during a separate assessment by a social worker blind to the hypotheses of this study. Subjects were asked to complete this instrument themselves. Only if questions remained unanswered were they asked orally. It should also be noted that this social work interview was conducted either two days prior or two days
subsequent to the administration of the remaining research battery. It is therefore unlikely that caregivers would assume a connection between their responses on the BI and remaining questionnaires.

Consistent with the theory being tested, the GDS and the BHS were administered prior to the ASQ in order to prime depressive schemata (Beck et al., 1979). It was hypothesized that the attributional constructs of globality and stability would be activated by these measures thereby increasing the effectiveness of the revised ASQ. This tactic is supported by the bulk of research related to mood-congruent memory effects among depressed populations (Mineka & Sutton, 1992).

The final instruments administered were the two social desirability measures (Edmonds Marital Conventionality Scale (EMCS), 1967; Marlowe-Crowne Social Desirability Scale (MC-SDS), Crowne & Marlowe, 1960) as it was assumed that biased responding was least likely to occur toward the end of the interview. Once caregivers had become familiar with the context and the types of questions asked, it was believed they would be less likely to respond defensively. Administered as the final measures, elevated scores on the EMCS or MC-SDS would suggest responses on previous instruments might be suspect. If administered first, however, it is conceivable scores would reflect elevated social desirability among persons who answered subsequent questionnaires more candidly.

This rationale also justified administration of the demographic questionnaire toward the end of the interview. Particularly with regard to questions regarding socio-economic
status and income, it was believed older participants would be more likely to provide this information once they had become comfortable in the setting and familiar with the interviewer.

Subjects were individually interviewed and orally presented with all but the Burden Interview. According to Fry (1986), this method is optimal for research with older populations and consistent with the vast body of experience in gerontological assessment. This interview format is consistent with other data collection procedures within the clinic and caregivers were familiar with this mode of interaction.

Samples of likert scales were provided to subjects in order to facilitate responding on the ASQ. This was a card the caregiver was able to keep in view with each of the response alternatives and the corresponding number for each.

Instruments

Burden Interview

The Burden Interview was specifically designed for caregivers of dementia patients (BI; Zarit & Zarit, 1990). Though more heterogeneous measures exist (cf. Caregiver Strain Index; Robinson, 1983), the idiosyncratic features of neurodegenerative illness necessitate an instrument designed to assess the unique demands of this caregiver role.

As presented in Appendix Three, the Burden Interview asks a series of 22 questions regarding perceived strain in caring for the demented relative (Zarit & Zarit, 1990). The degree to which the
caregiver would endorse each statement is rated along a five point Likert scale. This provides an added degree of sensitivity. Though two subscales exist (personal strain & role strain), a cumulative score is generally reported (Hadjistavropoulos, Taylor, Tuokko & Beattie, 1994).

Internal reliability has been reported with Cronbach's alpha coefficient at 0.88 (Hassinger, 1985), 0.89 (CSHA Working Group, 1994b) and 0.91 (Gallagher, Rappaport, Benedict, Lovett & Silven, 1985). Test-retest reliability has been estimated at 0.71 by Zarit and Zarit (1990), however, no time frame was indicated. Likely this is a relatively brief period considering estimates of perceived burden will fluctuate during the course of the illness.

Zarit and Zarit (1990) report concurrent validity has been established by correlating a single independent rating of burden with the total score ($r = 0.71$) and with the Brief Symptom Inventory ($r = 0.41$; Derogatis, Lipman, Covi, Richels & Uhlenhuth, 1970).

**Geriatric Depression Scale**

As noted by Seligman (1973), depression is like the common cold of psychopathology -- at once familiar and mysterious. Though the focus of considerable research over the past four decades, understanding is far from complete. This is particularly true of depression among older persons (Gurland & Toner, 1982; Jarvik, 1976; Salznan & Shader, 1978).
Several well-validated self-report measures exist, yet few consider the environmental factors and unique characteristics of older populations. An exception is the Geriatric Depression Scale (GDS; Yesavage et al., 1983). As presented in Appendix Four, this instrument asks respondents to indicate if each of 30 statements are true or false. As opposed to measures with more complex scoring systems (cf. Zung Self-Rating Depression Scale, 1965), this true/false format is believed to be more appropriate for a broader range of older adults (Scogin, 1994; Sheikh & Yesavage, 1986).

The initial validation study suggests a score of 11 or greater on this instrument indicates the existence of possible depression with a 95% specificity rate or 5% false negatives (Brink et al., 1982). Though a higher cut-off score of 14 virtually reduces the rate of false positives, sensitivity is reduced from 84% to 80% (i.e., beta errors). For the purposes of this study, it was proposed a score of 11 be used differentiate this sample.

One hundred items were initially chosen by clinicians and researchers as potentially differentiating between normal and depressed older adults (Yesavage et al., 1983). Administered to a representative sample of persons over the age of 55 (N = 47), 30 items were selected which correlated best with the total score (median correlation 0.68; range 0.47 to 0.83). Split-half and Cronbach's alpha each indicate reliability coefficients of 0.94. In a separate study by Abraham (1991), Kuder-Richardson reliability coefficients range from 0.69 to 0.88 over 18 repeated administrations (39 week period). Though the author suggests this
may reflect a degree of insensitivity considering the transient nature of this condition, Yesavage (1991) notes depression is far more stable among older persons.

Concurrent validity has been establish vis-à-vis the Hamilton Rating Scale for Depression (HRS-D; 1967) and the Zung Self-Rating Depression Scale (SDS; 1965) according to Weis, Nagel and Aaronson (1986). In fact, the GDS appears to differentiate among normal, mild and severely depressed older adults with equal or greater sensitivity as compared to these other instruments (Yesavage et al., 1983). As compared to persons previously assessed according to Research Diagnostic Criteria for a major affective disorder (RDC; Spritzer, Endicott & Robins, 1978), it would appear the GDS provides a high degree of convergent validity (Weis et al., 1986).

It is noteworthy that the GDS appears to hold less construct validity as compared to Research Diagnostic Criteria than the other screening instruments (Yesavage et al., 1983). This is due primarily to the absence of items measuring somatic complaints (eg., sleep disturbance, weight loss, cardiac and gastrointestinal symptoms). During development, somatic items among the initial pool provided low inter-item coefficients (Brink et al., 1982). The relative effectiveness of the GDS as compared to other measures may thus result from the high percentage of asymptomatic elderly persons who also endorse these items. Though integral to experience of depression, somatic items provide marginal sensitivity to instruments assessing the severity of this condition among the elderly (Scogin, 1994).
A further strength of the GDS relates to its relative lack of correlation with social desirability response sets (Cappeliez, 1989). Compared to the Beck Depression Inventory (BDI; Beck & Steer, 1978), for instance, the GDS appears to be more effective among older adults. This suggests depressed elders more accurately endorse items from the GDS.

**Beck Hopelessness Scale**

It has become increasingly apparent that perceived hopelessness differentiates subgroupings of depressed persons (Beck & Weishaar, 1989). For instance, the risk of suicide is greater among those who operate with this generalized perception of despair and futility. Cole (1988) suggests hopelessness continues to be related to suicidal ideation even after controlling social desirability and depression.

As presented in Appendix Five, the Beck Hopelessness Scale (BHS; Beck et al., 1974) has become the definitive instrument in this area. A total score is obtained from 20 statements for which responses are gauged on a true/false format. This consists of 11 positive and nine negatively keyed items. The entire scale can be administered within 10 minutes in most instances.

Psychometric research has suggested a cut-off score of 9 or greater provides a reliable distinction between asymptomatic and moderately hopeless persons. As scores rise, the severity and breadth of pessimistic cognitions are believed to increase.
As reported by the manual (Beck & Steer, 1988), internal reliability coefficients range between 0.82 and 0.93 among seven distinct normative populations. Though test-retest reliability is lower (0.69 after one week; 0.66 after six weeks) this may reflect the sensitivity of the instrument relative to this labile construct (Dowd, 1992). A recent study reports Kuder-Richardson (KR-20) coefficients of 0.92 among a diverse sample of 957 adults (Young, Halper, Clark, Scheftner & Fawcett, 1992).

As defined by Stotland (1969), hopelessness is a generalized pessimistic cognition encompassing negative attitudes toward self and one's future. This is the construct by which the BHS was developed and would appear to provide adequate content validity (Dowd, 1992). Items were selected on the basis of clinical and research experience and factor analysis would suggest this domain has been well defined. The instrument also appears to be theoretically consistent with Beck's own model of depression (Owen, 1992).

The manual (Beck & Steer, 1988) reports significant concurrent validity with clinical ratings of hopelessness (0.74 among a sample of general practice patients and 0.62 among suicidal subjects). Inter-rater reliability among the two judges was 0.86 (p < .001). Further concurrent validation has been established between the BHS and the BDI (pessimism item of the BDI removed) with significance levels exceeding the .01% level. It is important to note correlations are significant yet are not perfect. In the latter case, this would suggest the BHS is only a
secondary depression measure. With coefficients between 0.44 and 0.74, this suggests the two instruments measure related yet different constructs.

Beck & Steer (1988) state the BHS is appropriate for adults between the ages of 17 to 80 years. Though relatively few studies have been conducted with older populations, the few available support this contention (Hill, Gallagher, Thompson & Ishida, 1988). For instance, Abraham (1991), reports mean reliability coefficients (KR-20) across 18 time points of 0.80 among elderly subjects (SD = 0.04).

A hopelessness measure specifically designed for older populations is available (cf. Geriatric Hopelessness Scale; Fry, 1986) yet it has received little support in subsequent studies (Hayslip, Lopez & Nation, 1991). Based upon modest internal consistency and poorly defined factor structure, these authors conclude the GHS "...has modest potential for clinical and research use with community-residing aged persons" (p. 504). Though the GHS may be suitable for psychiatric inpatients (Trenteseau & Hyer, 1989), this suggests the Beck Hopelessness Scale may be more appropriate for non-institutionalized older persons in contrast to Fry's earlier assertions (Hayslip et al., 1991).

**Attributional Style Questionnaire - Revised**

The original Attributional Style Questionnaire was designed to assess depressive cognitive processes (ASQ; Seligman, Abramson, Semmel & von Baeyer, 1979). Using a combination of
open-ended responses and fixed measures, the subject reports the cause of hypothetical events then provides ratings along a series of likert scales to tap attributional dimensions. Based on the reformulated theory of learned helplessness (Abramson et al., 1978), this instrument attempts to determine the degree to which persons perceive internal, stable and global factors as responsible for negative scenarios. As an instrument which not only gauges but primes subjects for depressive thinking it is unique among cognitive measures (Parks & Hollon, 1988).

The ASQ appears to discriminate between depressed and non-depressed subjects (Eaves & Rush, 1984; Persons & Rao, 1985), yet only a subset of depressed persons have been found to exhibit this purported attributional style. Though Carlton and Hollon (1988) suggest the scale is less sensitive than specific, these findings support recent revisions to the theory (Abramson et al., 1989).

As this attributional style is now hypothesized to exist among only a specific subset of depressed persons, subjects must first be identified as hopeless and depressed in order to test the existing theory. In fact, the revised construct of hopelessness depression makes a majority of previous research moot and academic. Though studies are beginning to appear specific to the revised theory (i.e., Alloy et al., 1992; McEvoy-DeVellis et al., 1992; Metalsky et al., 1992; Tiggemann et al., 1991), the validity of the ASQ remains to be conclusively determined.

As the original ASQ was developed and tested among university populations, many of the hypothetical contexts are
inappropriate for older adults (Koch, 1985). For instance, the statement "you go on a date and it goes badly" would be far less relevant to most persons in later years. As presented in Appendix Six, Koch (1985) has revised the original version with items more suited to older adults.

This revised ASQ relies on negative hypothetical events as these have been found to distinguish between depressed and non-depressed subjects more effectively (Peterson & Seligman, 1984). In contrast to the reformulated theory of learned helplessness (Abramson et al., 1978), depressed subjects are not unique in their causal attributions for positive events. Koch (1985) incorporated this finding in his revised version of the instrument.

Two versions were administered 14 months apart to older adults. The first consisted of ten items whereas the second contained seven. The former provided stronger reliability coefficients (0.80 vs. 0.70) and is the version proposed for this study.

As with most studies based on the theory of learned helplessness (Abramson et al., 1978), methods used by Koch (1985) to validate this instrument are now less appropriate. For instance, his research did not categorize subjects along the continuum of hopelessness.

Koch (1985) attempted to determine the predictive validity of this ASQ by administering five unsolvable anagrams to test subjects. By comparing attributions given after this exercise, it was hoped a high correlation coefficients would result. Statistical
significance was not apparent for stability, globality nor internality.

Not only did this procedure fail to assess hopelessness among subjects, it is also unlikely that this procedure was sufficient to activate depressogenic attributions. According to the revised theory (Alloy et al., 1988), the diathesis-stress component requires negative events to be of sufficient magnitude (Follette & Jacobson, 1987). This has been a weakness of most studies of attributional style (Alloy et al., 1988).

Though it might appear Koch's dissertation invalidates this revised ASQ (1985), weaknesses are with the procedures employed as opposed to the instrument itself. With respect to the theory of hopelessness depression (Abramson et al., 1989), this questionnaire remains untested. The original notions employed by Koch in revising the ASQ for older adults remain valid. Though more current instruments have been developed (cf. Expanded Attributional Style Questionnaire; Peterson & Villanova, 1988), few address an inherent bias toward younger populations. For these reasons, Koch's revised version was used in this study. As Alloy et al. (1988) state, the general format of this instrument remains the most appropriate method to gauge depressogenic attributions.

Demographic Questionnaire

A questionnaire was created to examine the demographic features of this sample (see Appendix Seven), including factors such as gender, socioeconomic status and number of years married.
In order to group subjects for subsequent analyses, it was advisable to demonstrate statistically significant differences did not exist along these domains. Otherwise this would reduce the ability to generalize results to a broader population.

**Marlowe-Crowne Social Desirability Scale**

According to Linden, Paulhus and Dobson (1986), it is advantageous to include a measure to gauge social desirability in self-report studies. Defined as a systematic tendency to give answers which make one appear more positively, these response sets often act as a significant confound in face-to-face interviews (Paulhus, 1991). It is believed persons scoring higher on social desirability measures are less likely to respond accurately on other measures that gauge attributions and behaviours which are not socially sanctioned (e.g., suicidal ideation). This is apparent in studies using the BHS according to Strosahl, Linehan and Chiles (1984).

In recent years, socially desirable responding has come to be viewed as an increasingly complex phenomenon. In addition to conscious distortion, persons may also under report various beliefs and behaviours with limited awareness. Paulhus (1984) has proposed a two-component model which distinguishes between impression management (conscious dissembling) and self-deception (an honest, yet overly positive self-presentation). This model suggests under reporting on various instruments may not be solely intentional, but also indicative of a self-protective psychological
stance. As an example, Teusink and Mahler (1989), suggest denial functions as a common coping strategy early in the onset of a relative's dementing illness.

As noted by Paulhus and Reid (1989), the Marlowe-Crowne Social Desirability Scale (MC-SDS; Crowne & Marlowe, 1960) remains the most widely used measure of response biases (see Appendix Eight). This 33 item instrument is believed to tap both impression management and self-deception domains, likely weighing more heavily on the latter.

Concurrent validity has been established between the MC-SDS and other social desirability measures (Paulhus, 1991). This includes the Edwards Social Desirability Scale (1957) even though this measure gauges self-deception more heavily. As reported by Paulhus (1991), alpha coefficients range from .73 to .88 within published studies. Test-retest reliability as reported by Crowne and Marlowe was .88 over one month (1960). Fisher (1967) reported a coefficient of .84 over a one-week interval.

Edmonds Marital Conventionality Scale

A second measure of response biases was included in this study to assess the candidness of responses on the Burden Interview. Unlike the other dependent measures included in this study, the construct of burden is inherently relational or dyadic. More precisely, this construct is inextricably grounded within the marital union and perceptions of one's spouse. In contrast to unitary constructs such as hopelessness or depression which
involve the individual exclusively, burden is perceived within the marriage and the caregiving context. It was thus deemed appropriate to include this second social desirability measure as responses to MC-SDS may not reflect biased responding on the BI.

It would seem plausible that a caregiver might defensively monitor responses relative to his or her relationship while responding more candidly on individual or unitary measures (or vice versa). The former may be particularly true among the current cohort of elderly persons. This generation of spousal caregivers was socialized within a culture which strongly valued the marital union; especially older women (Chodorow, 1978; Friedan, 1993; Gilligan, 1982; Miller & Cafasso, 1992; Pearlin & Schooter, 1978) who constitute the majority of spousal caregivers (CSHA Working Group, 1994b; Lawton, Brody & Saperstein, 1989). Caregiving may therefore be viewed as a self-defining endeavor within this age group. It is reasonable to speculate that many would experience reticence reporting negative perceptions stemming from this role.

The Edmonds Marital Conventionality Scale asks whether specific statements regarding one's relationship are true or false (EMCS; 1967). It is believed persons rarely endorse such items without distorting the context in which the marital relationship is presented (i.e., If my spouse has any faults, I am not aware of them).

It has been suggested marital conventionality plays a statistically significant role in scores on both the Locke-Wallace Scale of Marital Adjustment (Edmonds, Withers & DiBatista, 1972) and the Relationship Inventory (Schumm, Bollman & Jurich, 1980).
It has also been shown to be an important factor in the assessment of primary relationships among specific clinical populations (Rychtarik, Tarnowski & St. Lawrence, 1989). Grigg (1994) recently reported an alpha coefficient of .75 among alcoholic men and their wives.

Weighted scores for the EMCS range from 0 to 89. Though the original format contained 50 items, factor analysis later reduced this scale to a 15 item weighted questionnaire. The correlation between the short, weighted version and the original long form was very high (r = 0.99) with reported internal consistency estimates ranging from 0.80 to 0.93 (Zweben, Pearlman & Li, 1988). Initially administered to 100 married university students, this sample established a mean of 34 (SD = 30). From this study, the author recommends a cut-off score of 20 (Edmonds, 1967); however, it is not entirely clear how this was determined.

To obfuscate the instrument's intent, Edmonds suggests the 15 items be mixed with others which do not measure social desirability. For this study, items were interspersed with four others selected from the Marital Status Inventory (Weiss & Cerreto, 1980) (see Appendix Eight). It was assumed these items would lead respondents to believe the questionnaire was intended to assess the stability of the relationship. Though only four additional items were included, the information solicited by these items is far more direct. It was assumed this total was sufficient to convey an impression of the scale distinct from the EMCS alone.
Though some authors suggest the EMCS should be used to screen subjects (Edmonds, 1967; Edmonds et al., 1972; Rychtarik et al., 1989), this does not appear appropriate considering that the construct(s) measured are not entirely clear (Cappeliez, 1989). Furthermore, a definitive cut-off score has yet to be identified.

**Functional Rating Scale**

The Functional Rating Scale (FRS; Tuokko, Crockett, Beattie, Horton & Wong, 1986) is used in this clinic to objectively assess the disability of patients. This multidimensional scale was designed to quantify levels of cognitive and functional impairment along a series of eight five-point scales (memory, social/occupational functioning, home and hobbies, problem solving, personal care, affect, language, orientation). Consistent with DSM IV (APA, 1994) and NINCDS-ADRDA diagnostic criteria (McKhann et al., 1983), this measure provides a rating of full severity while recognizing uneven rates of decline across various activities of daily living. Tuokko et al. (1986) report inter-rater reliability coefficients ranging from .63 to .93 and 94.2% correct classification as compared with neuropsychological tests. These findings support the reliability and concurrent validity of the FRS.
CHAPTER 4 - RESULTS

Most people in the grip of depression at its ghastliest are, for whatever reason, in a state of unrealistic hopelessness, torn by exaggerated ills and fatal threats that bear no resemblance to actuality. It may require on the part of friends, lovers, family, admirers, an almost religious devotion to persuade the sufferer of life's worth, which is so often in conflict with a sense of their own worthlessness (Styron, 1990, p. 76).

Interviewer Comparisons

Each subject was interviewed by the author (N = 58) or a student volunteer (N = 12) who was blind to the hypotheses of this study. A comparison of responses obtained by both interviewers on all critical measures is shown in Table 1. A series of t-tests indicates no significant difference exists between responses. This finding would suggest that interviewer bias has not contaminated responses derived for this study. With this finding, all subjects have been combined for subsequent analyses.

All caregivers were individually interviewed and measures were administered in the order presented in Appendices Four to Nine. The time required to complete each assessment ranged from 40 minutes to 1.5 hours. Table 2 provides a listing of descriptive statistics for both patients and their caregivers.
Table 1.
Comparison of Responses Obtained by Interviewers

<table>
<thead>
<tr>
<th>Measure</th>
<th>Mean (SD)</th>
<th>T-Value</th>
<th>( p )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Geriatric Depression Scale:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• author (N = 59)</td>
<td>6.5 (5.62)</td>
<td>0.53</td>
<td>0.60</td>
</tr>
<tr>
<td>• student (N = 12)</td>
<td>5.9 (4.17)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beck Hopelessness Scale:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• author (N = 59)</td>
<td>3.9 (3.26)</td>
<td>-0.15</td>
<td>0.88</td>
</tr>
<tr>
<td>• student (N = 12)</td>
<td>4.1 (2.35)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ASQ: Internality:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• author (N = 57)</td>
<td>41.9 (6.60)</td>
<td>0.70</td>
<td>0.48</td>
</tr>
<tr>
<td>• student (N = 12)</td>
<td>40.4 (7.55)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ASQ: Stability:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• author (N = 57)</td>
<td>37.9 (10.2)</td>
<td>0.08</td>
<td>0.93</td>
</tr>
<tr>
<td>• student (N = 12)</td>
<td>37.7 (7.08)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ASQ: Globality:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• author (N = 57)</td>
<td>36.9 (9.20)</td>
<td>-0.46</td>
<td>0.65</td>
</tr>
<tr>
<td>• student (N = 12)</td>
<td>38.3 (10.3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Edmonds SD Scale:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• author (N = 58)</td>
<td>6.8 (4.21)</td>
<td>-0.18</td>
<td>0.86</td>
</tr>
<tr>
<td>• student (N = 12)</td>
<td>7.1 (3.45)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marlowe-Crowne SD Scale:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• author (N = 58)</td>
<td>20.8 (5.20)</td>
<td>0.78</td>
<td>0.44</td>
</tr>
<tr>
<td>• student (N = 12)</td>
<td>19.5 (4.87)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 2.

Descriptive Features of Derived Sample

<table>
<thead>
<tr>
<th>Feature (N)</th>
<th>Mean (SD)</th>
<th>Alpha ((\bar{\alpha}))</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caregiver Age (70)</td>
<td>66.3 (9.81)</td>
<td>-</td>
</tr>
<tr>
<td>Patient Age (70)</td>
<td>69.3 (8.38)</td>
<td>-</td>
</tr>
<tr>
<td>Years Married (70)</td>
<td>36.9 (14.4)</td>
<td>-</td>
</tr>
<tr>
<td>Total Family Income (69)</td>
<td>$36,870 (21,480)</td>
<td></td>
</tr>
<tr>
<td>Functional Rating Scale Total (69)</td>
<td>22.0 (5.61)</td>
<td>-</td>
</tr>
<tr>
<td>Duration (Months) of Symptoms (69)</td>
<td>54.2 (36.2)</td>
<td>-</td>
</tr>
<tr>
<td>Patient Depression Scale Total (59)</td>
<td>6.78 (5.48)</td>
<td>0.87</td>
</tr>
<tr>
<td>Caregiver Depression Scale Total (71)</td>
<td>6.34 (5.39)</td>
<td>0.87</td>
</tr>
<tr>
<td>Caregiver Beck Hopelessness Total (71)</td>
<td>3.96 (3.11)</td>
<td>0.77</td>
</tr>
<tr>
<td>Caregiver ASQ Internality (70)</td>
<td>41.7 (6.74)</td>
<td>0.34 *</td>
</tr>
<tr>
<td>Caregiver ASQ Stability (70)</td>
<td>37.9 (9.72)</td>
<td>0.77 *</td>
</tr>
<tr>
<td>Caregiver ASQ Globality (70)</td>
<td>37.1 (9.34)</td>
<td>0.74 *</td>
</tr>
<tr>
<td>Burden Interview Total (69)</td>
<td>27.2 (16.1)</td>
<td>0.94 *</td>
</tr>
</tbody>
</table>

* Cronbach's alpha was also used as a measure of internal reliability with these instruments though each employs a likert scale. This likely inflates indices of internal consistency. According to Anastasi (1988) a KR-20 would be more appropriate, however, this calculation is not available in SPSSx version 3.0 (SPSS Inc., 1988).
Comparative Analyses

As noted by Gilley (1993), studies involving Alzheimer patients (and subsequently their caregivers) are subject to pervasive selection biases. Most often derived as *samples of convenience*, it is often unclear how representative these samples are relative to the populations from which they are drawn (Dura & Kiecolt-Glaser, 1990). For this reason, subjects recruited for this study were compared against a corresponding sample of community-dwelling spousal caregivers of persons with dementia identified from randomly selected individuals in the Canadian Study of Health and Aging (CSHA; Canadian Study of Health and Aging Working Group, 1994a). Appendix One provides a detailed overview of the CSHA.

In all provinces (except Ontario), persons over 64 years of age were randomly selected from computerized health records. As these sources represent the vast majority of persons in this population, it is quite probable that the derived CSHA sample is highly representative of older Canadians.

To facilitate the comparative analyses, spousal caregivers of community-dwelling elders were identified from all regions. According to the protocol of the CSHA, caregivers were identified and interviewed when a subject scored below a predetermined cut-off point on the screening measure (Modified Mini-Mental State Examination (3MS); Teng & Chui, 1987). This would suggest credible suspicion of cognitive impairment exists among this grouping of CSHA patients, similar to those persons referred to this clinic.
It must be noted, however, that various sampling biases purposefully distorted the initial CSHA sample pool. For instance, all regions (Atlantic, Québec, Ontario, Prairies, British Columbia) were equally represented in spite of population differences. In addition, older age groups were over-sampled.

For this reason, corrective weights were computed by the Coordinating Centre at the University of Ottawa to reflect the population from which the sample was drawn. Based upon Statistics Canada data (1992), subjects were categorized by region, gender and age group in order to apply these corrective weights. Once applied, the CSHA sample is again reflective of the Canadian population.

As shown in Table 3, Burden Interview totals for both Clinic and CSHA samples do not differ significantly, in spite of a significant difference in patient impairment levels as suggested by 3MS scores. Also of note, the gender composition between groups is indistinguishable (chi square = .000, p = 1.00). In both samples, the majority of caregivers rated their health as satisfactory, good or pretty good. On average, both groups had some secondary education but the majority did not complete high school.

Each sample completed separate self-report depression measures. The CSHA caregivers were given the Center for Epidemiologic Studies Depression Scale (CES-D; Ratloff, 1977) and the clinic sample was administered the Geriatric Depression Scale (GDS; Yesavage et al., 1983). To facilitate comparisons, the distribution of responses on both measures were converted to
Table 3.
Comparison of CSHA and Full Clinic Caregiver Samples

<table>
<thead>
<tr>
<th>Feature (N) *</th>
<th>Mean (SD)</th>
<th>T-Value</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Caregiver Age:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• CSHA (N = 113)</td>
<td>71.4 (10.6)</td>
<td>2.13</td>
<td>0.04</td>
</tr>
<tr>
<td>• Clinic (N = 70)</td>
<td>66.3 (9.81)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Years Married:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• CSHA (N = 114)</td>
<td>43.9 (13.9)</td>
<td>2.10</td>
<td>0.04</td>
</tr>
<tr>
<td>• Clinic (N = 70)</td>
<td>36.9 (14.4)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Burden Interview:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• CSHA (N = 102)</td>
<td>24.4 (16.6)</td>
<td>-0.56</td>
<td>0.58</td>
</tr>
<tr>
<td>• Clinic (N = 68)</td>
<td>26.6 (15.9)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Patient Age:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• CSHA (N = 114)</td>
<td>77.2 (6.11)</td>
<td>4.27</td>
<td>.001</td>
</tr>
<tr>
<td>• Clinic (N = 70)</td>
<td>69.3 (8.38)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Modified Mini-Mental State:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• CSHA (N = 106)</td>
<td>60.4 (14.4)</td>
<td>-2.91</td>
<td>.005</td>
</tr>
<tr>
<td>• Clinic (N = 67)</td>
<td>72.4 (17.7)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* The sample size shown for CSHA subjects reflects the total derived on the basis of selection criteria. A smaller statistical N, however, was obtained subsequent to application of corrective weights. These smaller numbers are not shown as they do not reflect the number of actual subjects upon whom descriptive statistics are based.
standard scores. A 16 point score of a possible 38 point total was used as a cut-off in the CSHA (CSHA Working Group, 1994b). This corresponds to a z score of .41 with 39% of the sample falling above cut-off. A score of 11 or greater on the GDS categorized 20% of the clinic sample. This corresponds to a z value of .93. Though different measures were used, this finding would indicate the CSHA sample was somewhat more depressed. The difference between groups suggests half a standard deviation separates depression thresholds between the respective groupings. This conclusion assumes a normal distribution of scores on both measures. A closer scrutiny of GDS scores, however, indicates a moderate degree of positive skewness (1.157). This suggests caution is required in comparing depression levels between groups.

Also of note, t-tests in Table 3 indicate a significant difference exists between groups on all age-related variables (i.e., years married, age of patients and caregivers). This is likely a result of the exclusion of patients below 65 years of age by the CSHA. To compensate for this feature of the comparative data, these analyses were recomputed solely with clinic caregivers of patients over 64 years (48 of 70 patients). Subsequent to this revision, the distinctions between samples were markedly lessened (see Table 4). The remaining differences suggest that spouses recruited within this facility appear to be caring for older patients who are more impaired. More notable, differences between caregivers are no longer apparent. These findings would suggest the sample derived for the current study may be representative of
Table 4.
Comparison of CSHA and Older Clinic Caregiver Samples

<table>
<thead>
<tr>
<th>Feature</th>
<th>(N) *</th>
<th>Mean (SD)</th>
<th>T-Value</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caregiver Age:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• CSHA (N = 113)</td>
<td></td>
<td>71.4 (10.6)</td>
<td>0.26</td>
<td>0.79</td>
</tr>
<tr>
<td>• Clinic (N = 48)</td>
<td></td>
<td>70.8 (7.07)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Years Married:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• CSHA (N = 114)</td>
<td></td>
<td>43.9 (13.9)</td>
<td>1.23</td>
<td>0.22</td>
</tr>
<tr>
<td>• Clinic (N = 48)</td>
<td></td>
<td>39.3 (15.6)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Burden Interview:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• CSHA (N = 102)</td>
<td></td>
<td>24.4 (16.6)</td>
<td>-0.40</td>
<td>0.69</td>
</tr>
<tr>
<td>• Clinic (N = 47)</td>
<td></td>
<td>26.0 (15.5)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Patient Age:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• CSHA (N = 114)</td>
<td></td>
<td>77.2 (6.11)</td>
<td>2.45</td>
<td>0.02</td>
</tr>
<tr>
<td>• Clinic (N = 48)</td>
<td></td>
<td>74.0 (4.79)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Modified Mini-Mental State:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• CSHA (N = 106)</td>
<td></td>
<td>60.4 (14.4)</td>
<td>-2.92</td>
<td>.005</td>
</tr>
<tr>
<td>• Clinic (N = 46)</td>
<td></td>
<td>71.6 (15.3)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* The sample size shown for CSHA subjects reflects the total derived on the basis of selection criteria. A smaller statistical N, however, was obtained subsequent to application of corrective weights. These smaller numbers are not shown as they do not reflect the number of actual subjects upon whom descriptive statistics are based.
caregivers in this country. Thus subsequent observations can be
generalized with greater confidence.

Preliminary Analyses

Three scatter plots were computed comparing responses on
caregiver burden, hopelessness and depression measures. Using
SPSS PLOT (SPSS Inc., 1988), the significant correlation
coefficients among dependent variables was graphically evident
(see Table 5). Also of note, no outliers were identified. This would
suggest that items were coded properly and that all cases can be
included in subsequent univariate analyses.

The distribution of responses were also analyzed for the
Burden Interview (BI; Zarit & Zarit, 1990) and the Beck
Hopelessness Scale (BHS; Beck et al., 1974). On the former, a
normal distribution of scores was evident with no significant
skewness (.502). Though this measure contains two reported
subscales (personal strain and role strain), the highly significant
correlation between subscales suggests a strong degree of inter­
dependence ($r = .89, p < .001$). This coefficient is greater than that
reported by Hadjistavropoulos, Taylor, Tuokko and Beattie (1994),
also obtained in this facility ($r = .75, p < .001$). For all subsequent
analyses, only the total BI score will be utilized.

The distribution of responses on the BHS indicates a degree of
positive skewness more pronounced than the GDS (1.550).
This pattern would appear to support an earlier observation by
Hayslip et al. (1991) regarding the sensitivity of the BHS among the
### Table 5.
**Correlation Coefficients and Significance Levels Among Variables**
(N = 70)

<table>
<thead>
<tr>
<th></th>
<th>Caregiver Depression</th>
<th>Beck Depression</th>
<th>Burden Interview</th>
<th>Patient Severity</th>
<th>Duration Symptoms</th>
<th>Marlowe -Crowne</th>
<th>Edmonds Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caregiver</td>
<td>1.0</td>
<td>0.64</td>
<td>0.55</td>
<td>0.21</td>
<td>0.11</td>
<td>-0.19</td>
<td>-0.31</td>
</tr>
<tr>
<td>Depression</td>
<td>.001</td>
<td>.001</td>
<td>0.08</td>
<td>0.39</td>
<td>0.12</td>
<td>0.01</td>
<td></td>
</tr>
<tr>
<td>Beck Scale</td>
<td>1.0</td>
<td>0.43</td>
<td>0.23</td>
<td>0.29</td>
<td>-0.17</td>
<td>-0.27</td>
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<tr>
<td>.001</td>
<td>0.05</td>
<td>0.02</td>
<td>0.16</td>
<td>0.03</td>
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<td>Burden</td>
<td>1.0</td>
<td>0.40</td>
<td>0.31</td>
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<td>-0.45</td>
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<td>Interview</td>
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<td>0.45</td>
<td>.001</td>
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<td></td>
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<tr>
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<td>-0.04</td>
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<tr>
<td>severity</td>
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<td>0.75</td>
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<td>Duration</td>
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<td>Symptoms</td>
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<tr>
<td>Marlowe</td>
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<td>Crowne</td>
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<td></td>
<td></td>
<td></td>
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<td>Edmonds</td>
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<td></td>
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<td>1.0</td>
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<td>Scale</td>
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</tbody>
</table>
elderly. Though this instrument appears to effectively identify those who are more severely hopeless, it may be less sensitive relative to lower levels of this construct. Within the current sample, the low mean (μ = 3.96) and the high percentage of caregivers grouped at the lower end of the distribution of responses would appear to support this conclusion.

Internal consistency for dependent measures was assessed by Cronbach's alpha. As shown previously in Table 2, the alpha level for the GDS among patients and caregiver is identical (α = .87). Also of note, internal consistency appears satisfactory for the BHS (α = .77), the Burden Interview (α = .94), as well as the globality (α = .73) and stability (α = .76) subscales of the Attributional Style Questionnaire (ASQ; Koch, 1985). Of note, however, the internality subscale appears to possess weak internal consistency (α = .33). This finding supports the limited utility of internality within the hopelessness model as proposed by Abramson et al. (1989).

A comparison of response levels by gender was computed on the Burden Interview, GDS and BHS. On the latter two measures, a significant difference was evident with female caregivers scoring higher on all measures (see Table 6). This corresponds to the consensus within caregiving research (Miller & Cafasso, 1992). As noted in the DSM IV (APA, 1994), the incidence of depression is twice as frequent among women as compared to men. It is not clear, however, if this reflects an idiosyncrasy of gender or simply a reporting difference (Allen-Burge, Storandt, Kinscherf & Rubin, 1994). Factors such as socialization among this older cohort
Table 6.  
Comparison of Responses on Dependent Measures by Gender  *

<table>
<thead>
<tr>
<th>Feature</th>
<th>(N)</th>
<th>Mean (SD)</th>
<th>T-Value</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Geriatric Depression Scale:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Women (N = 47)</td>
<td></td>
<td>7.3 (5.67)</td>
<td>2.80</td>
<td>0.01</td>
</tr>
<tr>
<td>• Men (N = 23)</td>
<td></td>
<td>3.8 (3.01)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beck Hopelessness Scale:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Women (N = 47)</td>
<td></td>
<td>4.5 (3.42)</td>
<td>2.35</td>
<td>0.02</td>
</tr>
<tr>
<td>• Men (N = 23)</td>
<td></td>
<td>2.7 (1.85)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Burden Interview:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Women (N = 46)</td>
<td></td>
<td>29.1 (16.5)</td>
<td>1.65</td>
<td>0.10</td>
</tr>
<tr>
<td>• Men (N = 22)</td>
<td></td>
<td>22.3 (14.1)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Note, due to significant mean level differences on screening measures, women composed all persons within the depressed groupings of the research matrix (Chi square = 10.15, p < .05).
(Friedan, 1993) may account for part of this discrepancy (Pearlin & Schooter, 1978).

A further factor may be a distinction in the manner by which depressive ideation is tolerated. In research cited by Linehan (1993), men and women appear to have different coping strategies. When clinically depressed, men appear more likely to employ distraction techniques whereas women ruminate upon their affective state to a greater degree. In the administration of depression screening measures, therefore, the type of statements presented may be more consistent with the thoughts of women. Men, in contrast, may exclude these beliefs from current awareness and thus are less likely to endorse items from these measures (Linehan, 1993).

One further gender difference within the current sample is the disparity between reported length of patient symptoms. Women state their spouse has been symptomatic for 57 months (SD = 40) on average as compared to 48 months for male caregivers (SD = 25). As noted in the CSHA (CSHA Working Group, 1994b), the incidence of depression increases significantly with increasing severity of patient symptoms. Though duration and severity are only moderately correlated in the current sample ($r = .26$, $p < .05$), this coefficient might suggest the gender disparity in reported depressive levels is partially attributable to this difference in duration of caregiving.

Analyses are not reported comparing these measures by age group. A spurious correlation is believed to exist between severity
of depressive symptoms and the age of caregivers given that the age of patients is more likely the cause of this relationship (O'Rourke et al., 1994). In general, the age of patients is similar to that of their spouses. As the incidence of dementia increases exponentially with age (CSHA Working Group, 1994a; Skoog et al., 1993), older persons are more likely to be caring for a demented spouse. The chronological age of the caregiver is thus secondary to differences in depression levels. It is likely to be the corresponding age of their spouses and the greater levels of illness among the latter which account for this relationship (O'Rourke et al., 1994).

The GDS was orally administered to patients as well as their caregivers in a separate interview. This data was collected by a member of the clinic staff blind to the hypotheses of this study. As noted in Table 2, the mean for patients as compared to caregivers was slightly higher. Cronbach's alpha was identical for both groups. (Appendix Ten provides additional data regarding the concurrent validity of the GDS as determined within this study).

One reason the GDS was administered to both patients and caregivers was to examine the relationship between their respective depression levels. In this study, the correlation between the two groups is low and nonsignificant \( r = .04, \ p = .74 \). This finding is in contrast to an earlier studies by Dura et al. (1987) and Teri and Truax (1994) where a significant correlate to caregiver depression was the affective state of the respective patients. The nonsignificant coefficient obtained by the current
study provides no support for the salience of depressive stimuli within caregivers' social environment (cf. Strack & Coyne, 1983).

Hopelessness Depression Among Caregivers

First Hypotheses

To assess the viability of hopelessness depression as a distinct subtype, it was first necessary to ascertain whether or not caregivers presented as depressed with and without hopeless ideation. This condition was satisfied among the current sample. Of 70 subjects recruited for this study, 15 (or 21.4%) scored above cut-off on the GDS. The majority of this grouping (or 10 of 15) scored below cut-off on the BHS (i.e., depressed but not hopeless). This would suggest the ideation of depressed caregivers is characterized by hopelessness in only a minority of instances. This finding is consistent with the Abramson et al. (1989) model which hypothesizes hopelessness depression to be specific subtype among affective disorders.

Second Hypotheses

Each subject was placed into one of four cells to test the primary hypotheses of this study. On the basis of initial inclusion criteria and cut-off scores on the two depression measures (GDS ≥ 11; BHS ≥ 9), subjects were categorized as hopeless and depressed (N = 5), depressed but not hopeless (N = 10), hopeless but not depressed (N = 1), or neither hopeless nor depressed (N = 54). It is noteworthy that the percentage of
caregivers classified within depressed groupings (21.4%) is less than that generally reported in the literature (cf. Barusch, 1988; Cohen & Eisdorfer, 1988; Coppel et al., 1985; Dura et al., 1987; Haley et al., 1987; Rabins et al., 1982). This may be due to the fact that the majority of subjects were recruited relatively early in the disease process (i.e., 80% at the point of initial patient diagnosis).

A series of planned orthogonal contrasts were computed to assess differences in attributional style among subjects in three of the four cells (Lomax, 1992). As discussed previously, no assumptions were made regarding levels of stability or globality among caregivers presenting as hopeless but not depressed (H-D). This *a priori* method adjusts to differences in cell size yet allows for only three separate contrasts in this instance (i.e., one less than the number of groups). It should be noted that a value of zero was applied to the hopeless but not depressed cell (H-D) for each orthogonal contrast where only one caregiver was categorized.

It was hypothesized that stability and globality levels would be statistically higher for the hopeless and depressed (HD) group as compared to those caregivers who were depressed but not hopeless (D-H) and those neither hopeless nor depressed (-H-D) (i.e., cells one vs. two and four respectively). It was also hypothesized that those depressed but not hopeless (D-H) and those neither hopeless nor depressed (-H-D) would not differ from each other (cells two vs. four respectively). These comparative analyses were computed to examine the salience of hopelessness relative to attributional style among caregivers.
Table 7.
Orthogonal Contrasts Comparing Caregivers' Attributional Style
(N = 70)

<table>
<thead>
<tr>
<th>Grouping (N)</th>
<th>Stability (SD)</th>
<th>Globality (SD)</th>
<th>Internality (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>H-D (5)</td>
<td>53.0 (5.61)</td>
<td>49.2 (3.03)</td>
<td>42.8 (9.07)</td>
</tr>
<tr>
<td>D-H (10)</td>
<td>39.1 (8.81)</td>
<td>38.1 (8.46)</td>
<td>37.9 (7.94)</td>
</tr>
<tr>
<td>H-D (1)</td>
<td>42.0</td>
<td>42.5</td>
<td>40.5</td>
</tr>
<tr>
<td>-H-D (54)</td>
<td>36.1 (9.06)</td>
<td>35.6 (9.02)</td>
<td>42.3 (6.23)</td>
</tr>
</tbody>
</table>

**STABILITY**

<table>
<thead>
<tr>
<th>Contrast 1:</th>
<th>T-Value</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2.81</td>
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</tr>
<tr>
<td></td>
<td>-4.08</td>
<td>.001</td>
</tr>
<tr>
<td></td>
<td>0.95</td>
<td>0.35</td>
</tr>
</tbody>
</table>

**GLOBALITY**

<table>
<thead>
<tr>
<th>Contrast 1:</th>
<th>T-Value</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2.29</td>
<td>0.03</td>
</tr>
<tr>
<td></td>
<td>-3.34</td>
<td>.002</td>
</tr>
<tr>
<td></td>
<td>0.80</td>
<td>0.43</td>
</tr>
</tbody>
</table>

**INTERNALITY**

<table>
<thead>
<tr>
<th>Contrast 1:</th>
<th>T-Value</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1.32</td>
<td>0.20</td>
</tr>
<tr>
<td></td>
<td>-0.18</td>
<td>0.86</td>
</tr>
<tr>
<td></td>
<td>-1.81</td>
<td>0.08</td>
</tr>
</tbody>
</table>

Contrast 1: Hopeless and depressed (HD) vs. depressed, not hopeless (D-H)

Contrast 2: Hopeless and depressed (HD) vs. neither hopeless nor depressed (-H-D)

Contrast 3: Depressed, not hopeless (D-H) vs. neither hopeless nor depressed (-H-D)
As shown in Table 7, significant statistical differences in
globality and stability are evident between those hopeless and
depressed (HD) and those neither hopeless nor depressed (-H-D).
Also as predicted, no difference in attributional style appears
between subjects who are depressed but not hopeless (D-H) and
those who are neither hopeless nor depressed (-H-D). The
differences between those who are hopeless and depressed (HD) as
compared to those depressed but not hopeless (D-H) is also
significant.

These findings allow for rejection of the null hypotheses in
each instance. This therefore suggests that the construct of
hopelessness distinguishes differences in attributional style of
caregivers within this sample. Though no conclusions regarding
causality can be drawn, it would appear there is a highly significant
relationship between hopelessness and attributional style as
proposed by the hopelessness model (Abramson et al., 1989).

A second series of contrasts were computed using more
liberal cut-offs for both depression measures (GDS ≥10; BHS ≥ 4).
By grouping caregivers either above or below the top quartile on
both measures, the composition of the respective cells was
somewhat altered. This allowed for a less unequal distribution of
subjects within the respective groupings (9, 8, 8, and 45).
As shown in Table 8, significant differences are evident among
groups as hypothesized by this study. Globality and stability levels
remain significantly associated with the construct of hopelessness.
Table 8.
Orthogonal Contrasts Comparing Attributional Style Among Caregivers Grouped by Quartile Between Two Depression Measures (N = 70)

<table>
<thead>
<tr>
<th>Grouping (N)</th>
<th>Stability (SD)</th>
<th>Globality (SD)</th>
<th>Internality (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>HD (9)</td>
<td>46.7 (8.76)</td>
<td>45.8 (7.92)</td>
<td>41.8 (9.44)</td>
</tr>
<tr>
<td>D-H (8)</td>
<td>37.0 (11.5)</td>
<td>37.0 (8.28)</td>
<td>38.5 (5.63)</td>
</tr>
<tr>
<td>H-D (8)</td>
<td>38.8 (6.76)</td>
<td>41.5 (8.02)</td>
<td>42.6 (6.30)</td>
</tr>
<tr>
<td>-H-D (45)</td>
<td>36.1 (9.30)</td>
<td>34.6 (8.88)</td>
<td>42.1 (6.44)</td>
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</table>

**STABILITY**

<table>
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<tr>
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</thead>
<tbody>
<tr>
<td></td>
<td>2.35</td>
<td>0.04</td>
</tr>
<tr>
<td>Contrast 2:</td>
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<tr>
<td>Contrast 3:</td>
<td>0.26</td>
<td>0.80</td>
</tr>
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</table>

**GLOBALITY**

<table>
<thead>
<tr>
<th>Contrast 1:</th>
<th>T-Value</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1.85</td>
<td>0.04</td>
</tr>
<tr>
<td>Contrast 2:</td>
<td>-3.14</td>
<td>0.001</td>
</tr>
<tr>
<td>Contrast 3:</td>
<td>0.73</td>
<td>0.47</td>
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</table>

**INTERNALITY**

<table>
<thead>
<tr>
<th>Contrast 1:</th>
<th>T-Value</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.77</td>
<td>0.32</td>
</tr>
<tr>
<td>Contrast 2:</td>
<td>0.35</td>
<td>0.91</td>
</tr>
<tr>
<td>Contrast 3:</td>
<td>-1.36</td>
<td>0.18</td>
</tr>
</tbody>
</table>

Contrast 1: Hopeless and depressed (HD) vs. depressed, not hopeless (D-H)

Contrast 2: Hopeless and depressed (HD) vs. neither hopeless nor depressed (-H-D)

Contrast 3: Depressed, not hopeless (D-H) vs. neither hopeless nor depressed (-H-D)
A final series of orthogonal contrasts were computed only with spouses caring for a demented spouse (see Appendix Eleven).

In place of assessing globality and stability separately, multivariate analysis of variance (MANOVA) was used to examine the combined influence of attributional constructs. All caregivers were initially selected for this analysis, yet it was first necessary to re-examine response levels. Though earlier analyses indicated no univariate outliers exist within this data set, it was necessary to further analyze responses on dependent measures prior to multivariate analyses (Tabachnick & Fidell, 1989).

Multivariate outliers were identified using the Mahalanobis' distance of each case to the centroid of all cases. With three degrees of freedom (i.e., the number of independent variables) a chi square value of 7.81 necessitated the removal of 10 cases prior to subsequent analyses. This provided a revised sample size of 60 cases. Subsequent to the removal of these subjects, an examination of residual plots suggests the assumptions of normality, linearity and multicollinearity had been satisfied.

Due to unequal cell sizes, a correction to the MANOVA was required to appropriately partition the resulting sum of squares (SPSS Inc., 1988). The UNIQUE method was chosen as no hierarchical preference exists within the theory regarding either dependent variable. Globality and stability are assumed to arise at the same point within the hopelessness model (Alloy et al., 1988).

Due to the higher inter-correlation between globality and stability ($r = .57, p < .001$), a more stringent alpha ($\alpha$) level was
chosen prior to univariate analyses (Tabachnick & Fidell, 1989). This was done to control for an inflated type one error rate. Where \( d = .017 \) (i.e., \( .05/3 \) independent variables), globality and stability still differ significantly among groups (\( F_{2,57} = 4.80, p < .015; F_{2,57} = 8.69, p < .001 \) respectively). Consistent with previous analyses, internality remains nonsignificant (\( F_{2,57} = 0.67, p = .52 \)).

As shown in Table 9, multivariate analyses also reveal significant differences among groups. In place of Wilk's Lambda, Pillais' criterion is reported here. This more conservative procedure was chosen because of unequal cell sizes as this method is most robust to violations of MANOVA assumptions (Tabachnick & Fidell, 1989). This procedure indicates the combined significance of attributional style exceeds the .01 level. (Appendix Twelve recomputes these analyses with balanced cell sizes).

Approached alternately (i.e., reversal of independent and dependent variables), discriminant function analysis was computed to determine the percentage of subjects accurately grouped within the three cells of the research matrix. This multivariate technique is methodologically more appropriate than MANOVA as discriminant function analysis assumes unequal totals within dichotomous groupings (Tabachnick & Fidell, 1989).

This analysis appropriately grouped 83.3% of subjects on the basis of attributional style (50 of 60 caregivers). This percentage is markedly greater than would be achieved by chance alone (chi square = 18.9, \( p < .005 \)). Figure 2 shows the centroids derived from independent measures for the three caregiver groups.
Table 9.

Multivariate Analysis of Variance (MANOVA) Comparing Levels of Attributional Constructs Among Caregivers (N= 60)

<table>
<thead>
<tr>
<th>Grouping (N)</th>
<th>Globality (SD)</th>
<th>Stability (SD)</th>
<th>Internality (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>H D (4)</td>
<td>50.3 (2.22)</td>
<td>55.0 (3.92)</td>
<td>39.8 (6.90)</td>
</tr>
<tr>
<td>D-H (6)</td>
<td>38.2 (10.4)</td>
<td>35.5 (6.95)</td>
<td>39.7 (7.55)</td>
</tr>
<tr>
<td>-H-D (50)</td>
<td>35.7 (9.20)</td>
<td>36.3 (9.09)</td>
<td>42.2 (6.15)</td>
</tr>
</tbody>
</table>

Univariate Between Group F Tests with 2,57 df

<table>
<thead>
<tr>
<th>Variable</th>
<th>Hypoth. SS</th>
<th>Error MS</th>
<th>F Value</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stability</td>
<td>1320.93</td>
<td>76.04</td>
<td>8.69</td>
<td>0.001</td>
</tr>
<tr>
<td>Globality</td>
<td>792.07</td>
<td>82.52</td>
<td>4.80</td>
<td>0.01</td>
</tr>
<tr>
<td>Internality</td>
<td>53.78</td>
<td>40.06</td>
<td>0.67</td>
<td>0.52</td>
</tr>
</tbody>
</table>

Multivariate Test of Significance

<table>
<thead>
<tr>
<th>Test</th>
<th>Value</th>
<th>Approx. F</th>
<th>df</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pillais' criterion</td>
<td>0.30</td>
<td>3.24</td>
<td>6.0</td>
<td>.006</td>
</tr>
</tbody>
</table>
Figure 2.

Centroids for Three Caregiver Groups Derived from Discriminant Analyses (N = 60)

<table>
<thead>
<tr>
<th>Grouping (N)</th>
<th>Mean Depression (SD)</th>
<th>Mean Hopelessness (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>H-D (4)</td>
<td>19.0 (4.97)</td>
<td>11.8 (3.40)</td>
</tr>
<tr>
<td>D-H (6)</td>
<td>12.2 (1.47)</td>
<td>4.5 (2.07)</td>
</tr>
<tr>
<td>-H-D (50)</td>
<td>3.9 (2.95)</td>
<td>2.8 (1.82)</td>
</tr>
</tbody>
</table>
For each of the three groups, the computed classification equation appropriately place a significant majority of subjects. The resulting centroids show the distance which separates each group. In this instance, a maximum of two discriminant functions are available as degrees of freedom are limited by the number of groups (i.e., df = 3 groups - 1). Thus subjects were grouped on the basis of internality and stability scores. It is unlikely that exclusion of internality compromised the accuracy of this statistical technique. It is apparent from previous analyses that mean levels of internality differ minimally among groups.

To this point, each statistical procedure has supported the concordance of hopeless ideation with depressive attributional style. However, no causal conclusions can be drawn. Abramson et al. (1989) assert that globality and stability lead to a distinct subtype of depression defined by hopelessness among predisposed persons. Yet the design of the current study does not allow this causal relationship to be examined.

For instance, it is also conceivable that hopeless ideation results among those most profoundly depressed or as a consequence of severe contextual stimuli (i.e., patient impairment or duration of caregiving). Should this be the case, hopelessness may not define a distinct depressive subtype but exist as a severity marker. The current data set does not indicate if hopelessness precedes the onset of depressive symptomology (as proposed by the Abramson et al. (1989) model) or represents an outcome for a subset of caregivers as a consequence of extraneous factors.
As shown in Table 10, it would appear those hopeless and depressed present with higher GDS levels as compared to depressed persons who score below cut-off on the BHS. However, no other differences between groups are apparent. Aside from depression levels, patient severity and reported symptom duration appear similar. This suggests few differences other than cognitive variables distinguish hopeless and depressed caregivers as compared to the larger grouping of depressed persons. However, the chronology of hopeless ideation can only be adequately assessed by longitudinal research.

**Caregiver Burden as a Specific Outcome of Hopelessness**

**Third Hypotheses**

It was initially hypothesized that burden, as a cognitive construct, would be more strongly correlated with hopelessness as compared to other depressive measures (i.e., total depression, globality and stability). Based upon the coefficients presented in Table 5, this was not apparent. Though burden is significantly correlated with hopelessness among caregivers ($r = .43, p < .001$), the coefficient between depression and Burden Interview scores reflects a stronger degree of relationship ($r = .55, p < .001$). In part, this may be due to the positive skewness of BHS scores. It is noteworthy, however, that hopelessness is more strongly correlated with burden scores as compared to globality ($r = .30, p = .01$) and stability ($r = .31, p = .01$). In this instance, one must therefore accept the null hypothesis.
Table 10.
Comparison of Features Between Depressed Groupings

<table>
<thead>
<tr>
<th>Measure</th>
<th>Mean (SD)</th>
<th>T-Value</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Geriatric Depression Scale:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• HD (N = 5)</td>
<td>17.8 (5.07)</td>
<td>2.45</td>
<td>0.03</td>
</tr>
<tr>
<td>• D-H (N = 10)</td>
<td>13.1 (2.51)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Burden Interview:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• HD (N = 5)</td>
<td>41.6 (18.7)</td>
<td>-0.44</td>
<td>0.67</td>
</tr>
<tr>
<td>• D-H (N = 9)</td>
<td>45.8 (16.0)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Patient Severity (FRS):</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• HD (N = 5)</td>
<td>23.6 (5.32)</td>
<td>-0.48</td>
<td>0.64</td>
</tr>
<tr>
<td>• D-H (N = 10)</td>
<td>25.0 (5.25)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Duration of Symptoms:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• HD (N = 5)</td>
<td>72.0 (47.2)</td>
<td>0.57</td>
<td>0.58</td>
</tr>
<tr>
<td>• D-H (N = 10)</td>
<td>57.3 (46.6)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Patient Age:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• HD (N = 5)</td>
<td>71.0 (7.94)</td>
<td>0.69</td>
<td>0.50</td>
</tr>
<tr>
<td>• D-H (N = 9)</td>
<td>67.3 (10.3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Caregiver Age:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• HD (N = 5)</td>
<td>63.8 (11.1)</td>
<td>0.45</td>
<td>0.66</td>
</tr>
<tr>
<td>• D-H (N = 9)</td>
<td>60.7 (13.2)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Subsequent analyses were undertaken to more fully assess burden levels within the paradigm of the hopelessness model of depression. This was based on the assumption that burden might exist as a specific manifestation of hopelessness depression among spousal caregivers.

Of note, Burden Interview scores are significantly correlated with the Edmonds Scale \((r = -0.45, p < 0.001)\) as compared to other dependent variables (see Table 10). It is noteworthy that no significant relationship exists between responses on the Burden Interview and the Marlowe-Crowne Social Desirability Scale \((r = -0.09, p = 0.45)\). In a separate study, O'Rourke et al. (1994) have proposed the existence of a distinct dyadic response bias which is related strongly to responses on relation-based measures such as the Burden Interview. (Appendix Thirteen presents analyses of the factor structure of the EMCS).

The significant relationship between EMCS and Burden Interview scores was explored using hierarchical statistical procedures. Within a regression equation, EMCS scores were first entered to control for the influence of response biases.

A regression model was constructed to reflect the hypothesized chronology of the hopelessness model of depression (Abramson et al., 1989). Subsequent to inclusion of EMCS scores (to function as a covariate), a second block was entered including an objective measure of patient's functional status (FRS scores) and duration of symptoms. This grouping represents the objective indices of caregiver burden and corresponds to concrete strain and
the demands of this role as operationalized within this diathesis-stress model.

The final block of variables corresponds to subjective factors hypothesized to arise as a function of the stress of caregiving. This grouping, composed of stability, globality and hopelessness, represents the constrained cognitive set hypothesized to arise among predisposed persons.

Regression analyses were performed by using SPSSx REGRESSION and SPSSx FREQUENCIES for evaluation of assumptions (SPSS Inc., 1988). To test for the independence of residuals, scatter plots were produced. As residuals were normally distributed about predicted scores, this suggests normality, linearity, homoscedasticity and independence of residuals. Because of the extended period over which interviews occurred, the Durbin-Watson test statistic was calculated as a measure of autocorrelation of errors over the sequence of cases. The value of $d$ was calculated to be 1.78 (not significant at the .01 level), indicating no autocorrelation between adjacent cases. Though these procedures did not result in the exclusion of further cases, it should be noted the ratio of independent variables to cases is low. According to Tabachnick and Fidell (1989), however, this ratio exceeds a required minimum.

As shown in Table 10, each block of variables strongly contributes to a highly significant regression equation predicting Burden Interview scores ($R = .73$, $p < .0001$). After adjustment to correct for the dyadic response bias (i.e., possible underreporting of
Table 11.

Correlation Coefficients and Hierarchical Regression Analysis of Hypothesized Diathesis-Stress Burden Model (N = 60)

<table>
<thead>
<tr>
<th>Variables</th>
<th>BI (DV)</th>
<th>EMCS</th>
<th>Duration</th>
<th>Severity</th>
<th>Globality</th>
<th>Stability</th>
<th>B</th>
<th>β</th>
<th>$\text{Sr}_1^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>EMCS</td>
<td></td>
<td>.45</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.25 3</td>
</tr>
<tr>
<td>Duration</td>
<td></td>
<td>.31</td>
<td>-.29</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-.03 -.08</td>
</tr>
<tr>
<td>Severity</td>
<td></td>
<td>.40</td>
<td>.04</td>
<td>.26</td>
<td></td>
<td></td>
<td>.98</td>
<td>.34</td>
<td>.15 2</td>
</tr>
<tr>
<td>Globality</td>
<td></td>
<td>.30</td>
<td>.18</td>
<td>.14</td>
<td>.18</td>
<td></td>
<td>.08</td>
<td>.05</td>
<td></td>
</tr>
<tr>
<td>Stability</td>
<td></td>
<td>.31</td>
<td>.27</td>
<td>.14</td>
<td>.15</td>
<td>.58 3</td>
<td>-.16</td>
<td>-.10</td>
<td></td>
</tr>
<tr>
<td>Hopelessness</td>
<td></td>
<td>.43</td>
<td>.27</td>
<td>.29</td>
<td>.23</td>
<td>.43 3 .43 3</td>
<td>1.96</td>
<td>.41</td>
<td>.13 2</td>
</tr>
</tbody>
</table>

$R^2 = .53 3$

Adjusted $R^2 = .48$

$R = .73$

1 $p < 0.01$  2 $p < 0.005$  3 $p < .001$
BI scores), both objective and subjective factors significantly contribute to the $R$ value. It is noteworthy that the relative contribution of each grouping is similar within this hierarchical model. This would indicate that the relative contribution of subjective factors exceeds that provided by illness-mediated factors alone. As shared variance between groupings would be claimed by the first block (i.e., objective variables), this suggests the subsequent contribution of attributional factors is distinct and separate. More precisely, cognitive factors included as the final grouping in the model provide a distinct and significant contribution to the prediction of burden scores. This would indicate the degree to which the construct of burden is largely influenced by the perceptions of caregivers.

The relative significance of specific factors is also noteworthy. As compared to severity ratings, the beta value for duration of symptoms contributes much less to significance of the $R$ square value. It is likely there is a high degree of shared variance between this latter variable and EMCS scores as this information is largely obtained from collateral informants (O'Rourke et al., 1994). Thus, within this hierarchical model, it is assumed that duration of symptoms contributes little to explained variance in burden scores above that initially provided by the EMCS.

Consistent with previous analyses, the relative contribution of stability totals surpassed that provided by globality. In this instance, however, stability emerged with a negative beta weight. The reason for this is not immediately apparent as stability was
positively correlated with Burden Interview scores \( r = .31, p < .01 \). It would thus appear that the relative contribution of stability becomes inverse subsequent to the inclusion of one or more of the variables first entered into the regression equation.

Most notable is the strong and unique contribution of hopelessness relative to burden scores \( \beta = .41 \). This finding is strongly suggestive of the significant contribution of depressive ideation relative to caregiver burden. This relationship also supports the contention that caregiver burden may be a specific example of hopelessness depression. As with earlier analyses indicating the significant relation between hopelessness and attributional style, this hierarchical model would suggest the construct of hopelessness is highly significant in relation to expressed burden within this sample of spousal caregivers.
It is hopelessness even more than pain that crushes the soul. So the decision-making of daily life involves not, as in normal affairs, shifting from one annoying situation to another less annoying - or from discomfort to relative comfort, or from boredom to activity - but moving from pain to pain. One does not abandon, even briefly, one's bed of nails, but is attached to it wherever one goes (Styron, 1990, p. 62).

**Hopelessness Depression among Caregivers**

The results of this study strongly support aspects of the hopelessness model of depression (Abramson et al., 1989). The construct of hopelessness appears to be associated with attributional thought patterns linked to the onset of this hypothesized depressive subtype among spousal caregivers. This conclusion is supported by each of the statistical analyses conducted.

Initial orthogonal contrasts assessed differences in globality and stability levels among groupings divided on the basis of scores on both depression measures. These analyses indicated that the construct of hopelessness appears strongly associated with attributional style. This was not only evident among those who are hopeless and depressed as compared to the non-depressed cohort, but also within the full grouping of depressed persons. More precisely, the construct of hopelessness would appear to
effectively distinguish patterns of attributional thought among depressed persons. This supports the notion of hopelessness depression as a distinct subtype within a heterogeneous grouping of affective disorders.

In contrast to the helplessness model (Abramson et al., 1978) which implied that all unipolar depressions were precipitated by attributional style (i.e., implied causality due to cognitive factors), findings from the current study support the hypotheses of the Abramson et al. revised model (1989). Among the current sample, roughly 33% of depressed subjects appear to be classified within the hopeless and depressed grouping.

It is noteworthy that this percentage roughly corresponds to the proportion of depressed elders who do not respond to pharmacotherapy (Brown, Sweeney, Frances, Kocsis & Loutsch, 1983; Georgotas et al., 1987). This might suggest that a consistent percentage of depression cases may not be attributable to biological factors (i.e., possible etiology due to cognitive factors). Should this percentage of hopeless and depressed persons be applicable to other populations (elderly or otherwise), this would entail a substantial number considering the wide prevalence of unipolar depression (APA, 1994).

Support for this model as a distinct depressive subtype is consistent with equivocal findings for the earlier helplessness model. As discussed previously, studies investigating attributional style relative to the more global helplessness model often arrived at conflicting conclusions (Parks & Hollon, 1988). Some research
suggested differences in attributional style were apparent between depressed persons relative to control subjects (Hamilton & Abramson, 1983; Cutrona, 1983). The majority of studies, however, showed no such differences (e.g., Miller, Klee & Norman, 1982; O'Hara, Neunaber & Zekoski, 1984).

This may be due to sample size as well as the composition of previous study samples. For instance, recruiting subjects within cognitive therapy clinics (cf. Beck et al., 1979) may have lead to an over-representation of persons presenting as hopeless as compared to those recruited in other settings (i.e., those whose depression was not amenable to this intervention likely would have sought treatment elsewhere). As a function of the relative percentage of patients presenting as hopeless, statistical significance may have emerged. In previous research, a significant association between attributional style and depression may have been evident depending on the percentage and size of hopeless persons within these respective samples. This point underscores the difficulty that can arise when subjects are recruited within a single facility.

Another finding from the current study which supports the hopelessness model is the lack of association between hopelessness and perceived personal responsibility for negative events (i.e., internality). This, again, is in contrast to the helplessness model which hypothesized this construct to be integral to the onset of depression (Abramson et al., 1978).

It would appear hopeless subjects in this sample see negative events as equally attributable to themselves and others or
circumstance. On reflection, this would seem congruous with the construct of hopelessness as any consistency in perceived responsibility for negative events would suggest the possibility to forestall or prepare for these happenings. By definition, it would seem that hopelessness entails the perception of utter randomness in the occurrence of negative life events; the only consistency being that unpleasant events occur repeatedly, with little or no warning and impact most domains of one's life.

This would appear consistent with a model that views hopelessness as a core construct. No matter how negative, the notion of personal responsibility for events entails the possibility of change. For instance, if one claims to be responsible for physical illness, this knowledge and awareness could be applied to future behaviour. In keeping with the construct of internal locus of control (Rotter, 1966), perceived responsibility for both negative and positive events, in theory, leads to a sense of agency or personal empowerment incongruous with pervasive hopelessness. Because of the incompatible nature of these two constructs, if internality and hopelessness were to co-exist, cognitive dissonance would likely ensue (Cooper & Fazio, 1984). One or both would have to be addressed and redressed.

What is apparent, however, is that this construct of internality appears to differ between those who are depressed but not hopeless (D-H) as compared to those who are neither hopeless nor depressed (-H-D). A significant difference exists along this continuum among the former group caring for a demented spouse.
Yet, what is noteworthy is that these depressed subjects appear to see negative events as due to others or circumstance as opposed to themselves in contrast to the prediction of the helplessness model. This finding from the current study would suggest Abramson et al. (1989) are correct to remove internality from the revised model. (The low Cronbach's alpha for internality ($\alpha = 0.33$) as compared to globality ($\alpha = 0.73$) and stability ($\alpha = 0.76$) indicates this construct lacks homogeneity within the current sample). Not only for hopeless persons, but also among the remainder of depressed subjects, the construct of internality appears to have little relevance.

Support for the hopelessness model was provided by univariate and multivariate analyses. In the multivariate analysis of variance (MANOVA), simultaneous examination of globality, stability and internality scores indicated the first two differ significantly among groups ($p < .001$). Finally, discriminant function analysis also revealed multivariate significance. On the basis of attributional style, 83% of subjects were appropriately grouped. This result was again strongly significant ($p < .005$) as this procedure effectively grouped subjects as hopeless and depressed (HD), depressed not hopeless (D-H), or neither hopeless nor depressed (-H-D) as a function of globality and stability levels.

To a certain degree, the strength of these results challenges the proposed chronology of the hopelessness model. As shown in Figure 1 (p. 25), Alloy et al. (1988) suggest three discrete stages precede the onset of hopelessness depression. Salient negative
events (step 1) are believed to trigger depressive attributional style among predisposed persons (step 2) which leads to perceived hopelessness (step 3) and eventually a depressive condition defined by hopeless ideation (step 4). The temporal distinction between each of these stages would suggest persons can be identified at each point along this continuum. Findings from the current study, however, do not support this notion.

For example, only one subject in 70 recruited for this study presented as hopeless but not depressed (H-D). In this instance, this caregiver was taking anti-depressant medication and was included due to this elevated hopelessness level (inclusion criteria discussed in Chapter 3). It is conceivable that this medication may have impacted her depressive state without a corresponding effect upon hopeless ideation. The absence of persons presenting as hopeless but not depressed (H-D) suggests it is unclear whether pre-depressive hopelessness exists as a separate stage in this model. Among predisposed persons, it is therefore plausible that the onset of depression is concurrent with perceived hopelessness.

Also significant is the marked difference in attributional style between hopeless and depressed subjects (HD) as compared to those who are neither hopeless nor depressed (-H-D). According to the proposed chronology of the hopelessness model, it is likely that a proportion of persons in the latter group may eventually succumb to hopelessness depression. In other words, the recency of onset in their spouses' condition may have triggered depressogenic
attributional style though hopelessness has yet to result (i.e., between points two and three in the hopelessness model).

According to this logic, the neither hopeless nor depressed grouping (-H-D) should be composed of those who are asymptomatic (i.e., the majority who will remain at this point) as well as a percentage of persons at early onset for hopelessness depression. The marked degree of difference in attributional style between this group and those who are hopeless and depressed (HD), however, challenges the hypothesized heterogeneity of the neither hopeless nor depressed (-H-D) grouping of caregivers. For levels of globality ($t = 3.34, p < .01$) and stability ($t = 4.08, p < .001$), the difference between groupings is highly significant. This difference is reflected in the mean and variance levels for both groups (see Table 7, p. 70). For instance, the mean stability level for the hopeless and depressed grouping (HD) is approximately three standard deviations (SD) above the corresponding mean level for those neither hopeless nor depressed (-H-D). This difference is more pronounced for globality levels where the mean for the hopeless and depressed group (HD) is roughly four standard deviations above that of those neither hopeless nor depressed (-H-D). Assuming normal distribution of scores, this suggests very little overlap between their respective distributions. In other words, these appear to be distinct populations. This observation does not appear to support the hypothesized heterogeneity of the neither hopeless nor depressed grouping (-H-D) as implied by the hopelessness model (Alloy et al., 1988).
This would suggest one of two possible explanations: either caregivers recruited for this study have been dealing with the stress of their spouses' condition long enough that all predisposed to hopelessness depression have progressed through all stages; or the steps leading to this condition are less discrete than Alloy et al. (1988) have proposed. For instance, it is possible the distinction between each of the points in the model is more theoretical than temporally autonomous points along a continuum. Yet, with all discussion regarding the chronology of this model, these observations can only be fully addressed by means of longitudinal research. The methodology of this study only allows observations to be made and hypotheses to be advanced.

Caregiver Burden as a Specific Outcome of Hopelessness

This study has also provided preliminary support for a novel and distinct conceptualization of caregiver burden. Though hopelessness does not appear more strongly correlated with burden as compared to overall depression, subsequent analyses suggest hopelessness is a salient construct relative to expressed burden among caregivers. The hierarchical regression model derived in this study accounts for 53% of observed variance in Burden Interview scores ($p < .001$). In addition to a significant inverse contribution provided by social desirability, both objective and subjective groupings of variables significantly contributed to the prediction of burden scores (i.e., patient factors and depressive thought patterns).
This approach to the assessment of caregiver burden differs substantively from previous research. For instance, applied stress and coping models traditionally view burden as the difference between role demands and perceived resources (Pearlin et al., 1990; Zarit, 1990). Though the latter suggests negative perceptions are attributable to subjective factors, this need not always be the case. More precisely, a belief one is ill equipped to face the demands of caregiving may not be unrealistic. For instance, economic factors, a lack of instrumental support, or caregiver illness may greatly impede one's ability to cope and may thus be an entirely objective perception. Similar to research regarding depressive realism (Alloy & Abramson, 1988), negative beliefs concerning one's current life situation may be entirely objective. In certain instances, depression is not a function of distorted perceptions, but an acute and rational awareness of one's resources relative to existing contextual stressors.

In contrast, the model proposed by this study documents the operation of a distinct subjective component. As opposed to gauging perceptions specific to caregiving, the cognitive patterns assessed in this instance are separate from the caregiving context (i.e., globality, stability and hopelessness). Asking subjects to respond to general statements or assessing their perceptions within hypothetical situations is sufficiently distinct from the caregiver role they perform to more effectively suggest the operation of this restricted cognitive set. In effect, this model attempts to separate objective factors related to role demands
from the constrained thought processes which uniquely and significantly contribute to burden levels.

A further distinction exists between this and traditional stress and coping models. The Lazarus and Folkman paradigm (1984) makes no assumptions regarding a causal association between stressors and subjective appraisal. The hopelessness model, however, carries the implicit assumption that subjective factors are triggered by contextual stressors.

This conceptualization of burden is not dissimilar from Beck's hypotheses regarding the relationship between hopelessness and suicidal ideation (Beck & Weishaar, 1989). Among depressed persons, it is believed that a narrow perception of options allows suicide to be seen as a more viable alternative. Any solution which promises to provide a permanent solution to the overwhelming perception of current difficulties thus becomes more appealing.

In a similar manner, burden may arise among caregivers as a result of hopelessness which entails this same constricted cognitive set. It is hypothesized that hopelessness limits one's willingness to search for more effective coping strategies because of a pervasive belief that all attempts to manage the situation will be futile. Thus, the caregiver resigns him or herself to the demands of this role without attempting to cope more effectively. Even when presented with new alternatives, pervasive hopelessness may cause caregivers to reject suggestions out of hand. In this way, hopelessness is believed to foster the sense that one is imprisoned
within a role in which there is no possibility to cope more effectively.

Generalizability of Findings

Comparisons between the current sample and subjects recruited in the Canadian Study of Health and Aging (CSHA) suggest caregivers interviewed in this clinic are representative of the population from which they were drawn. Particularly after the clinic sample was limited to those caring for patients over 64 years (i.e., to reflect the protocol of the CSHA), few differences between groups were evident. Though subjects recruited for the current study appear to be caring for older patients who are more cognitively impaired, these caregivers appear similar to this randomly derived, national sample.

It must be noted, however, that the analyses comparing the respective samples are relatively basic. As discussed in a recent article by Feingold (1995), much of the bona fide difference between groups lies in the tails of their respective distributions. Though measures of central tendency may indicate few significant differences, the richness or unique character of samples may be lost by focusing on crude measures in the search for statistical significance.

It would appear this discussion pertains more specifically to large sample comparisons. The relatively small number of subjects recruited for this study and the CSHA comparative sample precludes analyses in this detail (i.e., few cases beyond two standard
deviations of the mean). The point is well taken, however, concerning the conclusions which can be drawn from a series of t-tests. Though the mean and variance levels appear similar between the current and CSHA samples, it can only be said that they appear similar and not identical.

Limitations of Study

As noted previously, no conclusions can be drawn regarding the causal link hypothesized to exist between attributional style and hopelessness. Though the model suggests globality and stability precede and lead to perceived hopelessness, the design of the present study has not permitted this to be addressed. This would require a longitudinal design.

One alternative with the current data set might have been to conduct cross-sectional analyses. For instance, grouping patients and caregivers by initial assessment versus subsequent assessments may have permitted discrete comparisons. As noted previously, one difficulty with this tactic is the small percentage of persons who had been seen previously in this clinic (i.e., reassessments provided only 14 cases or 20% of the current sample).

A more serious factor precluding the use of cross-sectional analyses relates to the duration of the illness. Initial assessments within this facility do not necessarily occur early in the disease process. For instance, some patients first referred to this clinic have been symptomatic for many years. In other cases (particularly
where the patient is younger), the onset of symptoms may be relatively recent.

Another alternative would have been to group subjects on the basis of duration of their spouses' illness irrespective of initial versus subsequent assessment. However, reported duration of symptoms itself is a suspect variable. This information is largely obtained from caregivers. Not only is this variable strongly correlated with dyadic social desirability (O'Rourke et al., 1994), but various circumstances will make symptoms more apparent for some patients as compared to others. For instance, an employed person with young children will appear symptomatic sooner in the course of the illness as compared to a retired octogenarian with a consistent routine and few responsibilities. Also of note, considerable variability exists in the rate of decline of dementia patients (Tuokko, Vernon-Wilkinson, Weir & Beattie, 1991). Because one patient has been symptomatic for the same number of years as another, it cannot be automatically concluded that their level of impairment is similar.

A more pronounced limitation of the current study is the low number of subjects upon which conclusions are based. As originally proposed, it was anticipated that subjects would have been more evenly distributed along the hopeless and depressed continua. Over ten months, however, only five of 70 subjects were assessed as hopeless and depressed (HD). This is encouraging from a clinical standpoint (i.e., the relative mental health of caregivers entering this facility), yet it tempers the enthusiasm with which the results
of this study can be expressed. One means to address this would have been the use of statistical power analysis (Cohen, 1988). This technique allows for a determination of the risk of Type II ($\beta$) errors. In other words, power analysis provides a risk estimate of accepting invalid hypotheses.

This discussion underscores a fundamental difficulty in research testing diathesis-stress models. Investigators not using longitudinal designs are faced with an important choice from the outset. As it is necessary to indicate the operation of stressors as well as the clinical condition to suggest predisposition, this can be approached in two distinct manners. Heterogeneous samples can be derived in which it can be documented that a salient negative event has occurred, or researchers can recruit samples composed exclusively of the target population and attempt to distinguish subjects on the basis of past stressors. The former was chosen for the current study whereas most research has approached this retrospectively.

Certainly the former technique is not without problems. This methodology is more labour intensive, results in disproportionate groupings of subjects and restricts the choice of statistical procedures. Yet it can also be argued that this approach is empirically stronger than alternate quantitative methodologies. As noted by Alloy et al. (1988), a primary short-coming of previous research in this area is a function of the salience of identified stressors. More precisely, it is unclear how importantly these events were perceived in the past. It must also be noted the
subjectivity inherent in these perceptions. For instance, Koch (1985) sought to indicate that failure to solve a series of unsolvable anagrams was sufficient to trigger depressive attributional style among older adults. As discussed earlier, the results of this study were far from conclusive. It could be argued that not all elders would view this experience as overly important.

This suggests studies must employ stressors which the majority of persons would perceive as salient. It is quite likely that this requirement has been met by the current study. From an experimental perspective, however, it is uncertain this could be accomplished. Few ethical review committees would approve research with proposed to deliver this type of stressor to subjects (with or without informed consent). This, therefore, limits researchers to recruiting subjects where these negative life events occur naturally or have already occurred (as in the present study). From the outset, a selection bias results after which point it is unknown how representative the sample remains as compared to the overall population.

**Implications for Counselling and Psychotherapy**

This study has provided the first indication that a distinct depressive subtype might exist within this older adult population. As noted previously, roughly 33% of depressed persons from the current sample are distinguished by the construct of hopelessness and corresponding depressive attributional thought processes. Should subsequent research indicate that hopelessness effectively
distinguishes populations of depressed persons, this has significant implications for the practice of psychotherapy.

It has long been recognized that cognitive interventions are highly effective in the treatment of depression (Hollon et al., 1992; Miller, Norman, & Keitner, 1989; Shapiro & Shapiro, 1982). In recent years, this assertion has also been supported in research specifically with older adult populations (Okum, Olding & Cohn, 1990; Teri, Curtis, Gallagher-Thompson & Thompson, 1991). This was further evident in a recent study by Gallagher-Thompson and Steffen (1994), where the sample was composed entirely of depressed family caregivers. In contrast to the initial enthusiasm for cognitive-behavioural interventions based on their comparative superiority, more recent research has challenged this conclusion (Gallagher-Thompson, Hanley-Peterson & Thompson, 1990; Scogin & McElreath, 1994). In part, this may be a function of conducting outcome research and meta-analyses within heterogeneous populations. For instance, should depression exist as a grouping of disorders as suggested by Abramson et al. (1988), it is more likely that the relative efficacy of any intervention will be masked.

However, should hopelessness depression exist as a distinct depressive subtype, it is highly likely that this disorder would be most amenable to cognitive-behavioural therapy. As opposed to mood disorders defined by their organicity (Gilley, 1993), a specific depressive subtype caused and characterized by depressive ideation is more likely to respond to an intervention that specifically challenges these depressive thought processes.
The results of the current study allow this to be extended to a discussion of burden among caregivers. Preliminary support has been documented for the hypothesis that burden may exist as a distinct manifestation of hopelessness depression within this population. As hypothesized, the construct of hopelessness is significantly related to burden within this sample of caregivers. This would suggest that a means to redress this phenomenon among caregivers might be to examine the beliefs which underpin hopeless ideation.

Finally, it may also be possible to identify persons at risk. Prior to the onset of hopelessness depression, those who display the depressogenic diathesis might be identified as susceptible. Within the framework of preventative medicine, resources might be more effectively directed to caregivers at risk, as opposed to waiting for the onset of clinical depression. For instance, at the time of initial diagnosis, those with a history of mood disorders or those who appear vulnerable to depressive cognitions might receive greater assistance to aid the transition to the caregiver role.

Future Research

It is hoped results from the present study will encourage further study of the hopelessness model within older adult populations. Though the current study suggests this hypothesized depressive subtype exists among spousal caregivers, it has yet to be determined if these results can be replicated within this (or other) elderly populations. For instance, it is yet uncertain if
similar findings would appear among persons caring for other patient groups or those encountering other serious negative life events. Where possible, it would be ideal for future investigations to employ longitudinal methodologies.

This option now exists as an extension of the current study. Persons interviewed in this clinic provide a representative sample of caregivers which could be followed over time. It would be interesting to assess the relationship between attributional style and hopelessness at separate points relative to patient factors.

Patients and caregivers attending this clinic are routinely asked to return roughly 18 months following their first assessment. Though not all respond to this invitation, a percentage of families are tracked through the course of the illness. This provides an opportunity to assess the natural history of their affective state through their careers as caregivers. As noted by Barusch (1988), 67% of caregivers report depressive symptoms at some point during the course of their spouses' illness. A longitudinal investigation would allow for a more complete and thorough test of the hopelessness model within this population.

This also pertains to the study of caregiver burden. Findings from the current study would appear to further clarify the nature of this construct among spousal caregivers. Operationalized within the hopelessness model, caregiver burden is more fully defined as a cognitive construct superseding objective role demands. It has yet to be determined, however, if this finding will emerge within other
caregiver populations. Also to be examined is the etiology of burden within this framework.

Though this study has assumed burden to be a specific outcome of the hopelessness model, further research is necessary to clarify the chronology of this hypothesized causal relationship. It has been assumed that caregiver burden is a specific manifestation of hopelessness depression within this population. However, longitudinal analyses will be required to fully address this assumption. It is yet unclear if this restricted cognitive set is triggered by the spouse's illness, if hopelessness precedes the onset of burden, and what other variables may be related to this phenomenon.

A further area of possible investigation relates to the placement decision. As noted previously, the decision to institutionalize a demented family member generally is a function of caregiver variables versus those of the patient (Colerick & George, 1986). Consistent with earlier discussion, hopeless ideation is believed to result in the perception of a constrained range of possible alternatives. Hopelessness may lead to early institutional placement of one's relative as a solution to the relentless demands of the caregiving role. Perceived hopelessness may lead caregivers to seize upon any permanent solution which promises to resolve one's inability to cope.

This would suggest that effective intervention with caregivers might forestall placement. Should a causal link between hopelessness and the placement decision be established,
addressing this perception might allow caregivers to function for longer periods. This outcome would have tremendous implications for families and the health care delivery system.

This approach is distinct from previous investigations. As opposed to tailoring services to better suit the needs of caregivers (O'Rourke, Tuokko, Klassen-Peters, Rae & Beattie, 1994), the perception of hopelessness may create a bias where all additional support is viewed as futile. According to this logic, it may first be necessary to address this belief system so that additional support is viewed objectively.

A final direction for future research relates to the construct of dyadic social desirability. As noted previously, 25% of observed variance in Burden Interview scores was accounted for by the EMCS. This surpasses that provided by both objective and subjective groupings within the hierarchical regression model. The beta value for the EMCS ($\beta = -.39$) is surpassed only by that provided by the hopelessness measure ($\beta = .41$). As opposed to the assumption reflected in the existing research literature, reported burden among this cohort of spousal caregivers appears highly susceptible to this dyadic response bias. It has yet to be determined, however, if this relationship would persist if burden were assessed in such a way as to conceal the identity of caregivers. This significant inverse relation between the EMCS and burden scores must also be assessed among persons caring for other patient populations.

This study provides the first indication that a dyadic or relational response bias may exist distinctly from individual forms
of social desirability responding. Further study is required, however, to determine its impact upon reporting of other dyadic measures. Again, it has yet to be determined if the current finding is specific to expressed burden or will generalize to other emotionally laden, dyadic measures.

Further research is also necessary to more fully operationalize this construct. As indicated by the current study, the EMCS appears to have stronger internal consistency ($\alpha = .86$) as compared to the MC-SDS ($\alpha = .77$). A factor structure may yet be identified which will clarify the role and nature of this construct. For instance, distinct patterns might emerge suggesting that spouses present an ideal image of their relationship separate from an ideal presentation of their partner. Each construct may serve a different function depending upon the demands of specific contexts.

Overall, this study provides consistent findings supporting the salience of hopelessness within this population. Specific to depression and burden, the construct of hopelessness is significantly related to depressive thought processes and caregiver burden within this sample of spousal caregivers. As a uniquely cognitive variable, hopeless ideation appears to supersede objective factors related to the problematic outcomes of caregiving. This study provides initial evidence regarding the significant of this construct. The challenge now exists to more fully assess the function and etiology of hopelessness among caregivers and other populations.
References


O'Rourke, N., Haverkamp, B. E., Rae, S., Tuokko, H., Hayden, S., & Beattie, B. L. (1994). *Response biases as a confound to expressed burden among spousal caregivers of suspected dementia patients.* Unpublished manuscript, University of British Columbia, Clinic for Alzheimer Disease and Related Disorders, Vancouver, BC.


Appendix One

The Canadian Study of Health and Aging

The Canadian Study of Health and Aging (CSHA) was a nationwide investigation of the health status of persons over 64 years of age in Canada. In addition to obtaining a general survey of health status, one of the goals of this study was to determine the prevalence of dementia, in various forms, across the country. This focus emerged in response to the increase in life expectancy, the relationship between age and the prevalence of dementia, and the impact of dementia prevalence on the health care delivery system.

The CSHA also studied risk factors such and the role of caregivers of persons with dementia. In response to the complexity of the methodological issues involved in studying the epidemiology of dementia, the CSHA protocol for a multi-centre, multidisciplinary study was drafted by the Coordinating Study Centre at the University of Ottawa’s Department of Epidemiology and the Laboratory Centre for Disease Control of the federal government.

Early in 1989, 18 centres across Canada agreed to participate in developing and implementing the protocol. Working groups were established to guide the development of the six components of the research protocol: screening for cognitive impairment; physical examination; neuropsychological assessment; the risk factor study; the study of the impact of dementia on caregivers; and the ethical aspects of the study (Tuokko, Kristjansson & Miller, in press).
The CSHA involved two distinct populations of persons over 64 years of age in Canada: community-dwelling and residents of institutions. All participants were required to be fluent in either English or French and were assessed in their preferred language.

For the community sample, a two-phase approach to identify persons with dementia was taken. First, a screening interview was conducted on an age-stratified random sample of persons from five geographically defined regions (i.e., Maritimes, Québec, Ontario, Prairies and British Columbia; N = 9008). As part of the screening interview, the Modified Mini-Mental State Examination was administered (3MS; Teng & Chui, 1987). All subjects scoring below 78/100 on the 3MS and a subsample of persons scoring 78 or greater were invited to attend the clinical component of the CSHA (N = 2339). Those who could not complete the 3MS were referred for clinical evaluation (Tuokko et al., in press).

For the institutional sample, all selected residents (N = 1817) were invited to take part in the clinical component of the CSHA without undergoing the screening examination. This approach was adopted because of high prevalence of dementia in institutions made this unnecessary (Bland, Newman & Orn, 1988; Robertson, Rockwood & Stolee, 1989).
Appendix One (Cont.)

The Canadian Study of Health and Aging

The clinical component was designed to confirm the presence of cognitive impairment in those screened positive (< 78 on the 3MS) and to allow for a further differential diagnosis if cognitive impairment was confirmed. This consisted of four parts: nurse's evaluation; physical examination; laboratory blood work; and neuropsychological assessment.

The nurse's evaluation included re-administration of the 3MS, rudimentary measures of vision and hearing, recordings of vital signs, height, weight and medication use. Information on the subject's history, cognitive and functional status was obtained from a collateral informant (usually a family member) using section H of the Cambridge Examination for Mental Disorders (CAMDEX; Roth, Huppert, Tym & Mountjoy, 1988).

During the physical examination, the physician evaluated the general appearance of the subject, examined the head, neck, limbs, chest, and cardiovascular system and evaluated the primitive and central reflexes, peripheral neuromuscular responses and coordination. The physician made a preliminary diagnosis on the basis of the information collected during the physical examination and by the nurse. Laboratory blood work was done for subjects suspected of having dementia or delirium.
Appendix One (Cont.)

The Canadian Study of Health and Aging

Those attaining 3MS scores of 50 or above during the nurse's evaluation were administered a standardized neuropsychological battery by a trained psychometrician (i.e., technician trained in test administration). The psychologist made a neuropsychological diagnosis on the basis of information collected by the psychometrician and by the nurse (Tuokko et al., in press).

In case conferences typically attended by physicians, psychologists, nurses and/or psychometricians, a consensus diagnosis was derived taking into account all clinically relevant information. Subjects were classified using a three-stage process: DSM-III-R criteria (APA, 1987), differential diagnosis based upon DSM-III-R, NINCDS-ADRDA (McKhann et al., 1984), ICD-10 criteria for depression, Alzheimer disease and other dementias respectively. The clinical assessment resulted in classification of subjects into the following categories:

No cognitive loss
Cognitive loss but not demented
Dementia: Alzheimer type (probable, possible)
  Vascular
  Mixed vascular + Alzheimer
Other specific dementia (specific)
Unclassified dementia
Appendix Two

Population Projections and the Anticipated Prevalence of Dementia in Canada *

<table>
<thead>
<tr>
<th>Age Group</th>
<th>65-74</th>
<th>75-84</th>
<th>85+</th>
<th>Total</th>
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<td>51,780</td>
<td>144,200</td>
<td>149,937</td>
<td>345,917</td>
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<td>2001</td>
<td>52,346</td>
<td>152,480</td>
<td>164,186</td>
<td>369,013</td>
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<td>2006</td>
<td>55,166</td>
<td>168,842</td>
<td>199,928</td>
<td>423,936</td>
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<td>2011</td>
<td>64,488</td>
<td>176,612</td>
<td>242,570</td>
<td>483,670</td>
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<td>2016</td>
<td>81,413</td>
<td>189,133</td>
<td>275,379</td>
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* Based upon Statistics Canada data (1994) and dementia estimates provided by the Canadian Study of Health and Aging (CSHA Working Group, 1994a).
# Appendix Three

## Burden Interview

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<td>Sometimes</td>
<td>Quite Frequently</td>
<td>Nearly Always</td>
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1. Do you feel that your spouse asks for more help than s/he needs?

2. Do you feel that because of the time you spend with your spouse you don't have enough time for yourself?

3. Do you feel stressed between caring for your spouse and trying to meet other responsibilities for your family or work?

4. Do you feel embarrassed over your spouse's behaviour?

5. Do you feel angry when you are around your spouse?

6. Do you feel that your spouse currently affects your relationship with other family members or friends in a negative way?

7. Are you afraid of what the future holds for your spouse?

8. Do you feel your spouse is dependent upon you?

9. Do you feel strained when you are around your spouse?

10. Do you feel your health has suffered because of your involvement with your spouse?

11. Do you feel that you don't have as much privacy as you would like because of your spouse?
Appendix Three  (Cont.)

Burden Interview

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12. Do you feel that your social life has suffered because you are caring for your spouse?  
13. Do you feel uncomfortable about having friends over because of your spouse?  
14. Do you feel that your spouse seems to expect you to take care of her/him as if you were the only one s/he could depend on?  
15. Do you feel that you don't have enough money to care for your spouse in addition to the rest of your expenses?  
16. Do you feel that you will be unable to take care of him/her much longer?  
17. Do you feel you have lost control of your life since your spouse's illness?  
18. Do you feel you could just leave the care of your spouse to someone else?  
19. Do you feel uncertain about what to do about your spouse?  
20. Do you feel you should be doing more for your spouse?  
21. Do you feel you could do a better job in caring for your spouse?  
22. Overall, how burdened do you feel in caring for your spouse?  
   1. Not at all  
   2. A little  
   3. Moderately  
   4. Quite a bit  
   5. Extremely
Appendix Four

Geriatric Depression Scale

1. Are you basically satisfied with your life? Yes No
2. Have you dropped many of your activities and interests? Yes No
3. Do you feel that your life is empty? Yes No
4. Do you often get bored? Yes No
5. Are you hopeful about the future? Yes No
6. Are you bothered by thoughts you can't get out of your head? Yes No
7. Are you in good spirits most of the time? Yes No
8. Are you afraid something bad is going to happen to you? Yes No
9. Do you feel happy most of the time? Yes No
10. Do you often feel helpless? Yes No
11. Do you often get restless and fidgety? Yes No
12. Do you prefer to stay at home rather than going out and doing new things? Yes No
13. Do you frequently worry about the future? Yes No
14. Do you feel you have more problems with memory than most? Yes No
15. Do you think it is wonderful to be alive now? Yes No
16. Do you often feel downhearted and blue? Yes No
17. Do you feel pretty worthless the way you are now? Yes No
18. Do you worry a lot about the past? Yes No
19. Do you find life very exciting? Yes No
20. Is it hard for you to get started on new projects? Yes No
21. Do you feel full of energy? Yes No
22. Do you feel that your situation is hopeless? Yes No
23. Do you think that most people are better off than you are? Yes No
24. Do you frequently get upset about little things? Yes No
25. Do you frequently feel like crying? Yes No
26. Do you have trouble concentrating? Yes No
27. Do you enjoy getting up in the morning? Yes No
28. Do you prefer to avoid social gatherings? Yes No
29. Is it easy for you to make decisions? Yes No
30. Is your mind as clear as it used to be? Yes No
Appendix Five

Beck Hopelessness Scale

1. I look forward to the future with hope and enthusiasm T
2. I might as well give up because there is nothing I can do about making things better for myself T
3. When things are going badly, I am helped by knowing that they cannot stay that way forever T
4. I can't imagine what my life will be like in ten years T
5. I have enough time to accomplish the things I want to do T
6. In the future, I expect to succeed in what concerns me most T
7. My future seems dark to me T
8. I happen to be particularly lucky, and I expect to get more of the good things in life than the ordinary person T
9. I just can't get the breaks, and there's no reason I will in the future T
10. My past experiences have prepared me well for the future T
11. All I can see ahead of me is unpleasantness rather than pleasantness T
12. I don't expect to get what I really want T
13. When I look ahead to the future, I expect that I will be happier than I am now T
14. Things just don't work out the way I want them to T
15. I have great faith in the future T
16. I never get what I want, so it's foolish to want anything T
17. It's very unlikely that I will get any real satisfaction in the future T
18. The future seems vague and uncertain to me T
19. I can look forward to more good times than bad times T
20. There's no use in really trying to get anything I want because I probably won't get it T
Appendix Six

Attributional Style Questionnaire - Revised

You have been attempting to repair something unsuccessfully for some time

1. Write down one major cause

2. Is the cause of your unsuccessful job due to something about you or something about other people or circumstance? (Circle one number)

   Totally due to other people
   1 2 3 4 5 6 7
   Totally due to me

3. In the future when making a repair, would this cause again be present? (Circle one number)

   Will never again be present
   1 2 3 4 5 6 7
   Will always be present

4. Is the cause something that just influences making this repair or would it also influence other areas of your life? (Circle one number)

   Influences just this particular situation
   1 2 3 4 5 6 7
   Influences all situations in my life

5a. How important would this situation be if it happened to you? (Circle one number)

   Not at all important
   1 2 3 4 5 6 7
   Extremely important

5b. How certain are you that this would be the cause of your unsuccessful repair job? (Circle one number)

   Not at all certain
   1 2 3 4 5 6 7
   Extremely certain
Appendix Six (Cont.)

Attributional Style Questionnaire - Revised

Your income level significantly decreases

6. Write down one major cause

7. Is the cause of your lower income due to something about you or something about other people or circumstance? (Circle one number)
   Totally due to other people
   1 2 3 4 5 6 7 Totally due to me
   or circumstance

8. In your financial future, would this cause again be present? (Circle one number)
   Will never again be present
   1 2 3 4 5 6 7 Will always be present

9. Is the cause something that just affects loosing money or would it also influence other areas of your life? (Circle one number)
   Influences just this particular situation
   1 2 3 4 5 6 7 Influences all situations in my life

10a. How important would this situation be if it happened to you? (Circle one number)
    Not at all important
    1 2 3 4 5 6 7 Extremely important

10b. How certain are you that this would be the cause of your lowered income? (Circle one number)
    Not at all certain
    1 2 3 4 5 6 7 Extremely certain
Appendix Six (Cont.)

Attributional Style Questionnaire - Revised

A friend comes to you with a problem and you don't try to help

11. Write down one major cause ________________________________

12. Is the cause of your not helping your friend due to something about you or something about other people or circumstance?  (Circle one number)

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13. In the future when a friend comes to you with a problem, would this cause again be present?  (Circle one number)

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14. Is the cause something that just occurs when a friend comes to you with a problem or would it also influence other areas of your life?  (Circle one number)

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15a. How important would this situation be if it happened to you?  (Circle one number)

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15b. How certain are you that this would be the cause for not helping your friend?  (Circle one number)

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Appendix Six (Cont.)

Attributional Style Questionnaire - Revised

You speak in a social setting and others react negatively

16. Write down one major cause ____________________________

17. Is the cause of this negative reaction due to something about you or something about other people or circumstance? (Circle one number)

Totally due to other people or circumstance

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</table>

Totally due to me

18. In the future when speaking in social settings, would this cause again be present? (Circle one number)

Will never again be present

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</table>

Will always be present

19. Is the cause something that just influences speaking in social settings or would it also influence other areas of your life? (Circle one number)

Influences just this particular situation

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</tbody>
</table>

Influences all situations in my life

20a. How important would this situation be if it happened to you? (Circle one number)

Not at all important

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</tbody>
</table>

Extremely important

20b. How certain are you that this would be the cause of others' negative reaction? (Circle one number)

Not at all certain

<table>
<thead>
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<th>1</th>
<th>2</th>
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<th>4</th>
<th>5</th>
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</tr>
</tbody>
</table>

Extremely certain
Appendix Six (Cont.)

Attributional Style Questionnaire - Revised

You do a project which is received very badly

21. Write down one major cause _____________________________________________________________________

22. Is the cause of this reaction due to something about you or something about other people or circumstance? (Circle one number)

   Totally due 1 2 3 4 5 6 7  
   to other people
   or circumstance

   Totally due  1 2 3 4 5 6 7  
   to me

23. In the future when doing a project, would this cause again be present? (Circle one number)

   Will never 1 2 3 4 5 6 7  
   again be present

   Will always 1 2 3 4 5 6 7  
   be present

24. Is the cause something that just affect doing projects or would it also influence other areas of your life? (Circle one number)

   Influences just this 1 2 3 4 5 6 7  
   particular
   situation

   Influences all situations 1 2 3 4 5 6 7  
   in my live

25a. How important would this situation be if it happened to you? (Circle one number)

   Not at all important 1 2 3 4 5 6 7  
   Extremely important

25b. How certain are you that this would be the cause of your unsuccessful repair job? (Circle one number)

   Not at all certain 1 2 3 4 5 6 7  
   Extremely certain
Appendix Six (Cont.)

Attributional Style Questionnaire - Revised

You meet a friend who acts hostilely toward you

26. Write down one major cause

27. Is the cause of this reaction due to something about you or something about other people or circumstance? (Circle one number)

<table>
<thead>
<tr>
<th>Totally due to other people</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>Totally due to me</th>
</tr>
</thead>
</table>

28. In the future when interacting with friends, would this cause again be present? (Circle one number)

<table>
<thead>
<tr>
<th>Will never again be present</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>Will always be present</th>
</tr>
</thead>
</table>

29. Is the cause something that just influences interacting with friends or would it also influence other areas of your life? (Circle one number)

<table>
<thead>
<tr>
<th>Influences just this particular situation</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>Influences all situations in my live</th>
</tr>
</thead>
</table>

30a. How important would this situation be if it happened to you? (Circle one number)

<table>
<thead>
<tr>
<th>Not at all important</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>Extremely important</th>
</tr>
</thead>
</table>

30b. How certain are you that this would be the cause of your friends hostile reaction? (Circle one number)

<table>
<thead>
<tr>
<th>Not at all certain</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>Extremely certain</th>
</tr>
</thead>
</table>
Appendix Six (Cont.)

Attributional Style Questionnaire - Revised

You can't get all the work done that others expect of you

31. Write down one major cause

32. Is the cause of your not getting the work done due to something about you or something about other people or circumstance? (Circle one number)

<table>
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<tr>
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<th>7</th>
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<tbody>
<tr>
<td>to me</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>to other people or circumstance</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
</tbody>
</table>

33. In the future when doing work others expect, would this cause again be present? (Circle one number)

<table>
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<th></th>
<th>1</th>
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<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Will always be present</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Will never again be present</td>
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</table>

34. Is the cause something that just affect doing work others expect or would it also influence other areas of your life? (Circle one number)

<table>
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<tr>
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<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
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<tbody>
<tr>
<td>Influences just this particular situation</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
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<tr>
<td>Influences all situations in my life</td>
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35a. How important would this situation be if it happened to you? (Circle one number)

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<th>3</th>
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</thead>
<tbody>
<tr>
<td>Not at all important</td>
<td>1</td>
<td>2</td>
<td>3</td>
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<tr>
<td>Extremely important</td>
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35b. How certain are you that this would be the cause of your not getting the work done? (Circle one number)

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<tbody>
<tr>
<td>Not at all certain</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
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<td>7</td>
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<tr>
<td>Extremely certain</td>
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</table>
Appendix Six (Cont.)

Attributional Style Questionnaire - Revised

You have experienced increased difficulty relating to other family members

36. Write down one major cause ________________________________

37. Is the cause of this difficulty with your relatives due to something about you or something about other people or circumstance? (Circle one number)

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</table>

Totally due to other people
Totally due to me

38. In the future when interacting with relatives, would this cause again be present? (Circle one number)

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Will never again be present
Will always be present

39. Is the cause something that just affects how your relatives interact with you or would it also influence other areas of your life? (Circle one number)

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</table>

Influences just this particular situation
Influences all situations in my life

40a. How important would this situation be if it happened to you? (Circle one number)

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</table>

Not at all important
Extremely important

40b. How certain are you that this would be the cause of difficulty between you and your family members? (Circle one number)

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</table>

Not at all certain
Extremely certain
Appendix Six (Cont.)

Attributional Style Questionnaire - Revised

You apply for a position you want badly (eg., important job) and you don't get it

41. Write down one major cause ________________________________

42. Is the cause of your not getting the position due to something about you or something about other people or circumstance? (Circle one number)

Totally due to other people 1 2 3 4 5 6 7 Totally due to me

43. In the future when applying for a position, would this cause again be present? (Circle one number)

Will never 1 2 3 4 5 6 7 Will always be present

44. Is the cause something that just applying for a position or would it also influence other areas of your life? (Circle one number)

Influences just this particular situation 1 2 3 4 5 6 7 Influences all situations in my life

45a. How important would this situation be if it happened to you? (Circle one number)

Not at all important 1 2 3 4 5 6 7 Extremely important

45b. How certain are you that this would be the reason you did not get the position? (Circle one number)

Not at all certain 1 2 3 4 5 6 7 Extremely certain
Appendix Six (Cont.)

Attributional Style Questionnaire - Revised

You must change your residence to a less favourable location

46. Write down one major cause ________________________________

47. Is the cause of your moving due to something about you or something about other people or circumstance? (Circle one number)

<table>
<thead>
<tr>
<th>Totally due to other people or circumstance</th>
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<th>7</th>
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<tbody>
<tr>
<td>Totally due to me</td>
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48. In the future, would this cause again be present? (Circle one number)

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<tr>
<th>Will never again be present</th>
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<tr>
<td>Will always be present</td>
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49. Is the cause something that just affects this change of residence or would it also influence other areas of your life? (Circle one number)

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<th>Influences just this particular situation</th>
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<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Influences all situations in my life</td>
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50a. How important would this situation be if it happened to you? (Circle one number)

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<th>Not at all important</th>
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<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extremely important</td>
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</tr>
</tbody>
</table>

50b. How certain are you that this would be the cause of your moving? (Circle one number)

<table>
<thead>
<tr>
<th>Not at all certain</th>
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<th>2</th>
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<th>6</th>
<th>7</th>
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</thead>
<tbody>
<tr>
<td>Extremely certain</td>
<td></td>
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Appendix Seven
Demographic Questionnaire

Your Gender ___________________________ Age _________________
Partner's Gender ______________________ Age _________________

Number of Years Married ____________________
Number of Previous Marriages: Self _____ Spouse _________

Prior to onset of your partner’s present health concerns, how would you rate the quality of your relationship:

How would you rate your current health:

Have you been treated in the past (or are you now being treated) for depression or a related condition?
• Yes • No
If yes, are you currently receiving treatment (specify) ___________________________
_________________________________________________________________________
_________________________________________________________________________
If yes, are you currently taking anti-depressant medication: _______________
Name of medication: _______________ Dosage: _______________
Frequency: ________________________ Duration: _______________
Prescribing Physician and Number: ___________________________________________

What is (or do you have) a religious affiliation?
Self _______________________________________
Spouse ____________________________________
Appendix Seven (Cont.)

Demographic Questionnaire

How often have you attended religious services in the past year (if at all)

Self  

Spouse  

How would you best describe your current residence:

• Urban  
• Rural  

How would you best describe your ethnicity or ancestry:

Self  

Spouse  

What are (were) your work or occupations:

Self  

Spouse  

Your current employment status  

If retired, number of years  

Total family income (all sources) for the past year:

• $ 0 - 9,999  
• $ 10,000 - 19,999  
• $ 20,000 - 29,999  
• $ 30,000 - 39,999  
• $ 40,000 - 49,999  
• $ 50,000 - 59,999  
• $ 60,000 - 69,999  
• $ 70,000 - 79,999  
• $ 80,000 - 99,999  
• $ 100,000 +

Would you be willing to be contacted in future to answer additional question?

• Yes  
• No
Appendix Eight

Marlowe-Crowne Social Desirability Scale

Listed below are a number of statements concerning personal attitudes and traits. Listen to each item and decide whether the statement is true or false as it pertains to you personally.

1. Before voting, I thoroughly investigate the qualifications of all candidates  
   T   F
2. I never hesitate to go out of my way to help someone in trouble  
   T   F
3. It is sometimes hard for me to go on with my work if I am not encouraged  
   T   F
4. I have never intensely disliked anyone  
   T   F
5. On occasion I have doubts about my ability to succeed in life  
   T   F
6. I sometimes feel resentful when I don't get my own way  
   T   F
7. I am always careful about my manner of dress  
   T   F
8. My table manners at home are as good as when I eat out in a restaurant  
   T   F
9. If I could get into a movie without paying and be sure I was not seen  
   I would probably do it  
   T   F
10. On a few occasions, I have given up doing something because I thought  
    too little of my ability  
    T   F
11. I like to gossip at times  
    T   F
12. There have been times when I felt like rebelling against people in  
    authority even though I knew they were right  
    T   F
13. No matter who I'm talking to, I'm always a good listener  
    T   F
14. I can remember playing sick to get out of something  
    T   F
15. There have been occasions when I took advantage of someone  
    T   F
16. I'm always willing to admit when I make a mistake  
    T   F
Appendix Eight  (Cont.)

Marlowe-Crowne Social Desirability Scale

17. I always try to practice what I preach T F
18. I don't find it particularly difficult to get along with loud-mouthed, obnoxious people T F
19. I sometimes try to get even rather than forgive and forget T F
20. When I don't know something, I don't at all mind admitting it T F
21. I am always courteous, even to people who are disagreeable T F
22. At times, I have really insisted on having things my own way T F
23. There have been occasions when I felt like smashing things T F
24. I would never think of letting someone else be punished for my wrong-doings T F
25. I never resent being asked to return a favour T F
26. I have never been irked when people expressed ideas very different from my own T F
27. I never make a long trip without checking the safety of my car T F
28. There have been times when I was quite jealous of the good fortune of others T F
29. I have almost never felt the urge to tell someone off T F
30. I am sometimes irritated by people who ask favours of me T F
31. I have never felt that I was punished without cause T F
32. I sometimes think when people have a misfortune they only got what they deserved T F
33. I have never deliberately said something that hurt someone's feelings T F
# Appendix Nine

**Edmonds Marital Conventionality Scale**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>1.</td>
<td>There are times when my spouse does things that make me unhappy.</td>
</tr>
<tr>
<td>2.</td>
<td>My marriage has not been a perfect success.</td>
</tr>
<tr>
<td>3.</td>
<td>Thoughts of separation or divorce occur to me very frequently, as often as once a week or more.</td>
</tr>
<tr>
<td>4.</td>
<td>My spouse has all the qualities I ever wanted in a mate.</td>
</tr>
<tr>
<td>5.</td>
<td>If my spouse has any faults, I am not aware of them.</td>
</tr>
<tr>
<td>6.</td>
<td>My spouse and I understand each other perfectly.</td>
</tr>
<tr>
<td>7.</td>
<td>We are as well adjusted as any two people in the world can be.</td>
</tr>
<tr>
<td>8.</td>
<td>I have some needs that are not being met by my marriage.</td>
</tr>
<tr>
<td>9.</td>
<td>I have discussed separation or divorce with my spouse recently.</td>
</tr>
<tr>
<td>10.</td>
<td>Every new thing I have learned about my spouse has pleased me.</td>
</tr>
<tr>
<td>11.</td>
<td>There are times when I don’t feel a great deal of love or affection for my spouse.</td>
</tr>
<tr>
<td>12.</td>
<td>I have filled for, and am proceeding with, legal separation or divorce.</td>
</tr>
<tr>
<td>13.</td>
<td>I don’t think anyone could possibly be happier than my spouse and I when we are with one another.</td>
</tr>
<tr>
<td>14.</td>
<td>My marriage could be happier than it is.</td>
</tr>
<tr>
<td>15.</td>
<td>I don’t think any couple could live together with greater harmony than my spouse and I.</td>
</tr>
<tr>
<td>16.</td>
<td>My spouse completely understands and sympathizes with my every mood.</td>
</tr>
<tr>
<td>17.</td>
<td>I have never regretted my marriage, not even for a moment.</td>
</tr>
<tr>
<td>18.</td>
<td>I have contacted a lawyer recently regarding divorce.</td>
</tr>
<tr>
<td>19.</td>
<td>If every person in the world of the opposite sex had been available and willing to marry me, I could not have made a better choice.</td>
</tr>
</tbody>
</table>
Appendix Ten

Concurrent Validity of the Geriatric Depression Scale

During the neuropsychological assessment, patients are administered the Multi-Focus Assessment Scale (MAS; Coval, Crockett, Holliday & Koch, 1985). This measure contains a 14 point depression measure with scores extending from +14 to -14 (euthymic to depressed). This instrument is orally administered by a technician or psychology intern trained to administer this measure as well as all others in the neuropsychology battery.

This interview is separate from that in which patients are orally administered the Geriatric Depression Scale (GDS; Yesavage et al., 1983). This interview generally occurs either two days prior or two days subsequent to the patient's neuropsychology appointment. In addition, this interview is conducted by another member of clinic staff and both interviewers are most often unaware of the patient's responses to the other depression measure. Neither staff member was aware that comparisons were to be made between the MAS-Mood and the GDS.

Among the patients whose caregiver participated in this study, the correlation between measures is -.68 (p < .001). This would suggest adequate concurrent validity for the GDS. It should be noted that this sample totaled 59 of 70 patients as time constraints did not allow for administration of the GDS in each instance.
Appendix Eleven

Orthogonal Contrasts Among Caregivers of Demented Spouses

As earlier discussed, it was first proposed that participation in this study be limited to caregivers of patients diagnosed with probable or possible Alzheimer disease. It was initially believed that this criterion would provide the strongest test of this diathesis-stress model.

Though reevaluated as discussed earlier in the text, orthogonal contrasts were computed to assess the attributional style within this subgroup. As determined subsequent to participating in this study, 41 of the 70 caregivers currently live with a demented spouse. This amounts to 59% of the total sample. On the basis of cut-off scores on the two depression measures (GDS ≥ 11; BHS ≥ 9), these subjects were categorized as either hopeless and depressed (N = 3), depressed by not hopeless (N = 8) or neither hopeless nor depressed (N = 30). No subjects fall into the hopeless but not depressed grouping.

As shown in Table 11, globality and stability levels remain significantly different between subjects who present as hopeless and depressed (HD) as compared to both those neither hopeless nor depressed (-H-D). As compared to those depressed but not hopeless (D-H), however, the differences in attributional style versus those hopeless and depressed (HD) approaches significance.
Appendix Eleven (Cont.)

Orthogonal Contrasts Among Caregivers of Demented Spouses

It is noteworthy that construct of internality differs significantly between those depressed but not hopeless (D-H) relative to those neither hopeless nor depressed (-H-D).

The reasons for these differences from orthogonal contrasts with the full sample are unclear. This may be due solely to the smaller sample.
Table 12.
Orthogonal Contrasts Comparing Subjects Caring for a Demented Spouse (N = 40)

<table>
<thead>
<tr>
<th>Grouping (N)</th>
<th>Stability (SD)</th>
<th>Globality (SD)</th>
<th>Internality (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>H D (3)</td>
<td>52.7 (7.51)</td>
<td>48.3 (3.06)</td>
<td>43.3 (10.7)</td>
</tr>
<tr>
<td>D-H (7)</td>
<td>40.0 (9.70)</td>
<td>37.0 (8.52)</td>
<td>37.3 (6.99)</td>
</tr>
<tr>
<td>-H-D (30)</td>
<td>35.8 (9.73)</td>
<td>34.5 (9.80)</td>
<td>43.7 (5.75)</td>
</tr>
</tbody>
</table>

**STABILITY**

<table>
<thead>
<tr>
<th>Contrast</th>
<th>T-Value</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1.91</td>
<td>0.06</td>
</tr>
<tr>
<td>2</td>
<td>-2.90</td>
<td>0.01</td>
</tr>
<tr>
<td>3</td>
<td>1.05</td>
<td>0.30</td>
</tr>
</tbody>
</table>

**GLOBALITY**

<table>
<thead>
<tr>
<th>Contrast</th>
<th>T-Value</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1.75</td>
<td>0.09</td>
</tr>
<tr>
<td>2</td>
<td>-2.44</td>
<td>0.02</td>
</tr>
<tr>
<td>3</td>
<td>0.63</td>
<td>0.53</td>
</tr>
</tbody>
</table>

**INTERNALITY**

<table>
<thead>
<tr>
<th>Contrast</th>
<th>T-Value</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>-1.39</td>
<td>0.17</td>
</tr>
<tr>
<td>2</td>
<td>0.10</td>
<td>0.94</td>
</tr>
<tr>
<td>3</td>
<td>-2.43</td>
<td>0.02</td>
</tr>
</tbody>
</table>

Contrast 1: Hopeless and depressed (HD) vs. depressed, not hopeless (D-H)
Contrast 2: Hopeless and depressed (HD) vs. neither hopeless nor depressed (-H-D)
Contrast 3: Depressed, not hopeless (D-H) vs. neither hopeless nor depressed (-H-D)
Appendix Twelve

Balanced MANOVA Comparing Attributional Style Among Selected Caregivers

Multivariate analysis of variance ordinarily presumes a balanced design. More specifically, this requires that the number of persons in each grouping is equal (or approximately equal). As discussed previously, Pillais' criterion was selected as this test of multivariate significance is more robust to assumption violations. It is uncertain, however, if this procedure fully compensated for the degree of imbalance among the full grouping of subjects.

For this reason, the MANOVA was recalculated with an equal number of persons in each grouping. As the hopeless and depressed (HD) quadrant contains the fewest caregivers ($N = 4$), the MANOVA was rerun with only 12 subjects. Four subjects were chosen from both the depressed but not hopeless (D-H) and the neither hopeless nor depressed (-H-D) groupings with the aid of a table of random numbers (Hopkins, Glass & Hopkins, 1987).

As shown in Table 13, univariate significance remains evident for stability using the stringent alpha level earlier employed ($\alpha = .017$). At this time, globality approaches significance ($\alpha = .056$) yet multivariate significance is no longer apparent ($F_{2,9}=1.85$, $p = .17$).
Appendix Twelve  (Cont.)

Balanced MANOVA Comparing Attributional Style Among Selected Caregivers

This analysis would appear supportive of the earlier findings. Considering the small sample size derived for this calculation, it would seem violation of the assumption of balanced cells has not significantly biased earlier results. The trend which emerges from this MANOVA is similar to earlier findings. Considering all available degrees of freedom (i.e., df = 4-1) are necessary to compute significance levels with three dependent variables, it is remarkable that statistical significance would still be apparent given the markedly reduced sample size.
Table 13.

Multivariate Analysis of Variance (MANOVA) Comparing Levels of Attributional Constructs Among Selected Caregivers (N= 12)

<table>
<thead>
<tr>
<th>Grouping (N)</th>
<th>Globality (SD)</th>
<th>Stability (SD)</th>
<th>Internality (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>H D (4)</td>
<td>50.3 (2.22)</td>
<td>55.0 (3.92)</td>
<td>39.8 (6.90)</td>
</tr>
<tr>
<td>D-H (4)</td>
<td>35.5 (9.57)</td>
<td>34.5 (4.04)</td>
<td>39.8 (8.18)</td>
</tr>
<tr>
<td>-H-D (4)</td>
<td>42.3 (8.06)</td>
<td>36.3 (13.7)</td>
<td>41.0 (5.72)</td>
</tr>
</tbody>
</table>

Univariate Between Group F Tests with 2,9 df

<table>
<thead>
<tr>
<th>Variable</th>
<th>Hypoth. SS</th>
<th>Error MS</th>
<th>F Value</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stability</td>
<td>1033.17</td>
<td>72.86</td>
<td>7.09</td>
<td>0.014</td>
</tr>
<tr>
<td>Globality</td>
<td>436.17</td>
<td>53.83</td>
<td>4.05</td>
<td>0.056</td>
</tr>
<tr>
<td>Internality</td>
<td>4.17</td>
<td>49.06</td>
<td>0.04</td>
<td>0.959</td>
</tr>
</tbody>
</table>

Multivariate Test of Significance

<table>
<thead>
<tr>
<th>Test</th>
<th>Value</th>
<th>Approx. F</th>
<th>df</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hotelling's T</td>
<td>1.85</td>
<td>1.85</td>
<td>6.0</td>
<td>0.17</td>
</tr>
</tbody>
</table>
Appendix Thirteen

Factor Structure of the Edmonds Marital Conventionality Scale

As noted earlier, current wisdom within social psychology suggests social desirability responding may be composed of two distinct factors. In contrast to conscious distortion (impression management), self-deception may also cause respondents to underreport various beliefs and behaviours with limited awareness. Because of oral administration, should items in the Edmonds Scale (1967) fall within these two groupings, it was hypothesized that the influence of this latter construct would be more pronounced.

For this reason, the factor structure of the EMCS was analyzed for this study consistent with the previous work of Paulhus (1991). Using maximum likelihood extraction and varimax rotation procedures, two separate factors were sought by retaining items with loadings above .40. It should be noted that the items from the Marital Status Inventory (Weiss & Cerreto, 1980), included to obfuscate the intent of the EMCS, were excluded from these analyses.

Initial support for the assumption of two primary constructs was provided by the scree test as there was a break in eigenvalues between the second and third factors (Tabachnick & Fidell, 1989). Using SPSS FACTOR (SPSS Inc., 1988), two separate groupings of items emerged from this sample. The first was composed of six
Appendix Thirteen  (Cont.)

Factor Structure of the Edmonds Marital Conventionality Scale

items ($\alpha = .80$) and the second was composed of four ($\alpha = .59$). Table 14 shows the respective loadings of all items on each factor. No pattern was evident in the content of the respective items to suggest the nature or function of either factor.

It is noteworthy that seven of 15 items load on both factors at .30 or greater. Also, the correlation coefficient between the resulting factors was strongly significant ($r = .48$, $p < .001$). This would suggest the construct(s) measured by the EMCS may be more cohesive as compared to standard social desirability measures such as the Marlowe-Crowne (O'Rourke et al., 1994). As a further indication, internal consistency as measured by Cronbach's alpha was markedly higher for the full scale of the EMCS ($\alpha = .86$) compared to the MC-SDS ($\alpha = .77$). For all analyses within this study, only the full scale of the EMCS was utilized.
Table 14.

**Factor Loadings of Edmonds Scale Items on Factors One and Two**

<table>
<thead>
<tr>
<th>Factor One</th>
<th>Factor Two</th>
</tr>
</thead>
<tbody>
<tr>
<td>EMCS 1</td>
<td>.05</td>
</tr>
<tr>
<td>EMCS 2</td>
<td>.42</td>
</tr>
<tr>
<td>EMCS 4</td>
<td>.50</td>
</tr>
<tr>
<td>EMCS 5</td>
<td>.26</td>
</tr>
<tr>
<td>EMCS 6</td>
<td>.24</td>
</tr>
<tr>
<td>EMCS 7</td>
<td>.68</td>
</tr>
<tr>
<td>EMCS 8</td>
<td>.03</td>
</tr>
<tr>
<td>EMCS 10</td>
<td>.58</td>
</tr>
<tr>
<td>EMCS 11</td>
<td>.33</td>
</tr>
<tr>
<td>EMCS 13</td>
<td>.78</td>
</tr>
<tr>
<td>EMCS 14</td>
<td>.32</td>
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<td>EMCS 15</td>
<td>.68</td>
</tr>
<tr>
<td>EMCS 16</td>
<td>.46</td>
</tr>
<tr>
<td>EMCS 17</td>
<td>.34</td>
</tr>
<tr>
<td>EMCS 19</td>
<td>.51</td>
</tr>
</tbody>
</table>

* Bold numbers indicate that the item loads significantly (≥ .40) on that factor only.