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Depression, stress, and social support among middle-aged and older adults

Stukenberg, Karl William, Ph.D.
The Ohio State University, 1991
DEPRESSION, STRESS, AND SOCIAL SUPPORT AMONG MIDDLE-AGED AND OLDER ADULTS

DISSERTATION
Presented in Partial Fulfillment of the Requirements for the Degree Doctor of Philosophy in the Graduate School of the Ohio State University

By
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CHAPTER I
INTRODUCTION

Depression, the most commonly reported psychiatric diagnosis in the general population, is a significant mental health problem among the middle-aged and elderly (Blazer, Hughes, & George, 1987; Weissman et al., 1988). In the present dissertation, chronic strain and life events were hypothesized as potential causal antecedents to depression in a middle-aged and elderly population, a comparison method was used to test the hypothesis, and the results of the test were discussed in the context of the pre-existing literature.

Additional psychosocial variables were hypothesized to be related to depression. Evidence for the existence of predicted relationships was derived from the depression literatures for middle-aged and older adults. In the introduction, the terms middle-aged and elderly were defined, depression was defined, and the relationships between the demographic variables age, sex, marital status and socioeconomic status and depression were reviewed.
Defining the Population: Middle-Aged and Older Adults

Specifying who is elderly and who is not is awkward, in part because it is arbitrary. In the 1880s, Otto Von Bismarck decreed that 70 would be the official age of retirement (Butler & Lewis, 1986). Though the only empirical data he used in his decision was probably his own limited experience, industrialized society has generally accepted his boundary as legitimate. In the U.S., people over 65 are generally considered elderly because that is when they become eligible for full social security benefits and when most retire from their occupations.

Havinghurst (1957) suggested that the role of work is becoming increasingly less important in our society, while other pursuits have become more important. There is a reduction in what he called role-performances in work roles, due to retirement, and in marital states, due to the death of a spouse, that, in the past, distinguished between the middle-aged and the elderly. But as non-work related roles gain importance, there is little reduction in social competence between the ages of 40 and 70 (Havinghurst, 1957). Neugarten (1975) has suggested that the elderly comprise two groups- the "young-old," beginning at an early retirement age of 55 and extending to age 75, and the "old-old," made up of those people over the age of 75.
Participants were included in the present sample only if they were 50 years old or older. Thus, the sample is composed of late middle-aged (ages 50-64) and elderly (ages 65 and over) participants. The bulk of the research reviewed was tested with middle-aged participants. Possible effects of including a significant number of the elderly were also evaluated. Potential age based within-group response differences were also evaluated. Hypotheses were proposed based primarily on information available about the age range of the present sample.

**Defining the Dependent Variable: Depression**

Depression has a long and checkered history of description, diagnosis and treatment. Emil Kraepelin's nosology dichotomized mental disorders into dementia praecox and manic depressive disorders (Spitzer & Williams, 1982). Since that time, numerous attempts have been made to categorize mood disorders in general, and depressive symptomatology in particular.

The goal of nosological systems has been to identify a syndrome, or group of symptoms, that has a common phenomenology, etiology, and/or prognosis, and, ultimately and ideally, a specific empirically determined treatment of choice that would be associated with it. Current nosological systems use descriptions
of clinical features to identify specific disorders (Spitzer & Williams, 1982). In order to qualify as 'depressed,' an individual must experience a minimum number of symptoms to a prescribed degree.

Depression has also been described and measured quantitatively through the use of continuous depressive symptomatology measures. Thus, though a person may be experiencing significant distress, they may not meet criteria for a major depressive disorder. Frank (1973) has called subsyndromal depression the experience of "demoralization".

Depression, then, is measured in two distinct ways. Diagnosis measures dysfunctional levels of depression and a categorical determination is made; an individual either meets criteria for depression or not. The Diagnostic and Statistical Manual for Mental Disorders - Revised, Third Edition (DSM-III-R: American Psychiatric Association, 1987) includes two major types of mood disorders: bipolar disorders and depressive disorders. Bipolar disorders, characterized by periodic elevated mood and energy in addition to discrete depressive episodes, are a distinct group of disorders, not to be included with the other depressive disorders (Gallagher, 1986).

The syndromal depressive disorders are three: major depression, dysthymia, and depressive disorder not
otherwise specified (APA, 1987). Major depression is defined by a depressed mood or a significant loss of interest accompanied by at least four other symptoms for a period of at least two weeks, dysthymia is a chronic disorder characterized by at least a two year course of mood disturbance, while depressive disorder not otherwise specified is a disorder with depressive features that does not meet major depression or dysthymia criteria (APA, 1987). While the three disorders differ in severity, course, and allied symptoms, they are united by the central depressive features and this diagnostic troika will serve as the first, categorical dependent variable.

Pencil-and-paper inventory and interview scale measures are sensitive to low as well as moderate and severe levels of depression. These measures are continuous and assess the amount of depression an individual is experiencing. People who meet criteria for depressive syndromes generally achieve relatively high scores on continuous measures (Stukenberg, Dura, & Kiecolt-Glaser, 1990), but so do people with other diagnoses (Hirschfeld et al., 1983), as well as people experiencing non-diagnosable dysphoria, or "demoralization" (Frank, 1973). Though cut-off scores have been assigned to create categories, continuous scores retain more statistical power (Cohen & Cohen,
1983), and will serve as the second dependent variable cluster.

Of course, depression does not constitute the only possible psychological reaction to events in the environment. Anxiety disorders (Mandler, 1966), post traumatic stress disorder (by definition; APA, 1987), and even schizophrenias (Fromm-Reichmann, 1948) are among the hypothesized stress-related psychological disorders. Global level of functioning is a construct that has been introduced to enable non-diagnosis specific severity assessment. It includes social functioning criteria and symptom severity markers. It has been shown to be a reliable and valid measure of social and psychological functioning that is non-diagnosis specific (Johnson, Magaro, & Stern, 1986).

Demographic Variables and Depression

There are four major demographic variables related to depression: age, socioeconomic status (SES), marital status, and gender. Brief reviews of the literature on each and evaluations for their possible impact on a middle-aged and elderly population follow.

Age. Epidemiology is the study of the distribution of disorders in populations. Epidemiological data can be used to generate hypotheses concerning causal relationships between demographic characteristics and a
given disorder (Wing & Bebbington, 1985). Because depression and other psychological disorders occur relatively infrequently in the general population, large groups must be studied to establish prevalence rates (Weissman et al., 1988).

The creation of the Research Diagnostic Criteria (RDC: Spitzer, Endicott, & Robins, 1978) and DSM-III-R (APA, 1987), combined with the construction of interview instruments such as the Schedule for Affective Disorders and Schizophrenia (SADS: Endicott & Spitzer, 1978) and the Diagnostic Interview Schedule (DIS: Robins, Helzer, Croughan, Williams, & Spitzer, 1981), has allowed for a new type of epidemiological research. Large, randomly sampled groups have been screened and reliable, specific diagnoses made for the first time (Weissman & Myers, 1978a). Early epidemiological work was flawed from a number of perspectives. The following review focuses on age difference results reported in recent syndromal depression studies. The reader is referred to Wing and Bebbington (1985) and Blazer et al. (1987) for more general reviews of the epidemiological research on depression.

Table 1 lists prevalence estimates derived from recent North American samples. Only studies that used specific criteria for determination of syndromal depression are presented. One study (Weissman & Myers,
<table>
<thead>
<tr>
<th>Study</th>
<th>Criteria</th>
<th>n</th>
<th>Age Group</th>
<th>Prevalence</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weissman &amp; Myers (1978)</td>
<td>SADS-RDC Current</td>
<td>210</td>
<td>26-45</td>
<td>1.9%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>major depression</td>
<td>190</td>
<td>46-65</td>
<td>6.3%</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>111</td>
<td>66+</td>
<td>5.4%</td>
<td></td>
</tr>
<tr>
<td>Blazer &amp; Williams (1980)</td>
<td>QARS-DSM-III Current major depression</td>
<td>680</td>
<td>65-74</td>
<td>2.1%</td>
<td>Diagnosis based on syndrome projection</td>
</tr>
<tr>
<td></td>
<td></td>
<td>317</td>
<td>75+</td>
<td>1.3%</td>
<td></td>
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<tr>
<td>Blazer &amp; QARS-DSM-III Current major depression</td>
<td></td>
<td>680</td>
<td>65-74</td>
<td>2.1%</td>
<td>Diagnosis based on syndrome projection</td>
</tr>
<tr>
<td></td>
<td></td>
<td>317</td>
<td>75+</td>
<td>1.3%</td>
<td></td>
</tr>
<tr>
<td>Amenson &amp; Lewinson (1981)</td>
<td>SADS-RDC Current</td>
<td>312</td>
<td>Males Y1</td>
<td>18+</td>
<td>5.1%</td>
</tr>
<tr>
<td></td>
<td>unipolar dep.</td>
<td>312</td>
<td>Males Y2</td>
<td>18+</td>
<td>7.1%</td>
</tr>
<tr>
<td>Uhlenhuth, et al. (1983)</td>
<td>HSEL-DSM-III Major depression past year</td>
<td>1,302</td>
<td>18-34</td>
<td>4.4%</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>702</td>
<td>35-49</td>
<td>4.9%</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>442</td>
<td>65-79</td>
<td>5.1%</td>
<td></td>
</tr>
<tr>
<td>Egeland &amp; Hostetter (1983)</td>
<td>SADS-RDC Current</td>
<td>8,186</td>
<td>15+</td>
<td>.5%</td>
<td>Exclusively Amish population.</td>
</tr>
<tr>
<td></td>
<td>major depression</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Murphy et al. (1984)</td>
<td>HOS-DSM-III Current major depression</td>
<td>1,003</td>
<td>18+</td>
<td>1.4%</td>
<td>Sample from 1952</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1,202</td>
<td>18+</td>
<td>1.5%</td>
<td>Sample from 1970 Both sample Canadian</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Syndrome projection</td>
</tr>
<tr>
<td>Blazer et al. (1987)</td>
<td>DIS DSM-III Current major depression</td>
<td>955</td>
<td>60-74</td>
<td>.8%</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>349</td>
<td>75+</td>
<td>.6%</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>1,630</td>
<td>Males 45-64</td>
<td>1.3%</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>2,073</td>
<td>Males 65+</td>
<td>.4%</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>4,932</td>
<td>Females 18-44</td>
<td>4.8%</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>2,403</td>
<td>Females 45-64</td>
<td>2.9%</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>3,426</td>
<td>Females 65+</td>
<td>1.4%</td>
<td></td>
</tr>
</tbody>
</table>

COMMUNITY STUDIES OF SYNDROMAL DEPRESSION
1978a) was based on the third wave of an epidemiological study whose subjects were first interviewed in 1967. Of the original 1,095 systematically sampled subjects, only 511 provided completed data in 1975 and 1976. There were minor demographic differences between the various samples, though there were no differences in symptom levels between those who dropped out and those who did not. Subjects over age 66 evidenced a higher prevalence of major depression (5.4%) than subjects between the ages of 26 and 45 (1.9%), but lower than, though not significantly different from, those between the ages of 46 and 65 (6.3%).

Three studies used a combination of methods to arrive at an estimate of the prevalence of major depression (Blazer & Williams, 1980; Murphy, Sobol, Neff, Olivier, & Leighton, 1984; Uhlenhuth, Balter, Mellinger, Cisin, & Clinthorne, 1983). In all three cases, information on depressive symptomatology had been gathered using pencil-and-paper instruments. These data were re-analyzed to fit the responses to DSM-III criteria for major depression. Blazer and Williams (1980) reported good agreement between their measure and clinical diagnoses of inpatients. They analyzed the responses of older adults and found the prevalence of current major depression to be 2.1% among those aged 65 to 74, and 1.3% among those aged 75 and over. These
levels are roughly comparable to reports of 1.4% and 1.5% for samples of adult heads of households aged 18 and over from an unidentified Canadian county in 1952 and 1970, respectively (Murphy et al., 1984), though age breakdowns were not available for the Canadian data. Much higher overall levels were reported in a large national study using similar methodology, but the age distribution across groups showed middle-aged adults (50-64) had higher rates of depression than older adults (65-79) and younger adults (18-49) (Uhlenhuth et al., 1983). The higher prevalence rates across age groups were partially attributed to two differences in data collection: interviewers did not have any clinical training, and questionnaire items did not correspond exactly to syndrome requirements, particularly in terms of symptom duration (Uhlenhuth et al., 1983).

Two studies of general adult populations have reported prevalence rates widely discrepant from those reported above. The discrepancy appears to be the result of methodological differences: the samples in neither study were representative of the U.S. population as a whole.

The Amish Study (Egeland & Hostetter, 1983) reported rates of depression in a culturally and genetically homogenous closed society in which alcoholism, drug abuse, and psychopathology are culturally
prohibited. Every member of the population was included in this sample that was followed for five years. During that time, only 41 of the 8,186 members met RDC criteria for unipolar depression, a prevalence of 0.5%. The authors (Egeland & Hostetter, 1983) concluded that the low rate is due, in part, to the lack of alcoholism and psychopathy that have been linked to major depression (Coleman, Butcher, & Carson, 1984).

The co-occurrence of alcoholism and depression has long been noted (Weissman & Myers, 1980). Longitudinal studies that would allow for causal attribution to one or the other or to a third factor have not yet been performed (Ross, Glaser, & Germanson, 1988). Some researchers have posited a spiraling interaction effect between anxiety symptoms and alcohol usage that may be applicable to depression (Kushner, Sher, & Beitman, 1990). Alcohol consumption may provide immediate relief of initial symptoms, but greater symptom levels caused by alcohol mediated changes may result, and greater amounts of alcohol are needed to ameliorate the new levels of symptomatology (Kushner et al, 1990). In any case, while it is premature to conclude what causes the differences in depression among the Amish, it is clear that a number of features, both endogenous and behavioral, differentiate them from the population as a whole.
A community survey based on 2,000 responses from a mailing to 20,000 community residents produced prevalence rates significantly higher than the other studies reviewed (Amenson & Lewinsohn, 1981). Only 1,213 subjects completed the initial questionnaire. Further attrition resulted from rejection due to high L scale scores on the MMPI (7 subjects), or statements of intent to move before the end of the study (86 subjects). Each of these losses decreased the representativeness of the sample, and, the authors argue, increased the over-representation of depressed subjects. Based on biased data, results were a 5.1% and an 11.5% point prevalence for adult men and women, respectively (Amenson & Lewinsohn, 1981).

A more recent study that was restricted to older adults can be compared to the two studies cited above. A community sample from North Carolina was analyzed for DSM-III major depression based on the administration of the DIS in each subject's home (Blazer et al., 1987). Ten of the 1,304 subjects reported symptoms consistent with a major depression diagnosis for a point prevalence of 0.8% among those aged 60 to 74 and a point prevalence of 0.6% among those over the age of 75. These rates are certainly lower than those reported in the biased sample of Amenson and Lewinsohn (1981) and higher, though not
significantly different from, those reported in the Amish Study (Egeland & Hostetter, 1983).

In a large cross-sectional elderly adult sample, only 24% of women reporting an episode of depression in the past six months reported the first depressive onset after the age of 65 (Holzer, Leaf, & Weissman, 1985). Most (41%) reported onset between 45 and 64, while a significant number (36%) reported onset before age 45.

Certainly the largest study of depressive epidemiology has been the NIMH Epidemiologic Catchment Area Study (ECA: Weissman et al., 1988). Five United States communities were sampled and a total of 18,255 residents were administered the DIS interview. For both males and females the overall one year prevalence rates were lower for those over age 65 than for either those between the ages of 18 and 44 or those between the ages of 45 and 64 (Weissman et al., 1988). The prevalence of major depression among older adults was certainly no greater than that among the middle-aged and may have been less, though it continued to be a psychological problem affecting a significant portion of the population.

Blazer et al. (1987) stated that subsyndromal depression, or demoralization, is also a serious problem among the elderly. The authors contrasted two groups of depressed individuals: those who met DSM-III criteria
for major depression, and those who were experiencing dysphoric mood but had only two or three of the four depressive symptoms required to meet major depression criteria. While the syndromal group comprised only 0.8% of the community sample, the symptomatic but sub-syndromal group constituted 4% of the population. The sub-syndromal group was characterized by high use of psychotropic medication, and Blazer et al. (1987) suggested that they be included as a clinically relevant group.

Researchers have also posited that depression among the elderly may be qualitatively different from depression in younger adults. Some authors have maintained that guilt, suicidal feelings, and the central mood component are less characteristic of the depressed elderly, while feelings of apathy, low energy, sleep disturbances, and loss of motivation and appetite are more characteristic of them than of younger adults (Blazer, 1982a; Fogel & Fretwell, 1985; Newmann, Engel, & Jensen, 1990). Fogel & Fretwell (1985) named this distinct syndrome "the depletion syndrome of the elderly" (p. 448). The model implies that the depressive experience, and subsyndromal reactivity to stress, may differ significantly among an older population. Preliminary empirical results support differential symptom pattern endorsements in elderly
samples; however, a significant amount of work remains to be done in this area (Newmann et al., 1990). The prognosis for recovery from major depression among the elderly appears to be poor when compared with younger adults, particularly for older adults experiencing recurring episodes of chronic depression (Mann, Jenkins, & Belsey, 1981; Post, 1972; Zis & Goodwin, 1979).

In an extensive review of the syndromal and subsyndromal depression epidemiology literature, Newmann (1989) concluded that measurement differences between studies, together with design and analysis flaws, make it difficult to conclude that there are significant age-depression relationships. The present review suggested, in contrast, that there appear to be small but consistent differences in the depressive process and the incidence of depressive disorder between middle-aged and older adults. Within the present sample, the middle-aged adults were at slightly elevated risk for syndromal depression, while the older adults had a slightly elevated risk for subsyndromal depression. However, because age-related differences were expected to be numerically quite small and because of the relatively small sample size of the present study, statistically significant age-related differences in depression rates were not expected.
Socioeconomic status (SES). In studies of adults, lower SES, whether measured by employment, education, or income, has been associated with greater depression (Billings, Cronkite, & Moos, 1983; Brown & Harris, 1978; B. P. Dohrenwend & B. S. Dohrenwend, 1969; Srole, Langner, Michael, Opler, & Rennie, 1962; Surtees et al., 1983). Although one study (Bebbington, Hurry, Tennant, Sturt, & Wing, 1981) was unable to demonstrate such a relationship in either sex, the evidence strongly favors its existence. In general, studies have found a positive relationship between unemployment and symptoms, whether based on high levels of community unemployment (Brenner, 1973), or families whose chief wage-earner is unemployed (Fagin, 1981). The strength of this relationship is moderated by the role that work plays in the unemployed person's life. For instance, if work does not involve additional social support, it may increase burden (Parry, 1986).

Wills and Langner (1980) conceptualize lower SES as indicating the presence of numerous chronic psychosocial stressors including loss of employment or the threat of the same, and threats to self-esteem. It has also been suggested that the functional limitations imposed by major depression may interfere with occupational functioning (Billings et al., 1983). In particular, depressed patients were less likely to be employed and,
of those unemployed, were more likely to be seeking employment. These two factors, in combination with lost income due to hospitalization in some cases, were suggested to partially account for the depressed patient's significantly lower income (Billings et al., 1983).

Conceptualization and measurement of SES differs in an older adult population. The elderly experience much higher levels of unemployment through retirement and age discriminatory hiring practices. Though 29% of their aggregate income is based on continuing employment (Butler & Lewis, 1986), the mean income of persons over 65 is half that of individuals between the ages of 50 and 54 (U.S. Bureau of the Census, 1979). Income is no longer a reliable index of social class. Holzer, Leaf, and Weissman (1985), among others, have reported education and income to be independent measures of social status among the elderly.

Social status, as measured by level of education, was negatively correlated with six-month prevalence of depression in women aged 65 and older (Holzer et al., 1985), though this relationship is not strictly linear. Those with an elementary education only had the highest prevalence of depression; however, those who attended college for at least a year were second (Holzer et al., 1985).
Because this was a mixed age group population, both education and income were measured as indicators of SES, and their effect on the dependent variables was measured before the effects of the independent variables. If statistically significant depression predictors, either or both would have been used as control variables in later analyses. Income measures are also related to levels of chronic strain (Krause, 1987); however, for the purposes of this dissertation, income was considered a measure of social class (Holzer et al., 1985).

**Marital status.** Marital status is an important variable in predicting psychological and physical well-being. Divorced, separated, and widowed individuals showed more symptoms of distress than comparable married adults (Bloom, Asher, & White, 1978; Briscoe, Smith, Robins, Marten, & Gaskin, 1973; Verbrugge, 1979). In an 11 study review, Crago (1972) reported that widowed people's psychiatric admissions were greater than married people's, though less than divorced and separated people's psychiatric admissions across all studies. This differential appeared to be stable across age groups (Adler, 1953; Robertson, 1974).

The marital status of the elderly differs by gender. Most older men are married (75% in 1978), while most older women are widows (52% in 1978). Most of the
variance in marital status among older adults is a
function of the death of a spouse because divorced and
never-married individuals comprise only 10% of the
Among the younger of the old age group, divorce is more
common, and in the youngest of the current middle-aged
cohort, up to one-third have been divorced at least once
during their lives (Cunningham & Brookbank, 1988).

The relatively shorter-term effects of the loss of
a spouse through bereavement or divorce will be
addressed in the life events section of the present
review. Longer-term effects are conceptualized as being
primarily effects on the social support of the person in
question. Thus, for the sake of conceptual clarity,
marital status per se, though an important predictor of
depression, was not evaluated as a demographic variable.
Rather, divorce, marital separation, and spousal death
were considered life events and the absence of support
resulting from losing a spouse was considered a facet of
social support.

Gender. A consistent and often repeated result in
the middle-aged depression literature is a relationship
between gender and depression. More women appear
depressed than men regardless of the instrument used,
the country of study, or a number of other co-variables
(Adelstein, Downham, Stein, & Susser, 1987). Numerous
reasons for this relationship have been proposed, including greater strain on women than men in marriages (Weissman & Klerman, 1977), differing response biases (Padesky & Hammen, 1977; Phillips & Segal, 1969), different symptom patterns (depression for women, "acting out" for men: Hammen & Peters, 1977), hormonal explanations (see reviews by Janowsky & Rausch, 1985, and Rubinow & Roy-Byrne, 1984), genetic factors (Perris, 1966; Winokur & Tanna, 1969), personality and sex role differences (J. B. Miller, 1976; J. Mitchell, 1974; Scarf, 1980), learned helplessness differences (LeUnes, Nation, & Turley, 1980), and response sets to the depression itself (Nolen-Hoeksema, 1987).

The gender composition of an elderly population differs from a middle-aged population; while 50% of the 50 year old adults are female, 60% of those over 65 are (U.S. Bureau of the Census, 1983a), and this difference continues to become more pronounced as age increases, with 70% of those over 85 being female. There is also a high rate of various additional sociodemographic risk factors among older women. Older women have lower incomes than men, and the former are twice as likely to live below the poverty level (U.S. Bureau of the Census, 1983b). More than 50% of elderly women are widows, while only about 15% of men are widowers.
In strong contrast to data from middle-aged adults, a recent review of the gender and age literature (Feinson, 1987) reported that levels of depressive symptoms do not differ between older men and women. Further, although there were minimally higher levels of major depression among elderly women, Feinson (1987) noted that the difference is negligible compared to the differences at younger ages; she suggested that the major depressive disorder differences may be due to additional sociodemographic stressors that older women may experience. Two longitudinal studies provide support for her thesis that older women's levels of symptoms no longer differ from older men's, but they differ in their explanations (Srole & Fischer, 1980; Weissman & Myers, 1978a). Srole and Fischer (1980) demonstrate a decline in symptoms across age by both females and males, with female symptoms declining at a greater rate than male's. Weissman and Myers (1978a), on the other hand, show female symptoms declining while male's increase over time.

Feinson (1987) suggests three explanations for the decrease in gender differences as age progresses. First, older women's roles are more similar to older men's than is the case in younger adults. While younger women are faced with "role overload" (Rosenfeld, 1986), older women's roles are more manageable. Second, older
women and men are more similar in their feelings of control and power. Finally, women may accumulate more positive coping strategies over the course of their lifetimes, and their ability to cope better may be most pronounced at an advanced age.

In any case, the inclusion of gender as a predictor of major depression and depressive symptoms does not appear to be warranted in an older population. In the present sample, the base rates of depression among women under the age of 65 were expected to be twice those of men, while gender was not expected to predict depressive symptoms or syndromes in those over 65. The sample was expected to be weighted toward females among the middle-aged because daughters are more likely to be caregivers than sons (Troll, 1986), and also to be weighted towards females among the older adults because women are a greater portion of that population.

Conclusion

Major depression is a significant problem for the middle-aged and the elderly. While it is most prevalent among those aged 50-65, those over 65 do not appear to be more prone to depression; if anything, they are less so, though the prognosis is not as good for those who become depressed. Depressive syndromes do not account for all of the distress that the middle-aged and elderly
experience, not even for all the distress which has a strong dysphoric content. While depressive syndromes are well defined and have known prognoses, continuously measured depressive symptom levels were also measured and predicted. The prevalence of subsyndromal depression may increase among the elderly, and the specific symptom patterns they endorse may differ somewhat as well. Within-sample base rate differences in neither syndromal nor subsyndromal depression were expected to be large enough to affect the analyses.

The above review further suggested the inclusion of social class as a predictor of depression, with higher social class, as measured by education and income, associated with lower levels of depression. Marital status was not included as a demographic predictor because its two components, bereavement (or divorce) and social support, were addressed later as psychosocial predictors. Gender, surprisingly, was not expected to predict depression in an elderly population. There was expected to be a greater base rate of depression among females under 65. Thus, an age by gender interaction was expected, though the expected disproportionate distribution of males and females in a relatively small sample was expected to limit the power of statistical tests.
CHAPTER II
STRESS AND DEPRESSION

Psychosocial predictors of depression and their hypothesized effects on a middle-aged and elderly sample are presented in this chapter. Past levels of depression, life strains, life events, and social support are included as psychosocial independent variables. The predictors are reviewed in order of their expected power of prediction, with the most powerful predictors reviewed first.

Past Episodes of Depression

In a number of longitudinal (Chiriboga, 1984; Hammen, Mayol, deMayo, & Marks, 1986; Kaplan, Roberts, Camacho, & Coyne, 1987; McFarlane, Norman, Streiner, & Roy, 1983; Monroe, 1982; Monroe, Bromet, Connell, & Steiner, 1986; Monroe, Imhoff, Wise, & Harris, 1983; Norris & Murrell, 1987; Thoits, 1982; Williams, Ware, & Donald, 1981) and cross-sectional (Bojrab et al., 1988; Craven, Rodin, Johnson, & Kennedy, 1987; Holzer et al., 1985) studies, the best predictor of future depression is past depression. Levels of depression at a given
time account for 30-40 percent of the variance in depression one year later. In cross-sectional studies, this effect may be exaggerated because non-depressed subjects under-report past symptoms of depression, while currently depressed subjects do not (Aneshensel, Estrada, Hansell, & Clark, 1987); however, longitudinal studies have provided the preponderance of evidence and are not affected by this confound. It is critical to include depressive history when predicting the current level of depression.

The observation that past depression predicts current depression is explained by each of the major models of depression, but the mechanism for the hypothesized relationship is dependent on theoretical orientation. Biologically based models propose a genetically- or environmentally-caused diathesis to the depressive syndrome (Weissman & Klerman, 1977). Thus, those who have experienced a depression in the past continue to carry a genetic predisposition to it (Weissman & Klerman, 1977). Alternatively, a depressive predisposition may be influenced by having been depressed in the past (Beck, 1967), just as weakening of a joint through a sprain predisposes the joint to future injury. The revised learned helplessness model of depression predicts that the attributional styles of depressed people are likely to be consistent across
time, and those who made global, external, and stable attributions at one point in time are likely to do so again (Abramson, Seligman, & Teasdale, 1978). Psychodynamic models of depression suggest that those who experience a loss in the absence of alternative supportive relationships are likely to experience a major depression (Freud, 1953/1917) and the social embeddedness of an individual is likely to be relatively stable (S. Cohen & Wills, 1985).

Depue and Monroe (1986) have cautioned that the most prevalent model used by investigators of stress-depression relationships, the acute onset model of depression, is not supported when tested in the field because it does not apply to most depressed people. They contend that most depressed people are chronically depressed or are depressed at the onset of any given study. Further, they argue that psychosocial variables impinge differently on symptomatic and asymptomatic individuals.

One way to test the acute onset model is to eliminate already depressed individuals from a sample. For instance, Monroe et al. (1986) reported life events and social support were related to future levels of depression in less symptomatic subgroups of their distressed sample (as predicted by the acute onset model). However, the effects were masked in an analysis
of the entire sample. Participants who were initially more symptomatic were neither responsive to life events nor was social support related to their later symptoms. This group had the greatest variance in depressive symptomatology at the later date, and life events and social support were nonsignificant predictors of depression in the unselected group.

Depue and Monroe (1986) suggest a second problem with the acute onset model; some investigators have used it, whether explicitly or implicitly, to justify the use of cross-sectional depression studies. Unfortunately, this rationalization is not justified. Reverse causation problems arise when the acute onset model is used; depression may cause the observed lack of social support in a depressive group, for instance.

Cross-sectional data and causal hypotheses. This discussion highlights an issue that is relevant to the reporting of data from studies involving all of the psychosocial variables currently being evaluated. Assigning causality using correlational data is a difficult task, at best. The difficulties are magnified in cross-sectional studies. Blaney (1985) has argued that the presence of depression may alter the validity of self-report data. It is entirely possible, he suggests, that researchers make a fundamental error in assuming current state to result from, rather than
cause, reported life events. Similarly, Coyne and his colleagues (Coyne et al., 1987) have demonstrated that people who are depressed are more likely to be negativistic and alienate friends and acquaintances alike, causing a decrease in the social support network. In the current review, it was important to consider alternative attributions, and to rely on multiple information sources, particularly longitudinal studies, in making causal hypotheses.

Another limitation of cross-sectional research is the confusion between cohort and developmental effects. Two frequently-cited cohort effects of the population being currently sampled are the social stigma associated with admissions of psychological difficulties and the effects of being born or maturing during the great depression (Elder, 1979). A cross-sectional study error is exemplified by Srole and Fischer (1980) who re-evaluated Srole et al.'s (1962) original assertion that mental health deteriorates across the life span. When they evaluated longitudinal data from the midtown Manhattan study, they reported no such deterioration over time, but observed continued differences in depressive symptomatology between cohorts.

Empirical current to past depression relationships. The ability of depression to predict itself extends across long periods of time and is equally robust in
middle-aged and older samples. In Chiriboga's (1984) 11 year longitudinal study of the relationship between depression and various types of stressors in middle-aged and older adults, he reported initial levels of psychological symptoms, measured with a paper-and-pencil instrument, significantly predicted symptoms at follow-up. He also reported a weak positive correlation between initial levels of symptoms and life events at an 11-year follow-up among men.

A strong positive relationship between past and current levels of depression was demonstrated in a longitudinal study of an elderly population (Wilder, Gurland, & Bennet, 1985); 58% of the subjects who were "demoralized" in 1971 and 1972 were also "demoralized" when reinterviewed five years later. Conversely, 85% of those who did not initially endorse the "demoralization" construct still did not do so five years later. While Wilder et al. (1985) cautioned that there are significant differences between the construct of demoralization and that of major depression, they also presented data showing high correlations between their demoralization scale and psychiatric interview-determined major depression, suggesting that there is a link between the two.

**Past depression as a predictor.** Past level of depression was included in the present analyses as a
predictor of current depression level. Most empirical studies have focused on relatively recent measures of depression, e.g., level of depression within the past six months or the past year (Cutrona, Russell, & Rose, 1986; Hammen et al., 1986; Kaplan et al., 1987). For the prospective depression analyses, one year intervals between depression measures were evaluated. In retrospective analyses involving the entire caregiving period, any depressive episode prior to caregiving was considered relevant.

**Life Strains**

Chronic life strains have been conceptualized as problems that are continuous and ongoing (Pearlin, Lieberman, Menaghan, & Mullan, 1981). The general population contains significant numbers of individuals experiencing various forms of "chronic stress" or longer-term, ongoing strains (Depue & Monroe, 1986), and life strains are even more prevalent among the elderly (Wilder, 1971). Life strains have been shown to be more strongly related to psychological well-being than measures of the number of discrete life events (Billings et al., 1983; Krause, 1986; Pearlin et al., 1981), yet research on life strains has not kept pace with life events research (Kessler, Price, & Wortman, 1985),
particularly in an elderly population (House & Robbins, 1983).

The hypothesized mechanisms behind the effect of life strains are varied. It is possible that the introduction of life events can bring into focus the undesirable elements of a currently strain-filled existence (Brown & Harris, 1978). Billings et al. (1983) report strains and life events to have low to moderate intercorrelations, suggesting that they represent conceptually distinct dimensions.

The elderly and life strains. The elderly are faced with many life strains. These include: financial strain, continued experience with life threatening medical disorders (such as heart disease, cancer, cerebrovascular disease, and respiratory disease), and chronic disabling conditions leading to limitations in activities (such as arthritis, rheumatism, and sensory impairments), and caregiving for a demented, disabled, or diseased relative (Wilder, 1971). As caregiving for a demented relative was the focus of the present investigation, the strain associated with caregiving is reviewed below.

Caregiving for demented family members. The myth that families abandon their elderly has been dropped in favor of the realization that the family is the major support system for the elderly in the United States.
Caregiving for a demented relative is a strain that is more likely to occur as adults grow older because the onset of most dementing illness occurs later in life and the burden of caregiving falls primarily on spouses (Fengler & Goodrich, 1979) and secondarily on children (Brody, 1981). In an epidemiological study review, the measured dementia prevalence increased from a rate ranging across studies from 0% to 5% at age 60-69 ($M = 2.2\%$, $SD = 1.6$) to a rate ranging from 4.8% to 33.3% over age 80 ($M = 21.9\%$, $SD = 7.6$; Bliwise & McCall, 1985). A recent community survey reported even higher prevalence rates among those 84 and older; almost 50% of the sample were moderately or severely cognitively impaired (Evans et al., 1989). As roughly life expectancies continue to increase, caregiving is becoming a more normative experience.

Numerous investigators have established that family members who provide high levels of care to an impaired elder often experience chronic strain (Chenoweth & Spencer, 1986; Fitting, Rabins, Lucas, & Eastham, 1986; George & Gwyther, 1986; Johnson & Catalano, 1983; Zarit, Reever, and Bach-Peterson, 1980). Pearlin et al. (1981) suggested that chronic strains such as caregiving cause both primary and secondary strain. Primary strain includes limitations in activities of daily living, subjective experience of role overload, role challenge
(defined as feeling incapable of handling the demands of caregiving), and conflicts with the patient. Secondary strains include conflicting demands of caregiving and occupation, economic strains, and constriction of social and leisure life.

Alzheimer's Disease and related progressive dementias present symptoms that eventually necessitate that caregivers provide all the most intimate aspects of self-care (Rabins, Mace, & Lucas, 1982). While progressive memory loss is the hallmark of dementias, additional symptoms can be as florid and difficult to handle as hallucinations, extreme rage directed at caregivers, loss of orientation to time, place, and person, and disruption of the diurnal cycle; the occurrence and duration of these symptoms is unpredictable, adding to the strain of caregiving (Butler & Lewis, 1986; Cohler, Groves, Borden, & Lazarus, 1989).

Caregiving for Children. Various other types of caregiving have been identified as potential sources of chronic strain. Spouses of depressed patients remained generally committed to staying with the patient, despite social restrictions, income decrements, and marital strain (Fadden, Bebbington, & Kuipers, 1987). Family caregivers for schizophrenic patients must cope with the patient's disruptive symptoms, finances, unemployment,
and lack of self care (Hatfield, 1979). The strain from this chronic stressor has been associated with caregiver anxiety, guilt and depression (Abramowitz & Coursey, 1989; Arey & Warheit, 1980; Creer & Wing, 1974; Grad & Sansbury, 1968).

Conduct disordered children's parents have higher rates of psychopathology, but this has generally been viewed as a causal agent of the children's conduct disorder rather than a response to chronic strain (Kazdin & Kolko, 1986). Thus, the increased divorce rate among parents of conduct disordered children is a reflection of higher parental psychopathy rates, and is interpreted as a causal agent in the child's conduct disorder, not as a response to caregiving strain (Lahey et al., 1988).

Beckman (1983) hypothesized that caring for a developmentally delayed child is a severe strain because of unusual caregiving demands and restrictive time demands. Early, uncontrolled studies drew the conclusion that all distress reported by families was due to mentally retarded members (Stoneman, 1989). More recent studies have reported no relative maternal depression as a function of having a handicapped child (Gowen, Johnson-Martin, Goldman, & Applebaum, 1989; Harris & McHale, 1989). Breslau & Davis (1986) reported mothers of children with disabilities to have no more
frequent six-month or lifetime rates of major depression than comparison mothers, though they noted that depressive onset appeared earlier in the caregiving sample.

In comparisons between children caring for demented parents and mothers caring for mentally handicapped children, dementia caregivers endorsed more symptoms of depression and anxiety (Whittick, 1988). The dementia caregivers were also more likely to see their caregiving role in a negative way and to favor institutionalization (Whittick, 1989). Similarly, employed caregivers for cognitively impaired adults had more emotional, physical, & financial strain than caregivers for physically impaired older persons (Scharlach, 1989).

**Empirical dementia caregiving/depression relationships.** Initial studies of the dementia caregiving experience reported that caregivers endorsed higher levels of a variety of symptoms including depression as well as fatigue, anger, tension, anxiety, burn-out, and self doubt on subjective rating scales (Rabins et al., 1982; Snyder & Keefe, 1985). Much of the literature has focused on subjective well-being as a dependent measure. Significant negative correlations between caregiver burden measures and subjective well-being have been frequently reported (Kinney & Stephens, 1989; Quayhagen & Quayhagen, 1988).
Kahan, Kemp, Staples, and Brummel-Smith (1985) assessed depressive symptomatology among caregivers using the Zung Self-Rating Depression Scale (Zung, 1965). They reported 18 of 40 caregivers (45%) scored above the clinically significant cut-off score of 50 on the scale. Depressive symptomatology in 44 caregivers was also found to be higher than in comparison subjects when measured with the Beck Depression Inventory (Fiore, Becker, & Coppel, 1983). Similarly, Kiecolt-Glaser, Dyer, & Shuttleworth (1989) reported greater endorsement of symptomatology on the Beck Depression Inventory among 34 caregivers than in comparison subjects, though they noted that the magnitude of the endorsement among caregivers was lower than in the Fiore et al. (1983) study.

Coppel, Burton, Becker, and Fiore (1985) interviewed 68 Alzheimer's caregivers and assessed the presence of current syndromal depression with the Schedule for Affective Disorders and Schizophrenia (SADS; Endicott & Spitzer, 1978), the interview that is the forerunner of the SCID used in this study. Twenty seven caregivers (40%) received a diagnosis of depression: one met criteria for major depressive disorder, while 26 were diagnosed with minor or intermittent depressive disorders. When retrospective diagnoses for the entire caregiving period were
included, 81% of the sample had a depressive disorder at some point during caregiving.

In a second study of syndromal depression (Cohen & Eisdorfer, 1988), a psychiatrist used an unstructured interview to arrive at a DSM-III diagnosis for 46 familial caregivers. Five of 22 caregivers (23%) living with their relative were diagnosed with unipolar depression. None of the caregivers living away from the patient received a syndromal depressive diagnosis, though seven (29%) met criteria for adjustment disorder with depressive symptoms.

Finally, Gallagher, Wrabetz, Lovett, Del Maestro, and Rose (1989) administered the SADS to 102 caregivers for dementia patients seeking psychoeducational treatment. Forty-seven were diagnosed with a depressive disorder: 24 met criteria for major depressive disorder, 21 were diagnosed with minor depressive disorder, while 2 received a diagnosis of intermittent depressive disorder. They reported similar results using the Beck Depression Inventory as a dependent measure.

Two studies have suggested that the strains associated with the caregiving experience are not restricted to caring for a demented family member. Liptzin, Grob, and Eisen (1988) compared the strain of caring for a demented patient with the strain of caring for an elderly depressed patient and demonstrated no
difference between the two caregiving groups, suggesting some universality in the strains associated with the caregiving experience. Similarly, Gallagher, Wrabitz et al. (1989) reported comparably elevated levels of syndromal depression between dementia caregivers and caregivers for a severely physically disabled relative experiencing no cognitive impairment.

It is interesting to note that a living arrangements analysis in a large epidemiological study of community dwelling elderly reported the highest major depression prevalence (2.6%) among those living with a child or parent (Holzer et al., 1985). While the authors were surprised that this group endorsed higher distress levels because they assumed family members were sources of support, it is possible that cross-generational living arrangements among the elderly often indicate a caregiving arrangement, an arrangement which may be a source of chronic strain.

**Life strain as a predictor.** Concurrent chronic strain (specifically caring for a demented relative) was predicted to be directly and positively related to levels of depression. It was also expected that syndromal depression would be much higher among caregivers during the caregiving period than among matched comparison subjects. No age related differences were expected in response to chronic strain, in part
because age differences in chronic strain has not been performed (George, 1989).

**Major Life Events**

The history of research on the relationship between life events and psychological and physical well-being is a long one. Cannon (1935) and Selye (1956) assumed that events lead to distress because the organism is fundamentally intolerant of change. More recently, social scientists have discarded the notion that change *qua* change is harmful, but instead have attempted to quantify the impact of events, and to determine the quality of the events (Pearlin et al., 1981). Currently, negative life events are conceptualized as affecting individuals' physical and psychological well-being (Holmes & Rahe, 1967; Kanner, Coyne, Schaefer, & Lazarus, 1981; Kiecolt-Glaser et al., 1984).

The relationship between life events and depression has been reviewed elsewhere (Blaney, 1985; Thoits, 1983). Briefly, the events/depression literature has taken three approaches: experimental production of depressed affect, quasi-experimental designs in which the effects of a specific stressor, e.g. rape, are evaluated, and the survey approach.

**Empirical event/depression relationships.** Life events are directly but weakly related to depressive
symptoms. In a cross-sectional study of a representative sample of 1,091 upstate New York adults aged 18-70, Tausig (1982) reported only a moderate correlation ($r = .21$) between events occurring over the previous six months and current depressive symptoms as measured by the Center for Epidemiologic Studies Depression Scale (Radloff, 1977). This correlation was the best that could be obtained after taking into account issues of reliability and internal validity. The occurrence of negative events in the past 12 months accounted for 9% of the variance in depressed versus non-depressed status in a large cross-sectional study of Major Depression (Billings et al., 1983). Interestingly, 17% of the depressed group had not experienced any of the assessed negative events in the past 12 months. Monroe (1982) found moderate ($r = .20$) correlations between events and symptoms in a prospective study of 74 employees of a moderate size corporation. In a longitudinal study of a random sample of 6,982 adults of all ages in Alameda County, California, residential move, job loss, and money problems were related to increased risk of depression at nine year follow-up (Kaplan et al., 1987). These effects were rather weak, however, and disappeared in some analyses.

In a longitudinal study of 94 college students, about half of whom reported at least moderate
depression, Hammen et al. (1986) reported that concurrent events (events that occurred in the past month) were related to current depressed symptoms, but events from the previous month were unrelated. Prior level of depression was the best predictor, and the relationship between events was small but significant. Interview assessed depression was better predicted by concurrent events than was paper-and-pencil assessed depression. Conversely, current level of depression, whether assessed through interview or paper-and-pencil, did not predict future life events. Pearlin et al. (1981) followed 2,300 adults over a four year time period. They reported a significant ($r = .34$) relationship between disruptive job events and subsequent depressive symptoms.

The relationship between events and depressive symptoms is small but consistent across studies. Across studies, events account for between 4% and 12% of the variance in depressive symptoms.

Depression and events in the elderly. The elderly are faced with a different array of life events than other groups. Potentially stressful events more commonly faced by the elderly include loss of friends and relatives through age-related mortality (Chiriboga, 1982), loss of work through retirement (Butler & Lewis, 1986), the onset of their own and spouse's ill health
(Fengler & Goodrich, 1979; Wilder, 1971), and institutionalization (Tobin & Lieberman, 1976). The loss of a spouse through death is also more common among the elderly (Glick, Weiss, & Parkes, 1974). Such events are undersampled in most life events inventories, contributing to a possibly erroneous conclusion that the elderly experience fewer life events (Rabkin & Streuning, 1976). For instance, Chiriboga (1984) reported consistent negative correlations between age and events across his 11 year sampling; however, older people endorsed higher levels of perceived stress and asserted that social problems affected them more. It has also been suggested that the events the elderly face more often involve major role loss (George, 1987). Numerous empirical studies of middle-aged and elderly samples have consistently reported event-depression relationships (George, 1989).

**Life events as a predictor.** The number of concurrent negative life events, then, was included as a predictor of depression in the present sample. Life events were expected to predict, after accounting for initial level of depression, current depression. Life events were not expected to be as good a depression predictor among initially depressed subjects. No particular age-related predictions were included, though caution was necessary in the measurement of life events
to include events that were germane to a late middle-aged and older population. Indeed, the inclusion of items measuring transitions such as work related problems, changes in income, and retirement was particularly relevant to the portion of the sample aged 50-65, while failure to include items tailored to younger adults (items about such things as pregnancy and birth) were not expected to affect either group.

**Social Support**

**General adult model.** Social support was introduced as a mediating variable to explain the moderate magnitude of the correlation between life events and physical and psychiatric disorders (Thoits, 1982). Social support has not been universally conceptualized or operationalized; originally, the literature treated all studies that included measures of people's social interactions, whether real or potential, positive or negative, meaningful or cursory, as equal and referred to them all as measures of social support (Barrera, 1986). This led to considerable confusion. Recent theoretical and empirical work has focused on elucidating the elements of a multi-dimensional construct and specifying the effects of its different subtypes (S. Cohen & Wills, 1985; George, 1989; Krause, 1989).
The social support literature is most easily differentiated into subjective versus objective measures of support (Cohen & Wills, 1985, George, 1989). Subjective measures focus on the satisfaction with social support, while objective measures tend to quantify the frequency of various types of supportive behaviors. There are many more complex classifications of support. One classification is based on the six supportive transactions (Weiss, 1974) and operationalized in the Social Provisions Scale (Cutrona et al., 1986). In another classification system, network size, interaction frequency, instrumental support, and subjective support are the four dimensions of support measured by the Duke Social Support Index (George, Hughes, Blazer, & Fowler, 1990).

Two major models of social support effects have been presented in the literature: a buffering model and a main effects model. In a comprehensive review of the social support literature, S. Cohen and Wills (1985) attempted to reconcile the evidence supporting both models. They suggested social support can be measured functionally by measuring the availability of support that enhances coping mechanisms, or structurally, by measuring the support network's size. They suggested the two measures are independent and support the two models differentially. They reported that functional
support, measured by assessing the frequency of various helpful actions, consistently buffered the effects of stress, while social embeddedness had a consistent direct relationship with lower depressive symptoms, regardless of the number of life events.

The measurement of social embeddedness has gone through a metamorphosis from the earliest measures that relied on demographic indicators, through measuring the quantity of confiding relationships (Lowenthal & Haven, 1986), to sophisticated social network analysis (Hall & Wellman, 1985). In social network analysis, range, density and homogeneity are some of the network dimensions analyzed. A review of the embeddedness literature is beyond the scope of this dissertation.

Since the S. Cohen and Wills (1985) review, not only has the construct of social support undergone greater delineation, the buffering model itself has been further elaborated and alternative models have been proposed (Barrera, 1986; Krause, 1989; Wheaton, 1985). The two major buffering models are the moderating and the suppressor models. The moderator model is the traditional buffering model and predicts that the more support, the lower will be the impact of external stressors. The moderator model is best tested with traditional multiple regression interaction terms or by comparisons between covariate structure models (Krause,
The suppressor model suggests that social support is mobilized in times of increasing external stress, and that the mobilized support then has a direct impact by reducing symptoms of distress. It is best tested with path or covariate structure models.

Krause (1989) has proposed dividing support into four major types and he has suggested that the types are related to the prediction of depression in very different ways. He classified support as: social embeddedness, enacted support, perceived availability of support, and satisfaction with social support. The first two are more objective measures, while the latter two are more subjective. Among the measures of support, he singled out tangible support, a type of enacted support, as a predictor of moderator buffering effects. Tangible support is defined as:

...the result of instrumental behavior that helps a person directly: Here the helping person intervenes personally in the problem situation and takes practical action by making a financial contribution, helping with work obligations, or providing some other form of material aid or direct relief (Krause, 1987, p. 514).

In contrast, emotional support, also a type of enacted support, is defined as "...based on personal qualities or behavior of a support person including empathy, caring, love, and trust (Krause, 1987, p.514)."

The effects of social support appear to be more strongly related to depression than to other kinds of
psychiatric disorder (Wheaton, 1985; Cronkite & Moos, 1984; Kessler & McLeod, 1985). The strength of the association between depression and social support may be due to social support's effecting feelings of control and self worth, feeling states directly antithetical to the depressive experience (George, 1989).

Negative Support. Negative or upsetting emotional support is a concept that stands at variance with all of the other social support literature. Those who conceptualized negative support recognized that some contact with members of a social network is detrimental to well-being (Lehman, Ellard, & Wortman, 1986). Fischer (1982) cited alcoholic husbands, delinquent children, and senile parents as examples of members of a person's support network that might provide more negative than positive support. Though some have conceptualized negative emotional support as a stressor (Shinn, Lehmann, & Wong, 1984), it will be addressed in this section because, though it is potentially present in all social support, it was often ignored in the early social support literature, and its oversight has been cited as a possible reason for the failure to obtain positive results in some social embeddedness studies (Krause, 1989).

Negative emotional support has predicted depression scores in Alzheimer's disease family caregivers, while
helpfulness was unrelated to depression (Fiore et al., 1983; Kiecolt-Glaser et al., 1989). In particular, the interaction between negative support and strain is a significant predictor of depressive symptoms in that negative support predicted symptomatology among caregivers only. Similarly, Rook (1984) related well-being to support and found that problems in social relationships were more strongly related than support was in a group of older women. Finally, negative support has also been reported to be a liability in recovery from stroke (Stephens, Kinney, Norris, & Ritchie, 1987).

Event/support and depression/support relationships. Thus far the relationship between social support and stress has been discussed in terms of the main effects and interactions while predicting depressive symptomatology. There are also direct relationships between the level of social support and levels of stress and depression. In particular, study participants reporting chronic strain have consistently reported lower levels of support (Burke & Weir, 1977: Finney, Moos, Cronkite, & Gamble, 1983; Mitchell, Cronkite, & Moos, 1983; Pearlin et al., 1981). In a longitudinal study controlling for the initial level of depression, Mitchell and Moos (1984) reported that increases in the
level of chronic strain were related to decreases in family support.

Thoits (1982) hypothesized that psychological health would predict levels of social support. She supported this statement by referring to some cross-sectional studies of psychiatric patients, including those of Mueller (1980). Cutrona et al. (1986) provided support for Thoits's position by following a small group of elderly individuals across a six month period. Psychological health, as measured by low scores on the Zung depression scale (Zung, 1965) and the UCLA loneliness scale (Russell, 1982), was predictive of higher levels of social support as well as fewer subsequent life events. More recent analyses of satisfaction with social support have failed to find a predictive relationship between depression and social support (Krause, Liang, & Yatomi, 1989). There is not yet adequate empirical support of either position to state definitively the effects of depression on future levels of social support (Krause et al., 1989).

Social support and the elderly. Again, the elderly differ from other segments of the population in the quantity and quality of social support they receive. Loss of spouses, friends, and relatives through death and loss of coworkers through retirement has a significant impact on the social support available to
the elderly. On the other hand, some authors have suggested that the increase in leisure time afforded by retirement and loss of other responsibilities leads to increased time spent seeking and using social support (Adams, 1987; House & Robbins, 1983). Though the older adults' social networks may change more drastically than younger adults' networks, there is a tendency to build new networks that rival the old for complexity and embeddedness.

Empirical studies have failed to report differences in support networks across the age range of the present sample. Network size was unrelated to age in a sample including young-old and old-old (Cantor, 1975) and in a sample aged 55 and older, there was no difference in networks among those aged 70 and older and their younger peers, though the older participants reported lacking helpers to perform some functions (Stephens, Blau, Oser, & Miller, 1978). Similarly, no age differences in network size or confidant availability were found in a sample aged 45 and older (Babchuk, 1978-79). An age related difference in network composition was reported with participants under 40 including a greater percentage of non-kin in their support networks than persons over 40, but no other age related network differences were indicated (Fischer, 1982). Finally, a nationwide study of people aged 50 and over reported no
age differences in network size or received support, though older adults provided less support to network members and were more satisfied with their networks than younger adults (Antonucci, 1985; Antonucci & Akiyama, 1987).

Friendship may serve an increasingly important function, compensating for the loss of other social roles (Hess, 1972; Seeman & Berkman, 1988). Several studies with older adults have supported this view. Number of interactions with friends, contact with relatives, and life satisfaction have been measured. Interactions with friends were more strongly related to life satisfaction than were contacts with relatives (Philblad & Adams, 1972; Wood & Robertson, 1978). In a study assessing the change in network roles across age groups, friends played an increasing role in providing emotional support while relatives, particularly adult children, provided more tangible support than did spouses as age increased (Seeman & Berman, 1988).

Two studies of elderly adults have supported Krause's (1989) hypothesis that tangible support is a buffer of life events. In an elderly population, Krause (1987) demonstrated a buffering relationship when he correlated tangible support and CES-D depression scores. In a longitudinal study of elderly adults, Cutrona et al. (1986) reported the "assistance related provisions"
of social support to buffer stressful events' effects on mental health as measured by self-report depression scales.

**Social support as a predictor.** A review of the social support literature suggested three relationships that predicted depression. First, it was predicted that measures of tangible support would be negatively related to depression through an interaction with life events/chronic strains, such that, as the levels of events/strains increased, increased functional support would become a better predictor of lower depression levels.

Second, the quantity of available social support would have a direct negative effect on depression, though this may have been only a threshold effect. Finally, greater negative emotional support was hypothesized to interact with the increased levels of life events and strain to predict increased levels of depression. No age related differences were expected in level or mechanism of support.

**Relevant Variables Not Included as Predictors**

**Coping.** Coping is a more diffuse construct than social support. Coping has been broadly defined as a means of responding positively to stress (Monat & Lazarus, 1985). Unfortunately, the range of behaviors
that are appropriate for managing all potentially stressful situations is remarkably broad. Folkman and Lazarus' (1980, 1986) problem-focused versus emotion-focused coping typology is the most completely developed and widely cited conceptualization to date. Some other conceptualizations are clearly variations on this basic idea (e.g. Moos & Billings, 1982); other systems, such as an approach-avoidance model of coping (Horowitz, 1976, 1979; Roth & Cohen, 1986) are neither as universal nor as well-researched, though they offer promising insights into the stress-response process.

The construct of coping is not incorporated in the present model. Though there is a growing theoretical literature, it is premature to assign causal status to any particular strategy as a preventive agent. In part this is due to lack of empirical work, particularly prospective, longitudinal designs. Additionally, a given coping strategy will not be equally effective in all situations. Denial is a helpful coping strategy immediately following a heart attack, but if denial continues to be used and prevents a person from changing their long-term behaviors, the same previously healthy coping mechanism, in the same person, can be fatal (Monat & Lazarus, 1985).

**Personality.** The effort to predict the differential effects of stressors on individuals has led
to attempts to identify internal moderating mechanisms. Three such mechanisms have received particular attention: hardiness (Kobasa, 1985), cognitive mechanisms (Beck, 1967; 1976; Seligman, 1975), and locus of control (Rotter, 1966). None of the three approaches to predicting depression from personality variables has yet provided consistent, repeatable results in longitudinal studies of clinically depressed subjects. In part this stems from an over-reliance on cross-sectional designs. Hirschfeld et al., (1983) for instance, measured the effects of clinical depression on the responses of subjects to "trait" measures of personality. When the subjects were reinterviewed one year later, those who were no longer symptomatic differed from the symptomatic group and from their own early responses on a wide variety of measures normally assumed to be unaffected by a person's "state".

Depue and Monroe (1986) have taken a different route and suggested that there may be personality types that are consistent with chronic disorder. They posit a stable personality trait of negative affectivity (NA). Their review led them to conclude "at least partial overlap between the high NA individuals and a chronic-intermittent pattern of disorder" (Depue & Monroe, 1986, p. 39). The inclusion of an NA measure in a depressive
onset model is unwarranted, however, as an initially asymptomatic group is assumed.

**Conclusion.** While person variables such as coping and personality are probably related to levels and types of depression, the empirical groundwork for inclusion of these variables as predictors in a longitudinal distress onset study has not yet been laid. The present model, then, consists of elements reviewed earlier, and does not include coping or personality as independent variables.

**Summary of the Review**

Depression is a significant mental health problem in the middle-aged and the elderly (Blazer et al., 1987). Syndromal depression is no more prevalent among the elderly than among other adults, and the greatest incidence of depression is among those aged 50-64 (Weissman et al., 1988). Subsyndromal depressive symptoms may be more prevalent among the elderly (Blazer, 1982b). It is also likely that depression has somewhat different manifestations as adults age (Newmann et al., 1990). The size of the present sample and the relatively small differences in age effects lead to the prediction that the present study would not have the power to detect age related difference in syndromal or subsyndromal depression.
A review of depression onset in the middle-aged and elderly adults was undertaken. It was based on the empirical evidence linking psychosocial variables to depressive symptoms and the depressive syndrome. It was a data-driven review, and the independent variables in it were reviewed in order from most predictive to least.

Demographic variables were reviewed in the introduction. It was assumed that their temporal impact was primary and relatively stable. SES was expected to predict depression, with those from lower SES backgrounds expected to experience higher levels of depression (Billings et al., 1983). The best measure of SES was expected to be related to age, with income being a better measure in the middle-aged group, while education was expected to most reliably estimate SES in the older adults. Both measures were used. Surprisingly, gender was not expected to predict depression among older adults (Feinson, 1987), in marked contrast to its strong predictive power among younger adults (Nolen-Hoeksema, 1987), and there was expected to be an effect for the for the portion of the sample between the ages of 50-65, with women experiencing twice the base rates of syndromal depression.

The best single predictor of current depression was past depression (Depue & Monroe, 1986). One year prior levels of symptoms or presence of disorder were expected
to predict current depression (Hammen et al., 1986). This was expected to be as true for the middle-aged and elderly as for any other age group. Past depression level was also entered first in hierarchical designs to help control for depressive effects that otherwise could have been considered depressogenic.

Life events and chronic strain were two of the variables of particular interest in the study. They were included as predictors of major depression among the elderly. It was necessary to tailor life events scales to the experiences of the late middle-aged and elderly, but the basic consistent, though not dramatic, relationship between events and depression was not expected to change across age groups (House & Robbins, 1983). Chronic strains are particularly prevalent among the elderly. In the present test, individuals caring for a relative with a progressive dementia were compared with individuals who were not experiencing this strain.

Social support was conceptualized as having two positive components: tangible support and available social support (Barrera, 1986; S. Cohen & Wills, 1985; Krause, 1989). Tangible support was hypothesized to be used in the presence of a stressor, and to buffer events' effects, but was not expected to have a great effect on depression in the absence of events or strain. Available social support, on the other hand, was
expected to have a direct effect on depression, with those with more available social support expected to have better mental health. Negative support was also expected to be related to mental health, and the presence of distressing relationships was expected to predict the concurrent presence of depression in chronically strained groups (Fiore et al., 1983; Kiecolt-Glaser et al., 1989).

Coping and personality were two other variables considered for inclusion in the model. Neither variable was included in the model because there was insufficient empirical support for their present predictive abilities.

Specific Hypotheses

The hypotheses for predicting depression in a middle-aged and older group were tested with a sample of 51 individuals over the age of 50 who were caregiving for a family member with Alzheimer's Disease or a related dementia. The sample also included individually matched comparison participants. Participants were interviewed twice, at one year intervals. Specific hypotheses that were made follow.

Hypothesis 1: Caregivers were hypothesized to have displayed more syndromal depression over the course of
the caregiving period than comparison subjects over the same period. They were further expected to display higher levels of syndromal depression, more depressive symptomatology, and lower levels of functioning than comparison participants at both Time 1 and Time 2. They were not expected to differ from comparison subjects in the number of pre-caregiving depressive episodes. Because dementias are progressive disorders, it was predicted that the caregiver strain would increase from Time 1 to Time 2 resulting in an increase in depression, syndromal and symptomatic, and a greater decrement in functioning relative to the comparison subjects.

Hypothesis 2: Caregiver status, life events between Time 1 and Time 2, and an interaction between interim caregiving status and tangible support were hypothesized to predict major depression, depressive symptomatology, and functioning at Time 2 for all participants, after accounting for initial depression levels and significant demographic variables.

Hypothesis 3: Available social support was predicted to be directly related to well-being, with participants who spontaneously reported more people as important to them, whether or not they were caregivers, expected to receive fewer depressive diagnoses, to endorse fewer symptoms of depression, and to be functioning better than less embedded participants.
Hypothesis 4: Negative or upsetting emotional support was predicted to be positively correlated with depression in caregivers, though not in the comparison participants. Thus, a negative support by group interaction was predicted.
CHAPTER III

METHOD

Subjects

Psychological data were obtained from a chronically stressed sample of 51 family caregivers of demented patients over the age of 50. Thirty-eight patients had provisional diagnoses of Alzheimer's Disease, two were diagnosed with multi-infarct dementia, seven with Parkinson's Disease, one with Pick's and three were diagnosed with an unspecified degenerative dementia. Fifteen of the caregivers were children caring for their parents, 34 were spousal caregivers, 1 was a girlfriend and 1 was a sister-in-law. Data were also obtained from 51 community dwelling non-caregivers, individually matched on gender (exact match), age (plus or minus five years), and education (plus or minus one educational category).

Caregivers were recruited from three local dementia evaluation centers in area hospitals, neurologists' referrals, the city's Alzheimer's Disease and Related Disorders Association (ADRDA) support groups, the monthly ADRDA newsletter, and respite care programs. Comparison subjects were recruited through newspaper
advertisements, church groups, notices posted in senior citizen centers, and referrals from other participants; potential comparison subjects who reported any caregiving activities were excluded.

The present study was part of a larger study involving immune system responses to chronic stressors. As a result, subjects were selected who were not taking any immunosuppressive medications, and whose health problems did not have an immunological component (e.g., potential subjects with cancer, recent surgeries, strokes, and hormonal disorders were excluded). The net effect of these exclusionary criteria was to increase the overall physical and, therefore, emotional well-being of both samples compared to their respective populations. All subjects were paid $30 for participation in the study.

Data Collection

Data were collected at two time points 9-12 months apart. At each point, subjects were interviewed and filled out forms and questionnaires, a process that generally took about two hours. Though most of the interviews took place at University Hospitals, some were conducted at home, particularly interviews with caregivers who could not find someone to care for their patient in their absence. Caregivers and comparison
subjects' interviews, forms, and questionnaires were identical except for the questionnaires and interview items related to caregiving. The latter were administered to the caregivers only.

Assessment of patient history and current functioning. The duration of the dementia patient's illness was determined during the first interview with the family caregiver. Caregivers were asked, after the diagnostic interview, when the patient was first diagnosed with a dementia, and then they were asked how long before that they had first noticed memory problems. The latter date was used as a caregiving onset date. The Memory and Behavior Problem Checklist (Zarit & Zarit, 1983), an instrument assessing frequency and degree of upset from relevant behaviors (such as wandering, or dwelling on the past), was administered in interview form at the second assessment point. A copy of the interview form is included in the appendix (pages 189 & 190).

The Global Deterioration Scale (GDS; Reisburg, Ferris, DeLeon, & Crook, 1982) was rated based on the caregiver interview. The GDS is a seven point scale of dementia severity and is included in the appendix (page 191). Scores range from one, no cognitive impairment or normal, to seven, very severe cognitive decline or late dementia. Each stage is characterized by numerous
prototypic behaviors. Reisburg et al. (1982) report construct validity tests in which the GDS correlates from .53 to .83 with various behavioral, neuropsychological, and neuroanatomic measures on dementia sufferers.

GDS interrater reliability was established for all subjects participating in the study at Year 1 regardless of age. A clinical psychologist with geriatric experience rated the GDS in 50 of 190 cases (26%) based on the same information utilized by the original reviewer. A Pearson product moment correlation of $r = .83$ was calculated between the original and comparison scores, suggesting that interviewers in this study are reliably rating level of dementia.

Life Events. A life events checklist was presented at the first assessment. It is included in the appendix (page 192). Subjects were instructed to check events that had occurred in the past six months. Twenty-eight of the 37 items on the Geriatric Social Readjustment Rating Scale (GSRRS; Amster & Krause, 1974) were used. Items confounded with physical symptomatology were excluded, as were items with positive content, like vacation. The same checklist was administered orally by telephone at roughly 3 month intervals between the first and second assessment and again at the second assessment. Subjects were asked to report events that
have occurred since the previous assessment at each of the later administrations.

**Social Support.** The social network interview developed by Hirsch (1980) assesses multiple dimensions of support and has served as the basis for the measurement used in three studies with middle-aged and older adults (Fiore et al., 1983; Heller & Mansbach, 1984; Kiecolt-Glaser et al., 1989). Participants were asked to produce the names and relationships of "people who are important to them, whether they like them or not." If the subjects named more than ten people, they were told that the first ten were all that was necessary. For each of the people named, subjects were asked to rate closeness, frequency of contact, positive and negative or upsetting emotional and tangible support received. The ratings were then averaged across named supports. This instrument allows for the simultaneous measurement of available support, functional support, and negative support. It was administered at the first and second year appointments. The interview protocol, a scoring sheet, and the rating cards are included in the appendix (pages 193 & 194, 195, and 196 respectively).

**Dependent Variable Measures**

**Depression.** Three instruments were used to assess depression. The short form of the Beck Depression
Inventory (Beck, 1967) is a 17-item instrument that has been used as a valid and reliable measure of depressive symptomatology with a variety of populations. It appears to be particularly well suited to assessment of depression in older populations because it includes relatively few somatically laden items (Hammen, 1980). It is included in the appendix (page 199). The Hamilton Rating Scale of Depression (Hamilton, 1967), an interview based scale, also provided a continuous measure of depression, but it has a greater emphasis on somatic items. It is included in the appendix (page 201). The 31 item scale was administered by advanced graduate students or a postdoctoral fellow as was the Structured Clinical Interview for Diagnosis of DSM-III-R disorders (SCID, Endicott & Spitzer, 1988).

The SCID is a diagnostic instrument for the determination of lifetime and present psychiatric disorders including major depression, dysthymia, and depression not otherwise specified (NOS) based on DSM-III-R (APA, 1987) criteria. Because of its length, the entire scale is not included, however, a copy of the scoring sheet is in the appendix (pages 205-208). In accordance with Norris, Gallagher, Wilson, & Winograd's (1987) procedures, somatic symptoms were disregarded when it was clear that they were directly attributable to physical problems, when the symptoms were long
standing and temporally unrelated to depressive affect, or when the symptom was a direct consequence of caregiving. Thus, insomnia was not considered a symptom if the caregiver's patient wandered or made loud noises that disturbed the caregiver's sleep.

Lifetime SCID diagnoses were made and depressed episodes were dated by association with other significant public and private events. Use of this type of procedure has been shown to facilitate recall (Bradburn, Rips, & Shevell, 1987). Lifetime diagnoses have been shown to be reliable (Andreasen et al., 1981; Keller et al., 1981; Keller et al., 1983), though we still await longitudinal data to determine their validity (Weissman & Myers, 1978b). A determination of whether lifetime diagnoses occurred before or after caregiving onset was made by comparing depressive onset with caregiving, as determined above.

**Functional Measure.** The GAF, which is included as Axis V of DSM-III-R (APA, 1987), is an interviewer-based measure of current functioning. Ratings on a 1 to 90 scale are based on the current level of social and occupational function reported during the interview, with higher scores indicative of better functioning. A copy of the scale is included in the appendix (page 209). The GAF correlated moderately with both
depression and schizophrenia scales in a heterogenous patient group (Johnson et al., 1986).

**Interview reliabilities.** To determine reliabilities of the interview ratings of depression and functioning, all interviews were audiotaped, and scores from a randomly selected sub-sample were compared with independent ratings based on the audio tape alone. Reliability ratings were made for 35 of 102 SCIDs (34%), for 16 of 102 Hamiltons (16%) at both Year 1 and Year 2, and for 36 of 102 GAFs (35%) at Year 1.

Two Kappa coefficients were calculated for the SCID data. For the first, rate of agreement was determined for the presence or absence of any disorder. For the second, rate of agreement was calculated based on presence or absence of an affective disorder. Both Kappas had a value of 1.00 indicating perfect agreement. This high rate of agreement is attributable, in part, to the relatively low incidence of disorder within the population and the homogeneity of diagnoses. A Pearson product moment correlation calculated between original and comparison Hamilton scores at Year 1 was $r = .88$ and at Year 2 was $r = .90$, suggesting that the reviewers in this study are reliably rating depressive symptomatology. Pearson product moment correlation coefficients calculated between the primary interviewer
and a second GAF rater was $r = .80$, suggesting that the GAF ratings were also reliable.

**Brief Symptom Inventory.** The Brief Symptom Inventory (BSI: Derogatis & Spencer, 1982) is a 53-item measure of a variety of psychological symptoms. Administered at Time 1 and Time 2, it was intended to provide both an additional measure of depression and a measure of non-depressive symptomatology. It is included in the appendix (pages 210 & 211). In other studies from this laboratory, the depression scale has failed to distinguish groups that have clearly differed when measured using a variety of other techniques. In part, the failure to distinguish groups appears to be related to a limited amount of variance in a 5-item subscale after conversion to T scores.

To evaluate the suitability of BSI subscales for the current study, intercorrelations between subscales were calculated on the entire sample. Intercorrelations among all BSI scales were uniformly high, ranging from $r(323) = .40$ to $r(323) = .65$. Scales correlated as highly with conceptually distinct scales as with similar scales. For instance, the psychoticism scale was more highly correlated with the obsessive ($r(323) = .60$) and the depressive ($r(323) = .64$) subscales than with the paranoid subscale ($r(323) = .59$). Since the difference is in the direction opposite that predicted, the
construct validity is questionable. It was concluded that, functionally, the instrument was acting as an undifferentiated measure of dysphoria and that its subscales were inappropriate for their intended discriminatory purpose. The BSI scores were, therefore, not included as dependent measures.
Sixty-seven caregivers meeting age criteria were interviewed at Time 1. Sixteen of the patients died between Time 1 and Time 2, leaving an experimental group of 51. The demographic characteristics of the 51 caregivers and 51 sex, age, and education matched comparison subjects are presented in Table 2. The matching procedures were successful in producing groups that did not differ on age, education, or income, $F_s < 1$. The majority of participants were caucasian, 96% of caregivers and 94% of comparison participants. The modal caregiver and comparison subject reported an annual family income between $20,000 and $30,000.

**Dependent Variables**

Because depressed participants were expected to have functional difficulties, moderate intercorrelations were expected between the GAF and the depression measures, while the depression measures, because they were measuring the same construct, were expected to intercorrelate quite highly. As can be seen in Table 3,
### Table 2

<table>
<thead>
<tr>
<th></th>
<th>Caregivers</th>
<th>Comparison subjects</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sex</strong></td>
<td>Male</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>35</td>
</tr>
<tr>
<td><strong>Age (At year 1)</strong></td>
<td>64.75 (8.44)</td>
<td>63.59 (8.05)</td>
</tr>
<tr>
<td><strong>Range</strong></td>
<td>50 – 87</td>
<td>50 – 84</td>
</tr>
<tr>
<td><strong>Education</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Partial High School</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>or less</td>
<td></td>
<td></td>
</tr>
<tr>
<td>High School Grad</td>
<td>10</td>
<td>13</td>
</tr>
<tr>
<td>Partial College</td>
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<td>12</td>
</tr>
<tr>
<td>College Graduate</td>
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<td>13</td>
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<tr>
<td>Graduate Training</td>
<td>7</td>
<td>10</td>
</tr>
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**Characteristics of Caregivers and Comparison Subjects**
### TABLE 3

<table>
<thead>
<tr>
<th></th>
<th>Ham 1</th>
<th>Ham 2</th>
<th>BDI 1</th>
<th>BDI 2</th>
<th>GAF 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hamilton Time 2</td>
<td>.67*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beck Time 1</td>
<td>.66*</td>
<td>.38*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beck Time 2</td>
<td>.59*</td>
<td>.69*</td>
<td>.72*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GAF Time 1</td>
<td>-.73*</td>
<td>-.66*</td>
<td>-.54*</td>
<td>-.56*</td>
<td></td>
</tr>
<tr>
<td>GAF Time 2</td>
<td>-.60*</td>
<td>-.80*</td>
<td>-.42*</td>
<td>-.63*</td>
<td>.71*</td>
</tr>
</tbody>
</table>

* p<.001

Note: Higher scores on the GAF denote higher functioning, while the reverse is true for the Beck and Hamilton scales.

DEPENDENT MEASURE INTERCORRELATIONS
the GAF's correlation with the Hamilton is numerically (though not statistically) higher than the Beck's at both Time 1 (\(r = -.73\) versus \(r = .66\)) and Time 2 (\(r = - .80\) versus \(r = .69\)). As stated above, the value of the Hamilton's correlation with the GAF was expected to be significantly lower than the Hamilton's correlation with the Beck. Similarly, although the Hamilton's correlation with the Beck is higher than the GAF's at both Time 1 (\(r = .66\) versus \(r = -.54\)), and Time 2 (\(r = .69\) versus \(r = -.63\)), these differences were not significant at the .05 level, \(z(64) = .66\) and \(z(98) = .42\) respectively. Furthermore, the GAF can hardly be considered to measure a construct independent from the depressive measures based on shared variance that ranges from 29% to over 60%. Thus, it was decided to treat the GAF as a measure similar to the depressive measures and to collapse the dependent variables into two clusters: dichotomous measures of depression (SCID diagnoses of major depression, dysthymia and depression NOS), and continuous measures of depression/ functioning (Hamilton, Beck, and GAF).

The Beck was not included in all packets at Time 1; it was administered to only 29 caregivers and 48 comparison subjects for whom all other data were collected. Because this significantly reduces the sample size usable in multivariate analyses, only the
Hamilton and GAF are used as the dependent measures in such analyses, and the Beck data were reported separately.

**Demographic Variables as Predictors of Depression**

Age was not significantly related to depressive symptoms or functioning at Time 1 or Time 2. In the only analysis where the age/functioning regression approached significance, greater age was associated with better functioning as measured by the GAF at Time 2, $r = .14$, $F(1, 99) = 3.23$, $p < .09$. Among caregivers, participants aged 50-64 did not have significantly more episodes of depression during caregiving than did those over 65, 12 of 27 (44%) versus 8 of 24 (33%), $X^2(1, N = 51,$ Yates corrected) = 1.22, NS. In the comparison group, participants aged 50-64 had the only cases of depression during the caregiving period, 6 of 23 (26%) versus 0 of 28 (0%) and this was a significant difference, $X^2(1, N = 51,$ Yates corrected) = 5.91, $p < .05$.

Age was significantly related to some of the independent variables. Specifically, adults aged 50-64 endorsed an average of about one more life event between Time 1 and Time 2 than did older adults, $M = 2.89$ versus $M =1.70$, $F(1,97) = 7.122$, $p < .01$. Adults aged 50-64 rated their tangible support less helpful than older
adults, $M = 3.64$ versus $M = 4.13$, $F(1,94) = 4.26$, $p < .05$. There were no age related differences in average upsetting social support, $F(1, 94) = 2.98$, $p > .05$, and there were no age related differences in number of supports listed, $F < 1$. There were no differences between caregivers and comparison participants on any of these independent variables, all $ps > .10$, and no interactions between group membership and age, all $ps > .10$.

Gender was not significantly related to depression. Among caregivers, 5 of 16 males (31%) and 10 of 35 females (29%) were diagnosed with a depressive disorder at Time 1 or Time 2. Among comparison subjects, 1 of 16 males (6%) and 5 of 35 females (14%) received a depressive disorder diagnosis at Time 1 or Time 2. There was neither a main effect for gender in a group by sex MANOVA with the Hamilton and GAF as dependent measures, $F < 1$, nor as measured in a within subjects ANOVA with the Beck, $F(1,77) = 1.42$. While male comparison subjects reported fewer symptoms than female comparison subjects, and male caregivers reported more symptoms than female caregivers on all three dependent measures, this interaction proved to be statistically significant in neither the MANOVA, $F(2,93) = 1.93$, nor in the ANOVA, $F(1,77) = 1.47$. In regression equations with all continuous dependent variables, all age by sex interactions were nonsignificant, all $Fs < 1$. 
Greater vulnerability to depressive affect and depressive disorder has been associated with lower socio-economic status (Billings et al., 1983). Subjects currently meeting criteria for DSM-III-R depressive disorders at Time 1 or Time 2 had lower levels of education, averaging a high school diploma, while those not meeting criteria had, on average, been to some college, but this difference was not significant, \( F < 1 \). Educational level was not significantly correlated with the Hamilton Depression Rating Scale (HDRS) at Time 1 \( (r = -0.09) \) or at Time 2 \( (r = -0.04) \), nor with the Beck Depression Inventory (BDI) at Time 1 \( (r = -0.08) \), though it was significantly correlated with the BDI at Time 2 \( (r(99) = -0.17, p < .05) \). To be conservative, education was entered first in regressions and covaried in MANOVAs; because this did not significantly alter results from tests without the inclusion of education, the results are reported without including education as a covariate.

Income, not significantly correlated with HDRS at Time 1 \( (r = -0.11) \), HDRS at Time 2 \( (r = -0.11) \) or BDI at Time 1 \( (r = -0.11) \), correlated significantly with BDI scores at Time 2 \( (r = -0.17, p < .05) \). Subjects receiving a depressive diagnosis had lower income \( (M = 9.87, SD = 2.72) \) than did those not diagnosed \( (M = 10.85, SD = 2.00) \), but this difference only approached
<table>
<thead>
<tr>
<th>Table 4</th>
<th>Caregivers (n=51)</th>
<th>Comparison Subjects (n=51)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Depressive Disorders at Time 1</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Major depressive disorder</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Dysthymic disorder</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Depressive disorder NOS</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>8</td>
<td>0</td>
</tr>
<tr>
<td><strong>Depressive Disorders at Time 2</strong></td>
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<td></td>
</tr>
<tr>
<td>Major depressive disorder</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>Dysthymic disorder</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>Depressive disorder NOS</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>14</td>
<td>6</td>
</tr>
<tr>
<td><strong>Depressive Disorders Prior to</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Caregiving Years</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Major depressive disorder</td>
<td>4</td>
<td>7</td>
</tr>
<tr>
<td>Dysthymic disorder</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Depressive disorder NOS</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td><strong>Cumulative Depressive Disorders</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>During Caregiving Years</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Major depressive disorder</td>
<td>9</td>
<td>0</td>
</tr>
<tr>
<td>Dysthymic disorder</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>Depressive disorder NOS</td>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>20</td>
<td>6</td>
</tr>
</tbody>
</table>

1. For comparison subjects, the caregiving onset date for their matched caregiver was used for comparison purposes, e.g., if the caregiver had been providing care for five years, the noncaregiver's incidence of depressive disorders during the last five years was examined.

*p<.05  **p<.01

**FREQUENCY OF DEPRESSIVE DISORDERS BY GROUP**
significance, $F(1,100) = 3.61, p < .10$. Income and education were highly correlated ($r = .56, p < .0005$).

**Depression During Caregiving**

*Syndromal depression at Time 1 and Time 2.* As detailed in Table 4, caregivers had more syndromal depression at both Time 1 and Time 2 than did comparison subjects. Specifically, 8 of 51 caregivers (16%) reported a syndromal depression at Time 1, while none of the comparison subjects did, a difference that was statistically significant, $X^2(1, N = 102, \text{Yates corrected}) = 6.64, p < .01$. At Time 2, 14 of 51 caregivers (27%) versus 6 of 51 comparison subjects (12%) met criteria for a depressive diagnosis, again a statistically significant difference, $X^2(1, N = 102) = 3.98, p < .05$. There were three remissions and nine new cases from Time 1 to Time 2 among caregivers while there were six new cases among comparison subjects, a difference in rate of increase that was not statistically significant, $X^2(1, N = 94) = .35$.

*Syndromal depression throughout the caregiving period.* It is also possible to evaluate the prevalence of depressive disorders during the caregiving period using a methodology described by Dura, Stukenberg, and Kiecolt-Glaser (1990) and used on a different subset of this same population at year 1. Since lifetime
diagnoses were made for both caregivers and comparison subjects, the onset of depressive disorders relative to caregiving for the caregivers and relative to the point in time at which the matched caregiver for each comparison subject began caregiving was determined. Thus, rates of depressive disorders prior to the caregiving period versus those during the entire period (not just at Time 1 and Time 2) were compared.

Prior to caregiving, 4 caregivers and 8 comparison subjects reported a depressive disorder; all of these were cases of major depression, except for one comparison subject's case of dysthymia. During the caregiving period, caregivers reported significantly more depressive disorders than did comparison subjects, 20 of 51 (39%) versus 6 of 51 (12%) $\chi^2(1, N = 102) = 10.12, p<.01$, with diagnoses shown in Table 4. Of the 20 caregivers diagnosed during the caregiving period, only two (10%) had a depressive diagnosis prior to caregiving. Three of the six comparison subjects (50%) that were diagnosed during the caregiving period had a depressive diagnosis during their lives prior to the caregiving period.

Depressive symptoms at Time 1 and Time 2. To test the hypothesis that continuously measured depression would be greater among caregivers and that this discrepancy would increase over time, a within-subjects
MANOVA was performed with the HDRS and GAF as dependent measures, group membership and time were the independent measures. Beck scores were included as dependent variables in a separate ANOVA for reasons mentioned above.

The Wilks' criterion for a main group effect was significant, $F(2,95) = 14.37, p < .0001$. Subsequent ANOVAs for the two dependent measures in the MANOVA were then performed. As shown in table 5, there was a significant group effect for both dependent measures, with caregivers endorsing higher mean levels of depressive symptoms on the HDRS, $F(1,97) = 20.97, p < .001$, and the GAF, $F(1,99) = 30.86, p < .001$. There was neither a significant main effect for time, $F(2,95) = 1.13$, nor was there a significant interaction between time and group, $F(2,95) = 1.23$.

The within subjects ANOVA results with Beck score as the dependent variable were similar to the MANOVA results. There was a significant main effect for group, $F(1,79) = 5.42, p < .05$, with caregivers endorsing more depressive symptoms than comparison subjects. But, in this analysis alone, there was a significant main effect for time, $F(1,79) = 33.53, p < .001$, with a greater report of symptoms at Time 2 than at Time 1. The group by time interaction was not significant, $F < 1$. 
## Mean Hamilton Depression Rating

<table>
<thead>
<tr>
<th></th>
<th>Caregivers</th>
<th>Comparison Subjects</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>n=49</strong></td>
<td></td>
<td>n=49</td>
</tr>
<tr>
<td><strong>Year 1</strong></td>
<td>7.12</td>
<td>1.92</td>
</tr>
<tr>
<td>(6.66)</td>
<td>(2.74)</td>
<td></td>
</tr>
<tr>
<td><strong>Year 2</strong></td>
<td>7.20</td>
<td>3.32</td>
</tr>
<tr>
<td>(7.34)</td>
<td>(3.96)</td>
<td></td>
</tr>
</tbody>
</table>

## Mean GAF Scale Scores

<table>
<thead>
<tr>
<th></th>
<th>Caregivers</th>
<th>Comparison Subjects</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>n=49</strong></td>
<td></td>
<td>n=49</td>
</tr>
<tr>
<td><strong>Year 1</strong></td>
<td>71.84</td>
<td>80.54</td>
</tr>
<tr>
<td>(8.54)</td>
<td>(8.42)</td>
<td></td>
</tr>
<tr>
<td><strong>Year 2</strong></td>
<td>71.77</td>
<td>80.06</td>
</tr>
<tr>
<td>(9.49)</td>
<td>(7.39)</td>
<td></td>
</tr>
</tbody>
</table>

## Mean Beck Scale Scores

<table>
<thead>
<tr>
<th></th>
<th>Caregivers</th>
<th>Comparison Subjects</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>n=49</strong></td>
<td></td>
<td>n=49</td>
</tr>
<tr>
<td><strong>Year 1</strong></td>
<td>5.07</td>
<td>2.88</td>
</tr>
<tr>
<td>(5.59)</td>
<td>(3.35)</td>
<td></td>
</tr>
<tr>
<td><strong>Year 2</strong></td>
<td>7.71</td>
<td>5.22</td>
</tr>
<tr>
<td>(5.44)</td>
<td>(5.02)</td>
<td></td>
</tr>
</tbody>
</table>

---

1Note: Higher GAF scores denote better functioning.

* p<.05  ** p<.001

a differs from b p<.001

---

LEVEL OF DEPRESSIVE SYMPTOMATOLOGY AND FUNCTIONING

BY GROUP
Patient functioning and depression. Global Deterioration Scale (GDS) scores revealed that most of the caregiver's patients were beyond the early, confusional stages of their disorder and were displaying clearly demented behaviors, with 44 of 50 (88%) being rated in the demented range of the GDS. Twenty-eight per cent were rated in stage 5, early dementia, 32% in stage 6, middle dementia, and 28% in stage 7, late dementia. Only 6% were in stage 3, early confusional, and 6% in stage 4, late confusional. Caregivers had been providing care for an average of 55.60 months (SD = 44.49). A further indication of the patient's advanced dementia stage was the high rate of patient mortality (24%) between Time 1 and Time 2.

A within-subjects MANOVA was used to assess the relationship between patient level of dementia and caregiver's GAF and Hamilton scores at Time 2. There was no main effect for GDS, $F < 1$. Similarly there was no main effect for GDS in a within-subjects MANOVA predicting Beck scores at Time 2, $F < 1$.

Life Events, Strain, and Support as Predictors of Depression

Initial correlations between dependent measures and measures of life events, strain, and support are
presented in Table 6. Three multiple regression analyses, one for each of the continuous dependent measures, and a logistic regression analysis were used to test hypotheses 2 and 3. Specifically, the hypothesis that caregiver status, life events between Time 1 and Time 2, tangible support at Time 2 and an interaction between tangible support and caregiving status would predict continuous measures of depression and functioning at Time 2 was tested. Level of the dependent measure at Time 1 was entered into each of the equations first.

All four regression analyses produced similar results, presented in Table 7. In each, the score of the dependent variable at Time 1 was entered into the equation first and was a significant predictor of the dependent variables at Time 2. In fact, the Time 1 score on the dependent variable accounted for at least 40% of the variance in the Time 2 measure in all three multiple regression analyses, and in the GAF analysis, it accounted for more than 50% of the variance at Time 2. In the logistic regression analysis, presence or absence of depression accounted for over 20% of the variance in presence or absence of depression at Time 2.

Group membership (dummy coded 0 for caregivers and 1 for comparison subjects throughout) was entered next and did not account for a significant increment in
### TABLE 6

<table>
<thead>
<tr>
<th>Life</th>
<th>Ham 2</th>
<th>GAF 2</th>
<th>BDI 2</th>
<th>Group</th>
<th>Events</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group</td>
<td>-.30</td>
<td>.41</td>
<td>-.15</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Life Events</td>
<td>.40</td>
<td>-.31</td>
<td>.40</td>
<td>-.04</td>
<td></td>
</tr>
<tr>
<td>Tangible Support</td>
<td>-.19</td>
<td>.18</td>
<td>-.18</td>
<td>.02</td>
<td>-.18</td>
</tr>
</tbody>
</table>

Note: Higher scores on the GAF denote higher functioning, while the reverse is true for the Beck and Hamilton scales.
TABLE 7

Multiple Regression 1: Year 2 Hamilton score is dependent.

<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>Cum $R^2$</th>
<th>Change $R^2$</th>
<th>$F$</th>
<th>d.f.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Hamilton at time 1</td>
<td>.4279</td>
<td>.4279</td>
<td>65.81****(1,88)</td>
<td></td>
</tr>
<tr>
<td>2 Group</td>
<td>.4279</td>
<td>.0000</td>
<td>.01 (2,87)</td>
<td></td>
</tr>
<tr>
<td>3 Life Events Year 1 to 2</td>
<td>.4488</td>
<td>.0209</td>
<td>3.27 (3,86)</td>
<td></td>
</tr>
<tr>
<td>4 Tangible Support 2</td>
<td>.4653</td>
<td>.0164</td>
<td>2.61 (4,85)</td>
<td></td>
</tr>
<tr>
<td>5 Interaction of 2 and 4</td>
<td>.4815</td>
<td>.0162</td>
<td>2.63 (5,84)</td>
<td></td>
</tr>
</tbody>
</table>

Multiple Regression 2: Beck score at year 2 is dependent.

<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>Cum $R^2$</th>
<th>Change $R^2$</th>
<th>$F$</th>
<th>d.f.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Beck at Year 1</td>
<td>.4634</td>
<td>.4634</td>
<td>61.31*** (1,71)</td>
<td></td>
</tr>
<tr>
<td>2 Group</td>
<td>.4648</td>
<td>.0014</td>
<td>.18 (2,70)</td>
<td></td>
</tr>
<tr>
<td>3 Life Events Year 1 to 2</td>
<td>.4760</td>
<td>.0112</td>
<td>1.47 (3,69)</td>
<td></td>
</tr>
<tr>
<td>4 Tangible Support 2</td>
<td>.4878</td>
<td>.0119</td>
<td>1.57 (4,68)</td>
<td></td>
</tr>
<tr>
<td>5 Interaction of 2 and 4</td>
<td>.4898</td>
<td>.0020</td>
<td>.26 (5,67)</td>
<td></td>
</tr>
</tbody>
</table>

* p<.05  ** p<.01  ***p<.001

MULTIPLE AND LOGISTIC REGRESSIONS:
LIFE EVENTS, SOCIAL SUPPORT, AND
DEPENDENT MEASURES ACCOUNTING FOR
DISTRESS AT TIME 2
### Multiple Regression 3: GAF score at year 2 is dependent variable.

<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>Cum $R^2$</th>
<th>Change $R^2$</th>
<th>$F$</th>
<th>d.f.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 GAF at Year 1</td>
<td>.5175</td>
<td>.5175</td>
<td>96.53***</td>
<td>(1,90)</td>
</tr>
<tr>
<td>2 Group</td>
<td>.5267</td>
<td>.0092</td>
<td>1.72</td>
<td>(2,89)</td>
</tr>
<tr>
<td>3 Life Events Year 1 to 2</td>
<td>.5276</td>
<td>.0009</td>
<td>.17</td>
<td>(3,88)</td>
</tr>
<tr>
<td>4 Tangible Support 2</td>
<td>.5318</td>
<td>.0042</td>
<td>.78</td>
<td>(4,87)</td>
</tr>
<tr>
<td>5 Interaction of 2 and 4</td>
<td>.5444</td>
<td>.0126</td>
<td>2.39</td>
<td>(5,86)</td>
</tr>
</tbody>
</table>

### Logistic Regression: Depressive diagnosis at year 2 is dependent.

<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>Cum $R^2$</th>
<th>Change $R^2$</th>
<th>CHI SQ</th>
<th>d.f.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Diagnosis at Year 1</td>
<td>.216</td>
<td>.216</td>
<td>6.71**</td>
<td>1</td>
</tr>
<tr>
<td>2 Group</td>
<td>.237</td>
<td>.021</td>
<td>2.99</td>
<td>1</td>
</tr>
<tr>
<td>3 Life Events Year 1 to 2</td>
<td>.258</td>
<td>.037</td>
<td>2.85</td>
<td>1</td>
</tr>
<tr>
<td>4 Tangible Support 2</td>
<td>.290</td>
<td>.032</td>
<td>1.75</td>
<td>1</td>
</tr>
<tr>
<td>5 Interaction of 2 and 4</td>
<td>.290</td>
<td>.000</td>
<td>0.00</td>
<td>1</td>
</tr>
</tbody>
</table>

* $p<.05$  ** $p<.01$  *** $p<.001$
variance in any of the analyses. Life events during the year between interviews was the next predictor and was not significantly related in any equation, though the relationship between life events and Hamilton scores approached significance, $F(3,86) = 3.27$, $p<.08$. Tangible support was the next independent variable entered, and it was not a significant predictor of any of the dependent variables. None of the interaction terms were significant.

Monroe et al. (1986) presented a methodology for evaluating results in longitudinal studies assessing the relationship between life events, social support, and depressive symptomatology. Specifically, they suggested that analyses performed on unselected samples that include a significant portion of initially depressed individuals may yield misleading results. They recommended that the sample be split and evaluations be performed on only those subjects initially endorsing relatively few depressed symptoms. Thus, it was decided to divide the sample so that the most symptomatic third of the group, based on Time 1 Hamilton scores, was excluded from a follow up analysis. That is, subjects scoring above five on the Hamilton were excluded from a subsample, and the regression equations including initial levels of the dependent variable were recalculated.
Splitting the sample on Hamilton scores eliminated all but six of the subjects depressed at Time 2. Due to the small number of depressed subjects, iterative functions failed to converge in the logistic regression equations. Thus, only results using continuous dependent measures are reported.

A new pattern of significance emerges when the subsample of initially less depressed subjects are evaluated, reported in Table 8. Again, the dependent variable's level at Time 1 is still a strong predictor of the dependent variable in each equation, but it does not account for the same amount of variance in this initial step. Specifically, the Hamilton at Time 1 accounts for only 7% of the variance at Time 2, while the GAF at Time 1 accounts for only 25% of the variance at Time 2. The Beck at Time 1 now accounts for over 50% of the variance in Time 2 Beck scores, though.

In this set of analyses, as in the last, group membership is not a significant predictor in any equation. In the Hamilton ($F (3,57) = 6.37$, $p < .05$) and Beck equations ($F (3,50) = 6.77$, $p < .05$), though not in the GAF ($F (3,58) = 2.48$), life events between Time 1 and Time 2 were significant predictors of the Time 2 dependent variable. Tangible support is not a predictor of any of the dependent variables in this
## TABLE 8

### Regression 1: Hamilton score at year 2 is dependent variable.

<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>Cum R²</th>
<th>Change R²</th>
<th>F</th>
<th>d.f.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Hamilton at time 1</td>
<td>.0633</td>
<td>.0633</td>
<td>3.99</td>
<td>(1,59)</td>
</tr>
<tr>
<td>2 Group</td>
<td>.0658</td>
<td>.0026</td>
<td>.16</td>
<td>(2,58)</td>
</tr>
<tr>
<td>3 Life Events Year 1 to 2</td>
<td>.1597</td>
<td>.0939</td>
<td>6.37*</td>
<td>(3,57)</td>
</tr>
<tr>
<td>4 Tangible Support 2</td>
<td>.1675</td>
<td>.0078</td>
<td>.52</td>
<td>(4,56)</td>
</tr>
<tr>
<td>5 Interaction of 2 and 4</td>
<td>.2156</td>
<td>.0481</td>
<td>3.37</td>
<td>(5,55)</td>
</tr>
</tbody>
</table>

### Regression 2: Beck score at year 2 is dependent variable.

<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>Cum R²</th>
<th>Change R²</th>
<th>F</th>
<th>d.f.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Beck at Year 1</td>
<td>.5450</td>
<td>.5450</td>
<td>62.28***</td>
<td>(1,52)</td>
</tr>
<tr>
<td>2 Group</td>
<td>.5454</td>
<td>.0004</td>
<td>.04</td>
<td>(2,51)</td>
</tr>
<tr>
<td>3 Life Events Year 1 to 2</td>
<td>.5996</td>
<td>.0542</td>
<td>6.77*</td>
<td>(3,50)</td>
</tr>
<tr>
<td>4 Tangible Support 2</td>
<td>.5998</td>
<td>.0002</td>
<td>.03</td>
<td>(4,49)</td>
</tr>
<tr>
<td>5 Interaction of 2 and 4</td>
<td>.6101</td>
<td>.0103</td>
<td>1.26</td>
<td>(5,48)</td>
</tr>
</tbody>
</table>

### Regression 3: GAF score at year 2 is dependent variable.

<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>Cum R²</th>
<th>Change R²</th>
<th>F</th>
<th>d.f.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 GAF at Year 1</td>
<td>.2543</td>
<td>.2543</td>
<td>20.47***</td>
<td>(1,60)</td>
</tr>
<tr>
<td>2 Group</td>
<td>.2781</td>
<td>.0234</td>
<td>1.94</td>
<td>(2,59)</td>
</tr>
<tr>
<td>3 Life Events Year 1 to 2</td>
<td>.3077</td>
<td>.0296</td>
<td>2.48</td>
<td>(3,58)</td>
</tr>
<tr>
<td>4 Tangible Support 2</td>
<td>.3083</td>
<td>.0006</td>
<td>.83</td>
<td>(4,57)</td>
</tr>
<tr>
<td>5 Interaction of 2 and 4</td>
<td>.3424</td>
<td>.0341</td>
<td>2.90</td>
<td>(5,56)</td>
</tr>
</tbody>
</table>

* p<.05  ** p<.01  ***p<.001

**MULTIPLE REGRESSIONS: LIFE EVENTS AND DEPENDENT MEASURES ACCOUNTING FOR DISTRESS AT TIME 1 WITH INITIALLY LOWER SYMPTOM SUBJECTS**
subsample, all Fs < 1. None of the interactions was significant.

Additional Analyses

Because tangible support and the number of life events differed by age group, the above analyses were repeated with the interactions of tangible support and life events with age included as depression predictors. None of the interactions proved significant, ps > .10. The analyses were also performed substituting the product of tangible support and number of supports named for mean tangible support, but the pattern of statistical significance was exactly the same as that reported above.

Tangible Support as a Buffer of Stress and Strain

Tangible support, as measured by the social support interview's tangible positive support variable, was predicted to buffer the negative caregiving consequences. To further test this hypothesis, an additional analysis was performed. Hierarchical multiple regressions and a logistic regression were performed for the caregiving group only and a quantitative measure of caregiver strain was included in regression equations to predict depression and functioning at Time 2. The regression, then, consisted
of entering the Time 1 level of the dependent variable, the number of life events, caregiver strain, the average tangible support score, and finally the stress by support interaction term to predict HDRS, Beck, GAF and depressive symptomatology at Time 2.

The analyses are detailed in Table 9. The logistic analysis did not converge due to the smaller sample size. All three multiple regressions revealed the same basic results. In each analysis, the level of the dependent variable at Time 1 was a significant predictor of the variable at Time 2. As in the analysis with the entire sample, the Time 1 dependent measure accounted for a large amount of the variance at Time 2, ranging from 29% of the variance of Beck scores at Time 2 to 47% of the GAF scores at Time 2. The predicted interaction of strain and tangible support was significant in only the Hamilton analysis, $F(5,36) = 7.13$, $p < .05$. No other variables proved to be significant predictors.

**Negative Support as a Catalyst for the Effects of Strain**

To test the hypothesis that negative support would have an additive effect with strain, but would not negatively impact the comparison subjects, multiple and logistic regression equations were tested with the dependent variables of depressive symptoms, functioning and depressive syndromes at Time 2. Group membership, negative support at Time 2, and the group by negative
### TABLE 9

**Regression 1:** Hamilton score at year 2 is dependent variable.

<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>Cum R²</th>
<th>Change R²</th>
<th>F</th>
<th>d.f.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Hamilton at Year 1</td>
<td>.4464</td>
<td>.4464</td>
<td>32.26***</td>
<td>(1,40)</td>
</tr>
<tr>
<td>2 Life Events Year 1 to 2</td>
<td>.4475</td>
<td>.0011</td>
<td>.07</td>
<td>(2,39)</td>
</tr>
<tr>
<td>3 Behavior Problems Year 2</td>
<td>.4482</td>
<td>.0008</td>
<td>.05</td>
<td>(3,38)</td>
</tr>
<tr>
<td>4 Tangible Support 2</td>
<td>.4973</td>
<td>.0491</td>
<td>3.61</td>
<td>(4,37)</td>
</tr>
<tr>
<td>5 Interaction of 3 and 4</td>
<td>.5805</td>
<td>.0832</td>
<td>7.13*</td>
<td>(5,36)</td>
</tr>
</tbody>
</table>

**Regression 2:** Beck score at year 2 is dependent variable.

<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>Cum R²</th>
<th>Change R²</th>
<th>F</th>
<th>d.f.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Beck at Year 1</td>
<td>.2884</td>
<td>.2884</td>
<td>9.72**</td>
<td>(1,24)</td>
</tr>
<tr>
<td>2 Life Events Year 1 to 2</td>
<td>.2912</td>
<td>.0028</td>
<td>.09</td>
<td>(2,23)</td>
</tr>
<tr>
<td>3 Behavior Problems Year 2</td>
<td>.2966</td>
<td>.0054</td>
<td>.17</td>
<td>(3,22)</td>
</tr>
<tr>
<td>4 Tangible Support 2</td>
<td>.2967</td>
<td>.0001</td>
<td>.00</td>
<td>(4,21)</td>
</tr>
<tr>
<td>5 Interaction of 3 and 4</td>
<td>.3107</td>
<td>.0140</td>
<td>.41</td>
<td>(5,20)</td>
</tr>
</tbody>
</table>

**Regression 3:** GAF score at year 2 is dependent variable.

<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>Cum R²</th>
<th>Change R²</th>
<th>F</th>
<th>d.f.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Hamilton at time 1</td>
<td>.4710</td>
<td>.4710</td>
<td>36.51***</td>
<td>(1,40)</td>
</tr>
<tr>
<td>2 Life Events Year 1 to 2</td>
<td>.4800</td>
<td>.0090</td>
<td>.69</td>
<td>(2,39)</td>
</tr>
<tr>
<td>3 Behavior Problems Year 2</td>
<td>.4835</td>
<td>.0035</td>
<td>.61</td>
<td>(3,38)</td>
</tr>
<tr>
<td>4 Tangible Support 2</td>
<td>.5150</td>
<td>.0315</td>
<td>2.47</td>
<td>(4,37)</td>
</tr>
<tr>
<td>5 Interaction of 3 and 4</td>
<td>.5331</td>
<td>.0181</td>
<td>1.44</td>
<td>(5,36)</td>
</tr>
</tbody>
</table>

* p<.05  ** p<.01  ***p<.001

**MULTIPLE REGRESSIONS: TANGIBLE SUPPORT AS A PREDICTOR IN THE CAREGIVING GROUP ALONE**
support interaction term were entered hierarchically after the initial level of the dependent variable had been entered.

As in previous analyses, the equations were calculated for the entire sample and for the subgroup that scored lowest on the Hamilton at Time 1, and the results of the analyses on the respective groups are presented in Tables 10 and 11. The logistic regression was performed for the full sample only, again because of a lack of convergence within the subsample. The results for each of the seven regressions produced the same pattern of significance. As in prior analyses, the dependent variable at Time 1 was a significant predictor of the variable at Time 2, with a greater amount of variance being accounted for in those analyses involving the entire sample. Negative support was positively related to greater depression and lower functioning in each equation. Neither group membership nor the membership by negative support interaction was a significant predictor of the dependent variables.

Social Support Quantity as a Predictor of Distress

The number of people spontaneously included as members of the social support system in the social support interview was hypothesized to have a main effect on the dependent variables, but no interaction effect...
<table>
<thead>
<tr>
<th>Regression 1: Hamilton score at year 2 is dependent variable.</th>
<th>Independent Variable</th>
<th>Cum R²</th>
<th>Change R²</th>
<th>F</th>
<th>d.f.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Hamilton at Year 1</td>
<td>.4420</td>
<td>.4420</td>
<td>74.47***</td>
<td>(1,94)</td>
<td></td>
</tr>
<tr>
<td>2. Group Membership</td>
<td>.4422</td>
<td>.0002</td>
<td>.02</td>
<td>(2,93)</td>
<td></td>
</tr>
<tr>
<td>3. Negative Support Year 2</td>
<td>.4914</td>
<td>.0493</td>
<td>8.91**</td>
<td>(3,92)</td>
<td></td>
</tr>
<tr>
<td>4. Support by Group</td>
<td>.4917</td>
<td>.0003</td>
<td>.04</td>
<td>(4,91)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Regression 2: Beck score at year 2 is dependent variable.</th>
<th>Independent Variable</th>
<th>Cum R²</th>
<th>Change R²</th>
<th>F</th>
<th>d.f.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Beck at Year 1</td>
<td>.5105</td>
<td>.5105</td>
<td>81.34***</td>
<td>(1,78)</td>
<td></td>
</tr>
<tr>
<td>2. Group Membership</td>
<td>.5139</td>
<td>.0034</td>
<td>.54</td>
<td>(2,77)</td>
<td></td>
</tr>
<tr>
<td>3. Negative Support Year 2</td>
<td>.5424</td>
<td>.0285</td>
<td>4.74*</td>
<td>(3,76)</td>
<td></td>
</tr>
<tr>
<td>4. Support by Group</td>
<td>.5554</td>
<td>.0130</td>
<td>2.19</td>
<td>(4,75)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Regression 3: GAF score at year 2 is dependent variable.</th>
<th>Independent Variable</th>
<th>Cum R²</th>
<th>Change R²</th>
<th>F</th>
<th>d.f.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. GAF at Year 1</td>
<td>.4933</td>
<td>.4933</td>
<td>94.42***</td>
<td>(1,97)</td>
<td></td>
</tr>
<tr>
<td>2. Group Membership</td>
<td>.5109</td>
<td>.0176</td>
<td>3.46</td>
<td>(2,96)</td>
<td></td>
</tr>
<tr>
<td>3. Negative Support Year 2</td>
<td>.5415</td>
<td>.0306</td>
<td>6.35*</td>
<td>(3,95)</td>
<td></td>
</tr>
<tr>
<td>4. Support by Group</td>
<td>.5463</td>
<td>.0048</td>
<td>.98</td>
<td>(4,94)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Logistic Regression: Depressive Diagnosis Year 2 is dependent.</th>
<th>Independent Variable</th>
<th>Cum R²</th>
<th>Change R²</th>
<th>CHI SQ</th>
<th>d.f.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Diagnosis at Year 1</td>
<td>.211</td>
<td>.211</td>
<td>6.71**</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2. Group Membership</td>
<td>.237</td>
<td>.026</td>
<td>2.99</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>3. Negative Support Year 2</td>
<td>.463</td>
<td>.226</td>
<td>14.65***</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>4. Support by Group</td>
<td>.463</td>
<td>.000</td>
<td>.05</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

* p<.05  ** p<.01  *** p<.001

MULTIPLE REGRESSIONS: NEGATIVE SUPPORT AND STRAIN
TABLE 11

Regression 1: Hamilton score at year 2 is dependent variable.

<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>Cum $R^2$</th>
<th>Change $R^2$</th>
<th>F</th>
<th>d.f.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Hamilton at Year 1</td>
<td>.0725</td>
<td>.0725</td>
<td>4.85*</td>
<td>(1,62)</td>
</tr>
<tr>
<td>2 Group Membership</td>
<td>.0737</td>
<td>.0012</td>
<td>.07</td>
<td>(2,61)</td>
</tr>
<tr>
<td>3 Negative Support Year 2</td>
<td>.1579</td>
<td>.0842</td>
<td>6.00*</td>
<td>(3,60)</td>
</tr>
<tr>
<td>4 Support by Group</td>
<td>.1757</td>
<td>.0178</td>
<td>1.27</td>
<td>(4,59)</td>
</tr>
</tbody>
</table>

Regression 2: Beck score at year 2 is dependent variable.

<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>Cum $R^2$</th>
<th>Change $R^2$</th>
<th>F</th>
<th>d.f.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Beck at Year 1</td>
<td>.5452</td>
<td>.5452</td>
<td>65.92***</td>
<td>(1,55)</td>
</tr>
<tr>
<td>2 Group Membership</td>
<td>.5453</td>
<td>.0001</td>
<td>.02</td>
<td>(2,54)</td>
</tr>
<tr>
<td>3 Negative Support Year 2</td>
<td>.5920</td>
<td>.0467</td>
<td>6.06*</td>
<td>(3,53)</td>
</tr>
<tr>
<td>4 Support by Group</td>
<td>.6032</td>
<td>.0112</td>
<td>1.47</td>
<td>(4,52)</td>
</tr>
</tbody>
</table>

Regression 3: GAF score at year 2 is dependent variable.

<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>Cum $R^2$</th>
<th>Change $R^2$</th>
<th>F</th>
<th>d.f.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 GAF at Year 1</td>
<td>.2581</td>
<td>.2581</td>
<td>21.91***</td>
<td>(1,63)</td>
</tr>
<tr>
<td>2 Group Membership</td>
<td>.2927</td>
<td>.0346</td>
<td>3.03</td>
<td>(2,62)</td>
</tr>
<tr>
<td>3 Negative Support Year 2</td>
<td>.3512</td>
<td>.0585</td>
<td>5.50*</td>
<td>(3,61)</td>
</tr>
<tr>
<td>4 Support by Group</td>
<td>.3798</td>
<td>.0287</td>
<td>2.77</td>
<td>(4,60)</td>
</tr>
</tbody>
</table>

* p<.05  ** p<.01  ***p<.001

MULTIPLE REGRESSIONS: NEGATIVE SUPPORT AMONG INITIALLY LOWER SYMPTOM PARTICIPANTS
was expected. Hierarchical multiple regression equations were tested with depressive symptoms and level of functioning as dependent measures. Group membership was entered first, the number of supports listed at Time 2 second, and the number of supports by group interaction was entered last.

For all three equations the results were similar. In each equation, as in previous equations, prior depression and functioning predicted current depression and level of functioning. Surprisingly, no main effects were statistically significant, all $F$s < 1. No interactions were significant either, all $F$s < 1. There was no significant difference between the number of supports listed by the caregivers ($M = 6.61$, $SD = 2.22$) and the comparison subjects ($M = 7.06$, $SD = 2.12$), $F(1,97) = 1.09$. 
The present study investigated the incidence and course of depression in a middle-aged and elderly, chronically strained population. Hypotheses were formulated based on an previously existing acute onset models of depression and empirical work. Because it was based on acute onset models, it assumed a group of previously asymptomatic individuals. Strain, life events, and levels of social support were measured over a one-year period of time. It was predicted that those with more strain, higher life events, or a smaller support network and those with greater strain but less tangible support or more negative support would become more depressed.

The application of an acute onset model of depression as a chronic strain response to this sample was awkward because the sample was long past the chronic strain onset. But, the use of current and retrospective depressive measures, previously shown to be reliable (Andreasen et al., 1981; Keller et al., 1981; Keller et al., 1983), allowed for testing the hypothesis of an
increased depressive onset as a consequence of chronic strain.

Testing the level of moderating variables such as social support prior to the strain onset would have been a difficult or even impossible task. The author knows of no study measuring social support retrospectively, for instance. Instead of using retrospective measures, the sample was followed prospectively over a one year, mid-strain period. Thus, a "window" on the strain process was achieved. Through this "window" the prospective effects of initial level of depression could be statistically accounted for. The prospective approach was further refined by evaluating the results with the full sample and with an initially less depressed subsample, the latter allowing for a truer test of the depression onset model.

The results of the retrospective and prospective depression onset analyses are discussed below. The implications of the results, shortcomings of the present design and some of the instruments used, and directions for future research are also discussed.

**Chronic Strain**

As a first test of this model, a quasi-experimental design was employed in which current and retrospective measures of syndromal depression were collected.
Caregivers for a demented relative had a greater number of current depressive disorders and more depressive disorders during the entire caregiving period than an individually matched comparison group, though they had fewer episodes of depression prior to caregiving. Current rates of depressive symptomatology as measured by both paper-and-pencil and interview instruments were also higher among the caregivers. The chronic strain of caregiving appears to be related to the first onset of depressive disorders in a middle-aged and elderly population. And, while new disorders are not unexpected in the middle-aged, the elderly are not expected to have a high incidence of new disorders (Holzer et al., 1985).

The rates of depressive disorder in caregivers, 16% at Time 1 and 28% at Time 2, are consistent with the rate of 24% reported by Cohen and Eisdorfer (1988) among caregivers who lived with their patient. The rates are somewhat lower, however, than the rates of 51% reported by Gallagher, Wrabetz et al. (1989) and 40% reported by Coppel et al. (1985). The present study differs from the latter two in the use of more stringent DSM-III-R instead of RDC criteria for the determination of depressive disorder. Additionally, the Gallagher, Wrabetz et al. (1989) sample was selected from a group seeking treatment for caregiving-related stress, while the present sample was more broadly obtained.
Psychosocial Variables Across Time

A within-subjects, longitudinal design provided a second test of the model. Initial levels of depression were used as control variables in analyses evaluating the impact of life events and other variables on both the caregivers and the comparison participants. Scores on the Hamilton were used to differentiate initially non-depressed from depressed participants because it was the continuous measure that is conceptually closest to the syndromal depressive construct (Steer, Beck, Riskind, & Brown, 1987).

Life events. The review of the life events literature suggested that life events account for between 4% and 12% of the variance in depressive symptom endorsement. The initial correlations between life events and symptoms were much higher, with 20% of the variance shared between life events and depressive symptom endorsement. Controlling for the level of depression at Time 1, however, eliminated the incremental utility of life events to predict depressive symptomatology. The shared variance dropped to between 1% and just over 2%, a nonsignificant correlation.

The relationship between life events and symptomatology, the most consistently tested and reported relationship in the stress/disorder literature
(Tausig, 1982), did not hold when the initial level of symptoms was controlled. This was not unprecedented. Monroe et al. (1986) failed to demonstrate such a relationship in a sample that, like the current sample, was initially highly distressed and symptomatic. Following Monroe et al. (1986), the most depressed third of the sample was removed from the present analyses, and it became apparent that life events have an incremental predictive ability on depressive symptomatology in an initially less symptomatic middle-aged and older population.

The initially non-depressed group differed from the initially depressed group in reactivity to life events. This is probably due, in part, to life events being predicted by, rather than predictive of, depressive symptoms (Blaney, 1985), particularly in the more symptomatic subsample. The initially higher than expected correlation between events and symptoms can thus be attributed to a more symptomatic sample than in prior studies. The lower than expected correlation after controlling for initial symptoms in the unselected group is partially the result of the inclusion of more depressed participants, but also raises questions about the size of correlations in studies that do not control for initial levels of depression. The standard reported
relationships may be inflated by reverse causality among partially initially distressed samples.

After selecting initially non-depressed participants, the shared variance of 5% (as measured by the Beck) to 9% (as measured by the Hamilton) is somewhat higher than the 2% reported by Monroe et al. (1986). If the scores were higher for the caregivers than the comparison subjects, support would exist for a background of chronic strain bringing life events into greater relief, as some have predicted (Brown & Harris, 1978). Such an analysis was not performed, however, because the matching of the two groups was compromised by the selection technique necessary to eliminate the initially more symptomatic group, and the resulting subgroups would be too small to rely on results without such matching.

One might be tempted to argue that the failure to report a statistically significant life events/symptom relationship with the unselected, symptom controlled sample was caused by limited remaining variance. But, life events provided incremental utility in the selected sample Beck equation, even though Beck scores at Time 1 were numerically more highly correlated with Time 2 scores in the analysis with the less depressed subsample than they were in the unselected sample analysis.
The Hamilton and Beck differ in method but also in content of depression assessment (Moran & Lambert, 1983; Steer et al., 1987). Thus, the initially less depressed sample would have been substantively different if chosen based on Beck scores. If this had been the case, the ability of Life Events to predict Beck scores would have been expected to be slightly higher because the "nondepressed" population would have more nearly reflected the construct of "nondepressed" as measured. Additionally, the inflation in Beck score correlation between Time 1 and 2 within the subsample was partially attributable to choosing the subsample based on Hamilton scores.

Chronic Strain. Group membership was not a significant predictor of depression or functioning in the unselected sample. This suggests that caregiver's symptoms failed to increase more than those of comparison participant's on any measure during the year. The same was also true for the initially less depressed caregivers. The comparison sample's depressive symptomatology, as measured by the Beck, and the number of depressive disorders increased from Time 1 to Time 2. This was not expected and may reflect an unusually distressed comparison sample.

The symptoms of the chronically strained sample did not appear to indicate a degenerative course from Time 1
to Time 2 only in contrast to the comparison sample. In actual fact, there were six new cases of depression among the caregivers, as well as six new cases in the comparison group. However, the new cases of depression were more severe among the caregivers. Three of the new caregiver's depression cases were major depression, while none of the comparison sample's were. The comparison sample's new cases were all depression NOS except for one case of dysthymia. While the prevalence of major depression has been reported to be as high as 6.4% among 50-64 year-olds (Uhlenhuth et al., 1983), a single year incidence rate of 10% was unexpected. It is remarkable that all of the cases occurred in the 50-64 year-olds and that five of the six cases were among females, so that the highest risk group members, based on demographics, became depressed.

The failure to detect differential rates of depressive onset over the course of the experimental period is probably partially due to the effects of regression to the mean. That there were no depressive disorders among the comparison participants at the first year may indicate that the selection of comparison subjects was somewhat biased toward a sample that was non-depressed. Thus, a higher than usual rate of depressive onset would be expected statistically (Cook & Campbell, 1979).
Three models of caregiver strain across time have been summarized by Haley and Pardo (1989). They suggest that the relationship may be linear, with impairment increasing as a function of time. They call this the "wear and tear" hypothesis, and it is the hypothesis included in the current model. Alternatively, a curvilinear relationship between stages of the disorder and level of strain may exist, with strain being higher in the early and late stages of the dementia and lower during the middle period. Finally, they suggest that the elements of strain that are most distressing may be individually determined.

The present data clearly support the relationship between caregiving and depression; however, the one year window that was provided was not adequate to comprehensively evaluate longitudinal caregiving theories. The present data provided equally ambivalent support for the "wear and tear" model and for the curvilinear model. The present sample was weighted toward later stage dementia caregivers, thus the predicted course in both models would have been degenerative from Time 1 to Time 2. And, as discussed above, distress increased from Time 1 to Time 2 as measured by the Beck and the incidence of syndromal depression. These increases appear unremarkable in that they are no greater than the increases among comparison
subjects. If the comparison subjects experienced non-normative increasing distress during the year, which is a hypothesis consistent with increasing levels of symptomatology and disorder, then degenerative effects may have been masked in the comparison. Thus, some support could be gleaned for both models.

Several studies (Pagel, Becker, & Coppel, 1985, Zarit et al., 1980, Zarit, Gatz, & Zarit, 1982) have reported no relationship between dementia disability and emotional strain. Consistent with these findings, there were no caregiver symptomatology differences based on the limited range of differences in patient functioning.

On an idiographic, qualitative level, there was partial support for the individual differences approach to understanding strain (Haley & Pardo, 1989). Reports in the literature have indicated the onset of incontinent behavior as the breaking point for caregivers and a predictor of institutionalization (Hirschfield, 1978; Sanford, 1975). But many, though by no means all, of the caregivers stated that caring for an incontinent relative was not unduly distressing, and many had continued in-home caregiving long after the onset of incontinence. As one woman put it, "I just wish we didn't have to replace the floor so frequently."

The unraveling of the response course to chronic strain will have to await additional long term studies
because a one-year window relatively late in the strain process does not allow for generalizations across the time spectrum. Some studies have suggested that caregivers may even adapt to the strain of caregiving and that functioning may improve across time (George, 1983; Johnson & Catalano, 1983; Townsend, Noelker, Deimling, & Bass, 1989).

Social support: Tangible support. Tangible support did not interact with group membership to lower reported distress. The predicted relationship was based on a number of premises. The most salient, and the reason the hypothesis was included initially, is that a significant portion of the caregiving strain was predicted to be caused by physical care requirements. That is, driving the patient around town, preparing meals, doing yardwork that the patient was no longer capable of doing, and other stressors of the sort were hypothesized to be a significant element of the strain of caregiving.

Like previous designs (e.g., Paykel, Emm, Fletcher, & Rassaby, 1980), the present experimental design assumed that the participants differed more between-groups than within-groups on the number of physical stressors. Therefore, the tangible support interaction was predicted on a between-groups analysis,
and within-groups differences were ignored. That is, the design assumed the physical stressors were equal for all caregivers but greater than the strain that was equal for all comparison subjects. Of course this was not the case, but it was assumed that, in the aggregate, the violation of this assumption would not change the outcome of the analysis.

The assumption of within-group homogeneity was reconsidered when the interaction did not prove significant. The within group differences in the demented patient's symptomatology, and the different strains present at various stages of the disorder appeared to make an inference of relatively homogenous group functional strain less tenable with a caregiving sample than with, for instance, a group of new mothers. Additionally, the high rates of comparison participant's initial levels of depression and depressive disorder onset raised doubts concerning the appropriateness of the hypothesized lack of physical strains within the comparison group. It was thus decided to test, within the caregiver group, whether tangible strain differences were large enough to demonstrate the hypothesized buffering effect of functional support.

The number of reported behavior problems in the demented patient was chosen as an estimate of physical strain. This measure is not a direct measure of
physical strain, but rather a measure of the severity of one of the contributing constituent elements to physical strain. It was an available, rather than an ideal, independent variable.

There was an interaction between the level of the demented patient's behavioral problems and tangible support. This was only significant in the analysis with the Hamilton as the dependent measure, and not in the Beck or the GAF analyses. As the model predicted, greater strain was less predictive of depressive symptomatology as tangible support increased, in the Hamilton equation. In the GAF analysis, the interaction was in the predicted direction, but not statistically significant. As indicated by its statistical significance in only one of three tests, this result is far from stable.

While speculative, it is possible that the characteristics of the three different scales contributed to the varied pattern of significant interactions. The Hamilton and the Beck scales have been reported to differ in that the former emphasizes the somatic and behavioral symptoms of depression, while the latter emphasizes the subjective, cognitive experience of depression (Moran & Lambert, 1983; Steer et al., 1987). Thus, tangible support may have buffered the caregivers from somatic depression symptoms, while
not preventing depressive cognitions. The GAF, a global measure that includes behavioral, somatic, and subjective benchmarks of functioning, was in a middle ground between the two scales.

There is an intuitive appeal to tangible support buffering somatic rather than cognitive symptoms. The presence of helpful assistance with physically demanding tasks would seem to be a buffer from such symptoms as lack of energy, weight loss, and physical complaints. An analysis of individual symptom clusters would be necessary before determining whether the "depletion syndrome of the elderly" is being buffered (Fogel & Fretwell, 1985), but a much larger sample would be needed to test this hypothesis (Newmann et al., 1990). In any case, this result needs to be replicated before too much is made of it.

A less interesting but possible cause of the differential dependent variable outcome is based on the Hamilton score cut-off criteria for nondepressed subgrouping. A portion of the subsample may have been initially depressed on the Beck, and the influence of tangible support may have been more limited among this "initially Beck-depressed" subgroup. The implication in this case, as above, is that tangible support is symptom cluster specific.
It should be noted that it would have been possible to assess functional support instead of tangible support, and this may have been more appropriate, particularly for the within-subjects analysis. Cohen and Wills (1985) pointed out that the functional support buffering hypothesis was upheld when measures assessed the presence of supportive behaviors specific to germane stressful elements; thus, fathers who changed diapers and bought groceries buffered new mothers from postpartum depression (Paykel et al., 1980). The present study, in contrast, globally assessed tangible support. Participants were asked to rate the tangible support of each member of their network, and a composite score was computed and used as an estimate of tangible support. Tangible support was measured so that a standard social support interview could be administered to both groups. The premise that a global rating was appropriate may have been problematic. A stronger within-group effect may have resulted if questions about support specific to the particular physical strains of caregiving were asked (Cohen & Wills, 1985) and a planned within-group analysis was performed.

Tangible support was assessed for both caregivers and comparison subjects. The meaning of the responses given by participants who had experienced a need for physical aid or assistance may have been very different
from the responses of participants who had not needed such assistance. Intended as a measure of enacted support, participants who had not experienced the need for physical support may have been estimating the available support, and thus the measure may have become a measure of satisfaction with support. When confronted with a need for tangible support, an individual's ratings may have gone down because they learned that the expected support was not available.

The unplanned within-groups analysis was problematic because of sample size. It is likely that the effects across analyses would have been more consistent with a larger sample. This is compounded by the failure to administer the Beck to all study participants. Indeed, the variability in dependent measure outcome may be attributable to differing small sample sizes.

**Social support: Negative support.** The predicted interaction of negative emotional support with chronic strain was not apparent in this population. Instead, there was a main effect for negative emotional support, with both caregivers and comparison subjects endorsing higher levels of depressive symptomatology and lower levels of functioning as levels of negative emotional support increased. This is puzzling because the original Fiore et al. (1983) result had previously been
replicated by the original group (Pagel, Erdly, & Becker, 1987) and in a pilot study in the present lab (Kiecolt-Glaser et al., 1989) and the present sample was composed of similar age, gender, and caregiving status participants. Unlike the tangible support analysis, this was a direct replication of previous research.

As already noted, the comparison group demonstrated a greater number of symptoms as measured by the Beck and more depressive disorders at Time 2 than at Time 1. In the predicted interaction, it was assumed that the comparison group was experiencing low levels of distress, low enough that negative emotional support would not affect functioning. If the comparison participants experienced significant levels of distress, negative support may have had a similar effect on this group, consistent with the experimental hypotheses.

The present results are consistent with prior work in pointing out a direct effect of negative emotional support among the caregivers. The difference is the presence of a similar effect among the comparison participants, an effect not previously observed. The critical hypothetical relationship between negative support and distress in caregivers was upheld.

Negative emotional support is a predictor of future (one year) levels of depression after statistically factoring initial levels of depression. Unlike the
other prospective analyses in the present study, the result was obtained using the unselected sample in order to provide a replication of prior studies. Analyses on the initially symptomatic and non-symptomatic subgroups revealed this to be the result of a particularly strong effect in the non-symptomatic subgroup. The initially depressed subjects depression did not appear to be related to negative support.

Social support: Available support. The predicted main effect of available social support upon depressive symptomatology was not upheld. This is probably due to a less than optimal measure of the availability construct. The present study utilized a measure based on the number of people spontaneously listed as important in the subject's life, with a maximum of ten such people.

A quantitative measure such as this fails to account for the qualitative differences among support network members. Cohen and Wills (1985) emphasized the importance of intimate spouses to maintaining good mental health, particularly for women. As most of the current elderly caregivers are spousal caregivers, their spouses may be effectively missing from their social support networks. The effect of the missing spousal support may have a greater impact than losing a spouse through death because the rest of a person's social
support system may not recognize that the caregiver's spouse is no longer present. On the other hand, there is evidence that two of the primary spousal support roles, especially among the elderly, can be performed by other network members (Seeman & Berkman, 1988). Specifically, a confidant can "substitute" for a spouse by providing emotional support. Similarly, adult children provide greater instrumental support as their parents age.

It was erroneous to assume, as the discussion of negative support highlights, that the presence of important people is synonymous with receipt of helpful social support. Including negatively supportive individuals as important may be an indicator of stress rather than support (Rook, 1985). Additionally, a simple measure of the presence or absence of social support does not account for the reciprocity of the social relationship (Krause et al., 1989).

The predicted main effect would not have been seen in this sample if it is, as some have supposed, a threshold effect differentiating those with some support from those with no support (Berkman & Syme, 1979). All participants included at least two important individuals (and most included five or more), preventing a test of the threshold hypothesis.
Demographic Variables in the Sample

Age and gender were not significant predictors of depressive syndromes or symptomatology in the sample as a whole. While it was expected that gender would not influence syndromal depression among those over 65 (Feinson, 1987), it was though that a significant difference would be observed in participants aged 50-64. The relatively small number of males in this group prevented the observed (and predicted) 2:1 female to male depression ration from being statistically significant. It is interesting to note that depressive symptoms were higher for male than female caregivers while lower for the male than female comparison participants. The onset of depressed mood states in the comparison participants was only among those less than 65 and was predominantly among women. This pattern was consistent with demographic predictions, but was not seen among the caregivers, where the large caregiving strain effects outweighed any age or gender effects.

The older participants reported fewer life events than those aged 50-64. This partially reflects a measurement bias with high occurrence probability events being oversampled in those 50-64, particularly employment related events. The older participants reported more helpful tangible support than did the
middle-aged adults, and this may be due to requesting more support, particularly from adult children.

Education and income were only nominally related to the dependent variables, and the inclusion of education as a predictor did not significantly alter any of the results. This may be due, in part, to limited variability within a relatively well-educated sample. All but one of the caregivers had graduated from high school. Cohort effects may have minimized socioeconomic differences between high school and college graduates (Elder, 1979). In tests assessing between-group differences, of course, matching procedures limit the apparent effect of the demographic variable.

The sample was limited in its racial composition. Marital status was not treated as a demographic variable because its constituent elements were accounted elsewhere, and therefore it was not an element of the matching process. The lack of control for marital status probably worked against the experimental hypothesis of greater distress among the predominantly spousal caregivers, because being single and being widowed are both risk factors for depression (Bloom et al., 1978).

Depression as a Caregiving Response
The chronic strain of caregiving for a demented patient has been consistently linked to an increased incidence of anger and anxiety symptoms (Rabins et al., 1982; Snyder & Keefe, 1985), and a lower sense of well-being (Kinney & Stephens, 1989; Quayhagen & Quayhagen, 1988) as well as depressive symptoms (Fiore et al., 1983; Kahan et al., 1985; Kiecolt-Glaser et al., 1989) and syndromes (Cohen & Eisdorfer, 1988; Coppel et al., 1985; Gallagher, Wrabitz et al., 1989). Depression is the chosen response to this particular chronic strain among the current sample, as demonstrated by the extremely high correlation between GAF and depression measures, something not seen in samples with heterogenous pathological groups (Johnson et al., 1986).

The subjective psychological experience of depression is said by some authors to be characterized by the triad of hopelessness, helplessness, and worthlessness (Beck, Rush, Shaw, & Emery, 1979). The first two exactly describe the current prognosis and treatment options for senile dementia patients. Their neurologists can offer no hope of a cure or permanent improvement, no treatment that can restore their loved one. The course of the disease is always and unalterably degenerative. In the face of this, the caregiver is unable to help ameliorate their loved one's long-term distress, and may begin to feel inadequate.
Thus, the plight of the caregiver can exactly mirror the depressive triad.

Similarly, depression has been posited to be the result of exposure to repeated, uncontrollable situations (Abramson et al., 1978; Seligman, 1975). The caregiving experience described above, especially as it plays itself out across a ten to twelve year period of time, is just such a situation. However, the revised learned helplessness model (Abramson et al., 1978) was not supported among depressed caregivers because they did not perceive their situation to be the result of internal, stable, and global attributions (Cohen & Eis dorfer, 1988).

From a learning perspective, the caregiver receives little reinforcement for his or her efforts both because the patient deteriorates despite such efforts and because the patient becomes less able to express his or her appreciation for the help they receive. The caregiver may begin to give up external activities that proved reinforcing in the past not only because they have limited time, but also because their "thin" schedule of positive reinforcement tends to reduce activity (Lewinsohn, 1974).

Other authors have viewed the major component of depression as being the fundamental emotion of sadness (Izard, 1971; Klerman, 1980). Unlike anxiety, which is
based on fear or an expectation of a future threat, depression is a reaction to a past negatively toned event or experience (Izard, 1971). Clinical depression differs from sadness in the intensity of the affective state, and in the number and type of depressive symptoms present, particularly somatic signs (Klerman, 1980). Again, the continual experience of loss, loneliness, discouragement, and feelings of downheartedness associated with the caregiving experience are consistent with the description of the depressive experience.

The DSM-III-R distinguishes between depressive syndromes and normal grief reactions. Certainly loss is the hallmark of a simple grief reaction. The caregivers were faced on a daily basis with the irreversible loss of cognitive functioning in a loved one. The loss of memorial function is also the loss of shared memories, the loss of the habits and quirks that marked the patient as a special person in the caregiver's life. As the disease progresses, the caregiver can become more and more isolated because a previously intimate person is no longer able to interact with them; they may even feel that they have lost the part of themselves that they defined in relation to the patient. A formulation based on loss is consistent with a psychodynamic understanding of depression as a response to a real or symbolic loss (Freud, 1953/1917), and to empirical work
demonstrating loss to be related to increased depression vulnerability (Brown, Bifulca, & Harris, 1987).

Three things set the caregiving response apart from a pure grief reaction. The first is that caregiving is not a response to a discrete event, the death of a loved one. The second is the time period. The caregivers were consistently depressed; their depression did not resolve within the six month period allotted by the DSM-III-R, or even the much longer periods often seen in bereavement (Hill, Thompson, & Gallagher, 1988). Finally, the caregivers did not, as a group, state their losses as primary concerns. The issues of loss and grieving were rarely mentioned in the interviews with the caregivers. Instead, it was the tangible issues of eating and preparing meals and having the energy to get chores done that were at the core of the difficulties they related.

While depression is by far the most frequent pathological response to caregiving, the pathological response is not the response of the majority of caregivers. One could look at caregiving as a strain that is of moderate strength when compared with the strains of catastrophic events like concentration camp experiences or war or natural disasters such as devastating earthquakes or hurricanes, in which the
normative response (Post-traumatic stress disorder; APA, 1987) is pathology.

It has been argued that depression is a normative response to spousal caregiving and, because it is, the experienced depression is not a pathological response (Becker & Morrisey, 1988). Becker and Morrisey (1988) base this argument on high rates of spousal caregiver depression and the exclusionary criteria of DSM-III-R, specifically the statement "a syndrome... must not be merely an expectable response to a particular event, e.g., the death of a loved one" (APA, 1987, p. xxii, emphasis added). The DSM-III-R caveat seems unnecessary and internally inconsistent because it eliminates some behavioral clusters based on etiology, something the APA committee members elsewhere eschewed. Specifically, they stated that the DSM-III-R is:

... atheoretical with regard to etiology or pathophysiologic process, except with regard to disorders for which this is well established and therefore included in the definition of the disorder. Undoubtedly, over time, some of the disorders of unknown etiology will be found to have specific biological etiologies; others, to have specific psychological causes; and still others to result mainly from an interplay of psychological, social, and biological factors (APA, 1987, p xxiii).

It is this author's contention that syndromes, in current psychiatric nosologies, should be determined by clusters of maladaptive symptoms rather than etiology. By analogy, Becker and Morrisey (1988) would be just as
able to conclude that someone does not have cancer and should not be treated because they were exposed to a known carcinogen as to conclude that psychosocial depressogenic agents cannot produce "true" depression, while this author contends that both conclusions are equally absurd.

**The Initially Depressed Subsample**

The focus of the present analyses has been the nondepressed subsample because the proposed model is an acute onset model. An initially depressed subsample, on the other hand, would lend itself well to tests of stress maintenance models.

The subsample that was most depressed was similar to other initially depressed groups presented in the literature in that they were nonresponsive to life events (Monroe et al., 1986). In so far as the depressed subsample matches previous samples not only in their symptom patterns, but also in their reactivity to life events, it might be predicted that they would act in other ways like other depressed groups.

Some members of this group, having been depressed once, were probably more vulnerable to dysthymia (Akiskal, 1981; Weissman, Kasl, & Klerman, 1976) and may be more vulnerable to "reactive" depression after they have recovered from the depression and after the chronic
strain has passed (Zeiss & Lewinsohn, 1988). This is a pressing question because, as noted in the introduction, older adult's depressive prognosis is poor, especially for recurring or chronic depression (Mann et al., 1981; Post, 1972; Zis & Goodwin, 1979), and half of the current sample was over the age of 65.

If it were determined that depressed caregivers had higher subsequent rates of depression, the mechanism for a greater future depressive predisposition would still be unknown. It could be that a biological diathesis has been psychosocially induced, or an attitudinal or personality alteration may occur in response to a change in symptomatic state. Both personality research and more biologically based tests have suggested that the measurable depressed vs. control group changes subside with the relief of symptoms (Baldessarini, 1983; Hirschfeld et al., 1983). Nevertheless, once a person has become depressed it is much more likely that they will again (e.g., Amenson & Lewinsohn, 1981). Testing whether depressed caregivers were more susceptible to future depressive episodes would be particularly interesting, especially the caregivers in whom there is no prior history of depression.

An additional step in further evaluating the depressed subsample would be to identify the symptom pattern or patterns that the participants endorsed.
Akiskal (1983), for instance, has identified five subgroups within the dysthymic affective disorders. These subgroups have different symptom patterns and are predicted to arise in response to different internal and external factors. It would also be helpful to determine whether the symptom patterns are consistent with older depressed outpatients, whether the symptoms meet the "depletion syndrome of the elderly" (Fogel & Fretwell, 1985), or whether they are similar to younger outpatients on first presentation to a clinic.

In any case, because these "reactive" depressions met criteria for recognized depressive disorders, it is likely that a group of depressed patients presenting to a clinic or epidemiological research program includes members who are responding to chronic strain. Thus, what we know about depression itself is already based to some extent on the evaluation of patients reacting to chronic strains.

Design Issues

The nature of chronic strain in general and progressive dementias in particular places limitations on the type of suitable designs. Quasi-experimental designs are the designs of first choice. Spousal dementia caregiving provides an excellent random assignment equivalent model because, as far as is known,
there are no biological or psychosocial predictors of dementias like Alzheimer's disease (Wells, 1985), and neither selection, via assortative mating, nor exposure to similar environmental hazards is a threat to validity among spousal caregivers. Among adult-child caregivers, the element of choosing to care for a parent compromises the random assignment equivalency (Troll, 1986), however the lack of a known hereditary component reduces biological selection threats to validity.

Progressive dementias have low base rates and slow onset of symptoms, so prospective studies are difficult to implement. In a recent large clinically diagnosed community sample, 3% of participants 65 to 74 years old were reported to be moderately to severely cognitively impaired, while 19% of those 75 to 84 years old and 47% of those over 85 were so impaired (Evans et al., 1989). This is consistent with a broad based review that reported dementias to be present in about 1% of 60 year olds, but nearly 20% of 80 year olds (Bliwise & McCall, 1985). Thus a group with 100 initially asymptomatic 60 year old adults followed for 20 years would yield an experimental group of only 20 patients. Shorter data collection time periods would require samples larger by the proportion of the decrement in time to achieve similar samples, but as the time decreased, the number of caregivers experiencing relatively minor changes in
responsibilities and life disruption would increase. Following samples initially 80 years old would increase the 10-year incidence in new disorders to about 30%, but there would be a corresponding increase spousal mortality (and dementia), leading to greater caregiver attrition.

The present results are dependent on a within-subjects design with an initially less depressed subsample. Use of cross-sectional designs alone would have led an investigator to conclude that life events and functional social support are strong predictors of depression and depressed affect for the entire sample. An inflated picture of the causal depression-stress link could have emerged if the initial correlations were interpreted to represent one way causal links.

Inclusion of the initial level of depression in a longitudinal design helped highlight the stability of the depressive experience across time. But an unselected sample would have led to an underestimate of the depression-stress link because the relationship was masked by the stability of the more depressed subgroup, a group that had by far the most variance in depression scores at both Time 1 and Time 2. Excluding the initially most depressed subsample allowed for a truer test of the depression onset model.
Evaluating initially non-depressed subsamples is new to the caregiving literature. It provides a more accurate tool for evaluating depression onset predictor variables and is applicable to an entire spectrum of statistical techniques and research designs. In multi-year studies, participants could be grouped by depression onset year and a relatively large sample could then be evaluated both nomothetically and idiographically. In the future, criterion based cut-offs may be established so that cross study comparisons can be made. The matching procedures employed in the current study could continue to be used, but the matching could be done after the selection of the less depressed group. It would then be possible to match on level of pathology as well as demographic characteristics.

Use of multimethod dependent measures has long been recommended in the behavioral sciences (Campbell & Fiske, 1959), and in psychotherapy change research (Strupp & Hadley, 1977). The number of dependent variable clusters was reduced by the high intercorrelation of the GAF with the Beck and Hamilton measures of depression. This high intercorrelation is probably due to three major factors: the sample's homogeneity of symptomatology, the breadth of the
Hamilton, and the method variance shared between the Hamilton and GAF.

The largest part of the high dependent variable intercorrelation is probably due to the homogeneity of symptomatology among the caregivers. That is, the high rates of depression along with low rates of any other disorder increase the magnitude of the correlation. Because they share method variance and non-depressive symptom assessment, the GAF and Hamilton are more highly intercorrelated than either is with the Beck (Anastasi, 1988). The similarity in results across the three measures provided convergent validity for the study hypotheses. When divergent results were reported in the functional support analysis, scale properties were cited as a possible explanation, though using one scale to select subsample members was also a possibility. It is hoped that symptom scales that provide divergent validity, as the BSI was intended to, can be used in future studies.

Reactive threats to external validity are present in this design. It is possible that identifying the caregivers as such and suggesting that they participate in research about the effects of caregiving on emotional well-being may have caused them to be more attentive to negative affective states. Additionally, in many of the interviews, caregivers suggested that this was the first
time they had taken stock of the changes that have occurred in their lives as a result of caregiving. As more than one end-stage caregiver responded in our interviews, "I simply didn't know how much work I was doing until today, when we stopped and talked about it."

Such an appraisal may indicate a potential compromise in the integrity of such a basic defense mechanism as denial.

The effects of the reactive threats would probably have been more evident in inflated endorsement of symptoms on paper and pencil inventories, though it is certainly possible that some participants experiencing subsyndromal depression could exaggerate their symptom severity enough to achieve a diagnosis of major depression. On the other hand, in numerous laboratory experiments, participants interviewed by experts in assessing psychological adjustment have presented themselves as both competent and psychologically healthy (Rosenberg, 1969), perhaps due to wanting to have a favorable personal evaluation (Cook & Campbell, 1979).

Selection was feared to provide a threat to the external validity of the study even though retrospective measures of depression were employed. The caregivers identified themselves as such, and may have been motivated to participate in the hope of helping themselves or others by publicizing the plight of
caregivers. Research from our lab on caregivers (Dura & Kiecolt-Glaser, 1990) and others on survey participants (Bebbington, Hurry, Tennant, Sturt, & Wing, 1981; Romans-Clarkson, Walton, Herbison, & Mullen, 1988) indicates that people who choose to participate in research studies are less distressed than those who refuse to participate.

Selection was not thought to be a major factor among older caregivers because most of them are spousal caregivers. While the burden of caregiving for a parent is often a matter of choice among adult children, spousal caregivers are thought to be more likely to accept the caregiving role (Rabins et al., 1982). Since the majority of adult children caregivers are female (Troll, 1986), a selection factor would be expected to result in a preponderance of female caregivers. The number of women in the sample is greater than in the population, especially in the middle-aged subsample, and this weighting can be attributed to the inclusion of the 17 adult children who were caregivers.

The selection factor among the children of demented patients poses design difficulties for a controlled study. Daughters tend to choose to be caregivers rather than sons (Troll, 1986). Daughters are probably more likely to accept respite care than the older spousal group (Englehardt, Lutzer, & Brubaker, 1987), and to
favor institutionalizing the patient (Whittick, 1989). Choosing a comparison group is more difficult because of personality variables involved in making the choice to care for a parent. Teasing out such differences would be quite difficult, and was not done in the present study.

**Practical Implications.**

This dissertation evaluated the ability of various psychosocial variables to predict the onset of depression. One application of the results is prophylactic. Preventing caregiving and life events among caregivers as a means of preventing depression are the two most salient but least easily achieved changes that are directly suggested by the present results. Practically, such a statement calls for a cure for Alzheimer's Disease and other dementias. Additionally, "optional" life events should be avoided, particularly during times of chronic strain.

The present study evaluated three aspects of social support that were germane to the depression prevention issue: negative support, tangible support, and quantity of available social support. The present negative support results are consistent with a growing literature identifying conflicted relationships as detrimental to the well-being of caregivers (Fiore et al., 1983;
Kiecolt-Glaser et al., 1989). Various means have been suggested to ameliorate negative relationships including interventions designed to help some individuals extricate themselves from enmeshed relationships, to help others improve deficient social skills, or to help others modify their interpretations of interactions with members of their social network (Rook & Pietromonaco, 1987). Better quantification of the negative relationships of caregivers is necessary before specific recommendations can be made, and it may be that individual assessment will be necessary to match an individual's needs with the appropriate intervention.

Tangible support, though not uniformly supported as a buffer against the strains of caregiving, may be particularly helpful in preventing somatic symptoms of depression. If this result is replicated in other studies, it would argue in favor of using respite care and other instrumentally supportive interventions as a means of preventing depressive onset. It should be noted that the present result has no implications for the initially more depressed subsample, and thus respite care may not prove beneficial once a caregiver is depressed. Indeed, depressed caregivers may be more likely to form negative social attachments with a respite caregiver (Coyne, 1976), creating additional
interpersonal strain that may not offset the benefits of functional support.

Amount of support was not indicated as a direct predictor of positive functioning in the present study. Because the failure to reject the null hypothesis can be due to a myriad of causes, many of them elucidated above, there are no practical implications of the lack of a finding.

Limitations and Future Directions.

The present results were obtained from a racially and educationally homogenous group. Generalizing beyond this population should be done with extreme caution.

The sample was also relatively small. Initial matching was done to decrease error variance. The advantages of individual matching were lost in the subsample analyses, however. It was clear from the failure of dichotomous dependent variable analyses to converge that the sample size was too small. The use of a 66 person sample for regression equations, while common, is less than optimal (Cohen & Cohen, 1983). A larger sample size would also allow for more sophisticated testing of model hypotheses, including factor analytic and structural modeling techniques.

Structure modeling techniques also would have provided alternative means to evaluate interaction
effects. Because the interaction effects were evaluated with multiple regression and used a multiplicative term, the resultant error term was correlated with the error in each of the original variables. Thus, the resulting interaction term may have been biased and inconsistent (Krause, 1989).

Further compounding the difficulty of small sample size was the failure to administer the Beck to all participants. This increased error variance for between variable analyses, reduced the compensatory effect of matching and thus decreased the reliability and validity of the results. Fortunately the Beck results were consistent with the other dependent variables in all but the functional support analysis discussed at length earlier.

Caregivers were included in the study only if they continued to provide care at Time 2. Thus, strain was a constant. What happens when the patient dies? It may be that the combination of strain and depressive affect combines to maintain the stability of the depressive symptoms among this previously relatively asymptomatic group only so long as the strain remains. On the other hand, it may be that the late, acute onset of depression prepares the caregivers for continued cyclic depressions even after the strain has been removed.
The anticipatory grief literature can help provide hypotheses concerning the fate of caregivers after the patient dies. Among younger adults, recovery from the loss of a spouse sometimes occurs more rapidly when death is preceded by a long terminal illness than when it comes unexpectedly; a phenomenon attributed to anticipatory grief, or being aware of the imminence of a loss (Rando, 1988). But, among older adults, anticipatory grieving appears to have no effect (Ball, 1977; Gerber, Rusalem, Hannon, Battin, & Arkin, 1975; Hill et al., 1988) or to have a deleterious physical effects (Schwab, Chalmers, Conroy, Farris, & Markush, 1975) across a period of three months to a year. The difference in effect across age has been attributed to the older adult's deaths being "on time" and their spouses having been, in effect, ready for them to die at any moment anyway (Ball, 1977).

The generally reported lack of an anticipatory grief effect among older adults may be a predictor of recovery among caregivers. For the older adults, who are losing a spouse, but also for the middle-aged adults who are losing a parent, the death is an "on-time" occurrence. The sampled anticipatory grievers were caregivers for someone with a terminal illness, including dementia. That their grieving process followed a path that was similar to other grievers
indicates that the depressed portion of the caregiving population may have recovered, or at least followed a "normal" grieving course. If that proves to be the case, and the caregivers are no longer depressed one year after losing their patient, it would still make sense to follow them after a 5 or 10 year period and to assess depression post-caregiving retrospectively to determine whether their depressive vulnerability has changed.

The cognitive functioning of the caregivers themselves in this sample was not directly measured. Cognitive decline would significantly contribute to the burden of caregiving. The caregiving tasks would become more difficult, and the concern about one's own prognosis could contribute to subjectively experienced depression. Future studies should include a measure of cognitive function among both the caregivers and the comparison group.

Deciding to include subjects in the study using age as a distinguishing characteristic was problematic from two perspectives. First, for the population of caregivers, a more appropriate distinction than age would have been to determine sample inclusion by the caregiver's relationship to the demented patient. Spousal caregivers differ from child caregivers in numerous ways. While age is one factor, selection of
the caregiving role, the type of loss involved, role overload and social expectations are some of the issues germane to such a distinction.

Second, the determination of the sample based on age was not the most appropriate choice. In the first place, the distinction between middle-aged and elderly, as was noted in the introduction, is ultimately arbitrary. There are no biological or innate developmental markers that distinguish the two groups. While social and cultural norms provide an index, the choice of 50 as the age of inclusion created a partially developmentally heterogenous sample. The years between 55 and 65 are transitional ones. To better highlight developmental differences, older adults might be contrasted with adults aged 40-55.

Choosing to include middle-aged adults increased the heterogeneity of the relationship to the caregiver considerably. All four caregivers under 55 were child caregivers, and most of those between 55 and 65 were as well, while those over 65 were predominantly spousal caregivers. Using the type of relationship between the caregiver and the patient would have been a more appropriate means of limiting the sample.

Any measurement of support in a sample that primarily includes spousal caregivers differs significantly from the majority of previous studies
measuring social support in that the spouse is an impaired member of the social support system as mentioned above. Certainly an aggregate measure of tangible support from various sources dilutes the presence or absence of spousal tangible support. Yet the amount of tangible support provided or potentially provided by a spouse is disproportionately large. Thus, though spousal caregiver's aggregate scores are roughly commensurate with comparison participant's, expected and/or past tangible support may not be. Thus, the initial group by tangible support interaction may not have accurately reflected between-group differences.

The problem of accurate assessment of tangible support was more than spousal disparity. Often participants included out-of-town family members or friends in their support networks. The present system of scoring was intended to measure actual support provided, however participants often seemed conscious of the judgments they were making and would qualify their statements by saying things like, "When he is in town..." or worse, "If she were here, I'm sure she would...". The interview protocol did not have a uniform method for insisting that the participants only assess received support, and differences in administrators probably contributed to error variance.
Future studies, for this reason and those cited in the discussion on tangible social support, may include more specifically quantified measures of functional support, asking for the number of hours of help received in the past week from each member of the support system, for instance. Similarly, the amount of physical stressors could be better assessed through specifically questioning time spent at various activities as well as the subjectively experienced stress of each activity. Such continued testing is warranted by the current results, as discussed above.

The present analyses of chronic strain were based on qualitative strain differences determined by whether or not individuals were caregivers. More specific measures of chronic strain elements would allow for better within-group analyses to determine what factors were specific to the prevention of depressive onset in caregivers in particular (Haley & Pardo, 1989). Financial strain was evaluated independently as a demographic variable. It could have been included, along with the measures of specific caregiver strains as well as more general strain measures, in a quantitative analysis of the effects of strain.

The present analyses were based on an acute onset model. It is crucial to generate stress-maintenance models that account for the course of depression and the
(possibly) greater risk of future depression, so that interventions for depressed caregivers can be designed based on appropriate empirically tested models. Caregiving will continue to be a chronic strain for numerous middle-aged and older adults. Despite prophylactic interventions based on the soundest onset models, depression will continue to occur among elderly caregivers for the foreseeable future.

When the focus becomes the depressed portion of the sample, the intervention focus will change from prevention to treatment and remediation. Fortunately, depression is among the most treatable of all psychiatric disorders and a great deal of psychotherapeutic outcome work has already been completed in this area (Hirschfeld & Shea, 1985), though the efficacy of each treatment approach will need to be established with the present population (Beck et al., 1979). Unfortunately, the elderly are particularly reluctant to seek psychiatric treatment (Myers et al., 1984) and general practitioners are unlikely to refer them (Mann et al., 1981; Richter, Barsky, & Happ, 1983).

Chemotherapy, which is best suited to the treatment of endogenous depression (Georgotas, 1985), may not be particularly effective in the treatment of caregivers, perhaps because "reactive" symptom patterns would be prevalent, but especially because of greater potential
for negative side effects among the elderly (Davison, 1978; Salzman, 1985). Initial treatments designed for and tested with caregivers have been group interventions (Haley, Brown, & Levine, 1987; Gallagher, Lovett, & Zeiss, 1989; Toseland & Rossiter, 1989). The few individual interventions for family caregivers have received mixed results (Pinkston, Linsk, & Young, 1988; Toseland & Smith, 1990; Zarit, Anthony, & Boutsalis, 1987), and continued research in this area is badly needed. Continued treatment/outcome research to determine the most appropriate treatment for depressed caregivers should prove fruitful.

A significant question that can be integral to future longitudinal studies is "Who becomes depressed at what point?" It is clear from the present study that new cases of depression arise relatively late in the caregiving process. It is also clear that life events, events that may be independent of caregiving, are related to caregiver's depressive symptoms. The author believes that what the various caregivers bring to the caregiving task in the way of personal dispositions, attitudes, and coping abilities may also contribute to an understanding of depressive onset.

Research using personality variables (Cooley & Keasey, 1981; Coyne & Gottlib, 1983; Funk & Houston, 1987) and coping variables (Foster & Gallagher, 1986)
has often proved disappointing in discriminating depressed from non-depressed individuals. A recent review (Morris, Morris, & Britton, 1988) concluded that preliminary work with coping and other individual difference variables has suggested useful ways of understanding dementia caregivers. The ability to quantify caregiving demand characteristics and the fluctuation in those characteristics over time provide an interesting laboratory for testing individual difference variables.

Individual differences might be included in future research on the depressive effects of chronic strain in ways that are tied to the specific characteristics of the stressor (Haley & Pardo, 1989). Thus, at the beginning of the caregiving period, a problem-focused coping style may prove most beneficial to the caregiver, as he or she mobilizes resources and works to limit the impact of the changed behaviors on the family. As the dementia proceeds and the number of external strain factors increase while the amount of social support decreases, denial may become a more important defense mechanism (Monat & Lazarus, 1985). And, finally, it may be that the caregivers who avoid depression are those who are flexible enough to take different coping approaches at different points in the course of their caregiving.
The course of the patient's dementia will also vary tremendously and should be taken into account (Rabins et al., 1982; Zarit et al., 1980). Caregivers who deal with radically different types of symptoms and rates of dementia progression may face very different sorts of strain that call for different coping strategies, but also for different types of support.

Conclusion.
Various psychosocial predictors of depression were evaluated in the initial literature review. Current depression was hypothesized to be predictable from past depression, chronic strain, life events, and various aspects of social support; though the best predictor of depression was expected to be past levels of depression.

The study hypotheses were tested in a sample of 51 dementia caregivers over age 50, and 51 age, sex, and education matched comparison subjects. Subjects were assessed at one year intervals with a battery of pencil-and-paper and interview instruments. Two types of longitudinal, quasi-experimental designs were used to test the experimental hypotheses. In the first, retrospective and current measures of depressive episodes were used to establish an increased incidence of depression among the caregivers during the caregiving
period. This effect was consistent across age and gender.

In the second set of tests, measures at Time 1 and Time 2 were used in within-subjects regression equations to assess the impact of life events and social support on the strain process. In this case, some depression onset hypotheses were supported only when the initially least depressed subsample was analyzed. This was consistent with acute onset modeling of depression. Life events were predictive of depressive onset, as was negative support, and this result was again independent of age. Surprisingly, negative support was predictive of depressive onset in the comparison sample as well, and this was attributed to a more distressed comparison sample than other was present in other studies reported in the literature. Tangible support appeared to buffer more strained caregivers from somatic depressive symptoms, but this conclusion is in need of replication. Finally, the quantity of social support was not related to distress prevention in a relatively well-supported group.

The theoretical and practical implications of the present study were discussed. Included among those implications was the need to better understand a stress
maintenance model of depression. Design issues, limitations of the current study, and possible future directions were also discussed.
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### Memory and Behavioral Checklist

#### Scoring:

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Reaction</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>never occurred.</td>
</tr>
<tr>
<td>1</td>
<td>Has occurred, but not in past week.</td>
</tr>
<tr>
<td>2</td>
<td>Has occurred 1 or 2 times in past week.</td>
</tr>
<tr>
<td>3</td>
<td>Has occurred 3 to 6 times in past week.</td>
</tr>
<tr>
<td>4</td>
<td>Occurs daily or more often.</td>
</tr>
<tr>
<td>5</td>
<td>Occurred frequently in past, but not in past six months.</td>
</tr>
<tr>
<td>6</td>
<td>Would occur if not supervised by caregiver (eg: wandering)</td>
</tr>
<tr>
<td>7</td>
<td>Patient never performed this activity.</td>
</tr>
</tbody>
</table>

#### Behaviors

<table>
<thead>
<tr>
<th>Behavior</th>
<th>Frequency</th>
<th>Reaction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wandering or getting lost.</td>
<td>0 1 2 3 4 5 7</td>
<td>0 1 2 3 4</td>
</tr>
<tr>
<td>Asking the same question over and over again.</td>
<td>0 1 2 3 4 5 7</td>
<td>0 1 2 3 4</td>
</tr>
<tr>
<td>Hiding things (money, jewelry).</td>
<td>0 1 2 3 4 5 7</td>
<td>0 1 2 3 4</td>
</tr>
<tr>
<td>Being suspicious or accusative.</td>
<td>0 1 2 3 4 5 7</td>
<td>0 1 2 3 4</td>
</tr>
<tr>
<td>Losing or misplacing things.</td>
<td>0 1 2 3 4 5 7</td>
<td>0 1 2 3 4</td>
</tr>
<tr>
<td>Not recognizing familiar people.</td>
<td>0 1 2 3 4 5 7</td>
<td>0 1 2 3 4</td>
</tr>
<tr>
<td>Forgetting what day it is.</td>
<td>0 1 2 3 4 5 7</td>
<td>0 1 2 3 4</td>
</tr>
<tr>
<td>Starting, but not finishing things.</td>
<td>0 1 2 3 4 5 7</td>
<td>0 1 2 3 4</td>
</tr>
<tr>
<td>Destroying property.</td>
<td>0 1 2 3 4 5 7</td>
<td>0 1 2 3 4</td>
</tr>
<tr>
<td>Doing things that embarrass you.</td>
<td>0 1 2 3 4 5 7</td>
<td>0 1 2 3 4</td>
</tr>
<tr>
<td>Waking you up at night.</td>
<td>0 1 2 3 4 5 7</td>
<td>0 1 2 3 4</td>
</tr>
<tr>
<td>Being constantly restless.</td>
<td>0 1 2 3 4 5 7</td>
<td>0 1 2 3 4</td>
</tr>
<tr>
<td>Being constantly talkative.</td>
<td>0 1 2 3 4 5 7</td>
<td>0 1 2 3 4</td>
</tr>
<tr>
<td>Talking little or not at all.</td>
<td>0 1 2 3 4 5 7</td>
<td>0 1 2 3 4</td>
</tr>
<tr>
<td>Enacting in behavior that is potentially dangerous to others or self.</td>
<td>0 1 2 3 4 5 7</td>
<td>0 1 2 3 4</td>
</tr>
<tr>
<td>Reliving situations from the past.</td>
<td>0 1 2 3 4 5 7</td>
<td>0 1 2 3 4</td>
</tr>
<tr>
<td>Seeing or hearing things that are not there (hallucinations/illusions).</td>
<td>0 1 2 3 4 5 7</td>
<td>0 1 2 3 4</td>
</tr>
<tr>
<td>Unable or unwilling to dress self (either partly or totally, or inappropriate dress compared to previous standards).</td>
<td>0 1 2 3 4 5 7</td>
<td>0 1 2 3 4</td>
</tr>
</tbody>
</table>
### MEMORY AND BEHAVIORAL CHECKLIST

<p>| | | | | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>19. Unable or unwilling to feed self.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>7</td>
<td>0</td>
</tr>
<tr>
<td>20. Unable or unwilling to bathe or shower by self.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>7</td>
<td>0</td>
</tr>
<tr>
<td>21. Unable to put on make-up or shave by self.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>7</td>
<td>0</td>
</tr>
<tr>
<td>22. Incontinent of bowel or bladder.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>7</td>
<td>0</td>
</tr>
<tr>
<td>23. Unable to prepare meals.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>7</td>
<td>0</td>
</tr>
<tr>
<td>24. Unable to use the phone.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>7</td>
<td>0</td>
</tr>
<tr>
<td>25. Unable to handle money (e.g., to complete a transaction in a store: do not include being unable to manage finances).</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>7</td>
<td>0</td>
</tr>
<tr>
<td>26. Unable to clean house.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>7</td>
<td>0</td>
</tr>
<tr>
<td>27. Unable to shop (to pick out adequate or appropriate foods).</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>7</td>
<td>0</td>
</tr>
<tr>
<td>28. Unable to do other simple tasks which he/she used to do (e.g., put away groceries, simple repairs).</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>7</td>
<td>0</td>
</tr>
<tr>
<td>29. Unable to stay alone by self.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>7</td>
<td>0</td>
</tr>
<tr>
<td>30. Are there any other problems?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>7</td>
<td>0</td>
</tr>
</tbody>
</table>
PLEASE CIRCLE THE APPROPRIATE NUMBER AT LEFT

GLOBAL DETERIORATION SCALE (GDS) FOR
AGE-ASSOCIATED COGNITIVE DECLINE
AND ALZHEIMER'S DISEASE

<table>
<thead>
<tr>
<th>GDS Stage</th>
<th>Clinical Phase</th>
<th>Clinical Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>No cognitive decline Normal</td>
<td>No subjective complaints of memory deficit. No memory deficit evident on clinical interview.</td>
</tr>
<tr>
<td>2</td>
<td>Forgetfulness Very mild cognitive decline</td>
<td>Subjective complaints of memory deficit, most frequently in following areas: (a) forgetting where one has placed familiar objects, (b) forgetting names one formerly knew well. No objective evidence of memory deficit on clinical interview. No objective deficits in employment or social situations. Appropriate concern with respect to symptomatology.</td>
</tr>
<tr>
<td>3</td>
<td>Early Mild Confusional cognitive decline</td>
<td>Earliest clear-cut deficit. Manifestations in more than one of the following areas: (a) papers may have gotten lost when traveling to an unfamiliar location. (b) coworkers become aware of person's relatively poor performance. (c) word and name finding deficit become evident to intimates. (d) patient may read a passage or a book and retain relatively little material. (e) patient may demonstrate decreased facility in remembering name upon introduction to new people. (f) patient may have lost or misplaced an object of value. (g) concentration deficit may be evident on clinical testing. Objective evidence of memory deficit obtained only with an intensive interview conducted by a trained geriatric psychiatrist. Decreased performance at demanding employment and social settings.</td>
</tr>
<tr>
<td>GDS stage</td>
<td>Clinical phase</td>
<td>Clinical Characteristics</td>
</tr>
<tr>
<td>-----------</td>
<td>----------------</td>
<td>--------------------------</td>
</tr>
<tr>
<td>4</td>
<td>Late Moderate</td>
<td>Denial begins to become manifest in the patient. Mild to moderate anxiety accompanies symptoms.</td>
</tr>
<tr>
<td></td>
<td>Cognit- fusional decline</td>
<td>Clear-cut deficit on careful clinical interview. Deficit manifest in following areas: (a) decreased knowledge of current and recent events. (b) May exhibit some deficit in memory of one's personal history. (c) Concentration deficit exhibited on serial subtractions. (d) Decreased ability to travel, handle finances, etc. Frequently no deficit in following areas: (a) Orientation to time and person. (b) Recognition of familiar personas and faces. (c) Ability to travel to familiar locations. Inability to perform complex tasks. Denial is dominant defense mechanism. Flattening of affect and withdrawal from challenging situations occur.</td>
</tr>
<tr>
<td>5</td>
<td>Early Moderately severe Dementia decline</td>
<td>Patient can no longer survive without some assistance. Patient is unable during interview to recall a major relevant aspect of their current lives, e.g. their address or telephone number of many years, the names of close members of their family (such as grandchildren), the name of the high school or college from which they graduated. Frequently some disorientation to time (date, day of week, season, etc.) or to place. An educated person may have difficulty counting back from 40 by 4s or from 20 by 2s. Persons at this stage retain knowledge of many major facts regarding themselves and others. They invariably know their own</td>
</tr>
<tr>
<td>GDS stage</td>
<td>Clinical phase</td>
<td>Clinical Characteristics</td>
</tr>
<tr>
<td>-----------</td>
<td>---------------</td>
<td>--------------------------</td>
</tr>
<tr>
<td>6</td>
<td>Middle Moderately Dementia</td>
<td>names and generally know their spouses and children's names. They require no assistance with toileting or eating, but may have some difficulty choosing the proper clothing to wear and may occasionally clothe themselves improperly (e.g. put shoes on the wrong feet, etc.). May occasionally forget the name of the spouse upon whom they are entirely dependant for survival. Will be largely unaware of all recent events and experiences in their lives. Retain some knowledge of their past lives but this is very sketchy. Generally unaware of their surroundings, the year, the season, etc. May have difficulty counting from 10, both backwards and sometimes forward. Will require some assistance with activities of daily living, e.g. may become incontinent, will require travel assistance but occasionally will display ability to travel to familiar locations. Diurnal rhythm frequently disturbed. Almost always recall their own name. Frequently continue to be able to distinguish familiar from unfamiliar persons in their environment. Personality and emotional changes occur. These are quite variable and include (a) delusional behavior, e.g. patients may accuse their spouse of being an imposter, may talk to imaginary figures in the environment, or to their own reflection in the mirror. (b) obsessive symptoms, e.g. person may continually repeat simple cleaning activities (c) anxiety symptoms, agitation, and even previously</td>
</tr>
<tr>
<td>GDS stage</td>
<td>Clinical phase</td>
<td>Clinical Characteristics</td>
</tr>
<tr>
<td>-----------</td>
<td>----------------</td>
<td>--------------------------</td>
</tr>
<tr>
<td>7</td>
<td>Late Very Dementia severe cognitive decline</td>
<td>nonexistant violent behavior may occur. (d) cognitive abulia, i.e. loss of will power because an individual cannot carry a thought long enough to determine a purposeful course of action.</td>
</tr>
</tbody>
</table>

All verbal abilities are lost. Frequently there is no speech at all, only grunting. Incontinent of urine, requires assistance toileting and feeding. Lose basic psychomotor skills, e.g., ability to walk. The brain appears to no longer be able to tell the body what to do.

Generalized and cortical neurologic signs and symptoms are frequently present.
LIFE EVENTS II.

Our records indicate that we last talked with you on __________.

Please indicate if any of the following occurred in your life since then:

1. Major change in working hours or conditions
2. Change in responsibilities at work
3. Changing to different line of work
4. Spouse ceasing work outside home
5. Major change in financial state
6. Troubles with the boss
7. Being fired from work
8. Retirement
9. Major personal injury or illness
10. Major change in health or behavior of family member
11. Losing driver's license
12. Change in living conditions or environment
13. Change in residence other than institutionalization
14. Change in social activities
15. Feeling of slowing down
16. Major change in gratifying activities
17. Change in sexual behavior
18. Reaching 65
19. Reaching 70
20. Marriage
21. Marital separation from mate
22. Marital reconciliation with mate
23. Divorce
24. Major argument with children
25. Major argument with spouse
26. Death of close friend
27. Death of close family member
28. Death of Spouse
29. OTHER (please list: ____________________)

Using this key for the next four questions:

0 - Never 1 - Almost Never 2 - Sometimes 3 - Fairly Often 4 - Very Often

_________ In the last month, how often have you felt that you were unable to control the important things in your life?

_________ In the last month, how often have you felt confident about your ability to handle your personal problems?

_________ In the last month, how often have you felt things were going your way?

_________ In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?
Social Support Interview - III

The following set of directions is designed to be used in the administration of the Social Support Interview. It is important that you read from this sheet and fill out the Social Support Data Sheet.

Instructions

"For this set of questions, I need to find out a little more about people in your life with whom you have contact, that is, those people who are important to you, whether or not you like them. I'd like you to tell me the first names of the people who are most important to you and their relationship to you." (Write down the number of the relationship from the relationship card.)

Let them list as many people as they want. Don't encourage them to list more. If they list 10, tell them, "Thanks, that's enough."

If the person whom you're interviewing is a caregiver, ask them if any of the people they have listed are the person for whom they're caring. If indeed one of the people is a person for whom they're caring, be sure to indicate that in the relationship column.

"Next, I'd like you to indicate how often you have interacted with each of these people during the last month. Contact includes in person, over the phone, and through letters. Use this card to rate the frequency of contact." (Show Frequency-use card and read names to them.)

"How, how often did you see each person face-to-face (in person)?

"Next, indicate how close you feel to each of the people using the scale 0-10, with 0 indicating you do not feel at all close to them and 10 meaning you feel extremely close to them."

For the next four columns the Helpfulness rating card and the Upsetting card will be used.

"People can be helpful, and they can be upsetting. For each of the people you listed, I'm going to ask you to rate how often they are helpful with respect to certain kinds of things, and then I'll ask how often they are upsetting."

"Please tell me to what extent each person provides companionship and emotional support, helps you solve problems, and listens to you talk about things that are bothering you." (Show Helpfulness Card.)

"Next, indicate to what extent each person upsets you when you want or need companionship, emotional support, help solving problems, and to talk about things that are bothering you." (Show Upsetting Card.)

"Next, please indicate how helpful each person is when you need to get things done that you may have difficulty doing, such as running errands, taking care of your relative, providing rides, making phone calls, or other similar things." (Show Helpfulness Card.)
"Now, please indicate how much each person upset you when you need to get things done that you may have difficulty doing such as running errands, taking care of your relative, providing rides, making phone calls, or other similar things." (Show upsetting Card.)

"I'd like to know how often you've asked each of these people for some kind of help or support, either emotional support or physical assistance, in the last two or three months. Use the rating guide on the card." (Show Support Request card.)

"Finally, in the column marked 'They've Asked You', I'd like to know how often the people you listed have asked you for some kind of help or support, either emotional support or physical assistance, in the last two or three months. Use the same rating guide."
RELATIONSHIP

0) AD PATIENT
1) PARENT
2) SIBLING
3) CHILD
4) GRANDCHILD
5) FRIEND/NEIGHBOR
6) DOCTOR/PASTOR
7) IN-LAW
8) OTHER RELATION
9) SPOUSE

FREQUENCY

0) NEVER
1) ONCE DURING MONTH
2) 2-3 TIMES DURING MONTH
3) ABOUT WEEKLY
4) SEVERAL TIMES A WEEK
5) ONCE A DAY OR MORE
HELPFULNESS
1) NOT AT ALL HELPFUL
2) A LITTLE HELPFUL
3) SOMEWHAT HELPFUL
4) MODERATELY HELPFUL
5) VERY HELPFUL
6) EXTREMELY HELPFUL

UPSETTING
1) NOT AT ALL UPSETTING
2) A LITTLE UPSETTING
3) SOMEWHAT UPSETTING
4) MODERATELY UPSETTING
5) VERY UPSETTING
6) EXTREMELY UPSETTING
SUPPORT REQUEST

1) NEVER
2) OCCASIONALLY
3) FREQUENTLY
4) CONSTANTLY
PLEASE NOTE

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