Depression in Caregivers of Alzheimer’s Patients: Concurrent Validity of Two Depression Scales

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DEPRESSION IN CAREGIVERS OF ALZHEIMER'S PATIENTS:
CONCURRENT VALIDITY OF TWO DEPRESSION SCALES

A Thesis
Presented to
the Faculty of the Department of Psychology
Western Kentucky University
Bowling Green, Kentucky

In Partial Fulfillment
of the Requirements for the Degree
Master of Arts

by
Joyce Sutton
August 1987
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CONCURRENT VALIDITY OF TWO DEPRESSION SCALES

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# Table of Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACKNOWLEDGEMENTS</td>
<td>iii</td>
</tr>
<tr>
<td>LIST OF TABLES</td>
<td>v</td>
</tr>
<tr>
<td>ABSTRACT</td>
<td>vi</td>
</tr>
<tr>
<td>INTRODUCTION</td>
<td>1</td>
</tr>
<tr>
<td>METHOD</td>
<td>16</td>
</tr>
<tr>
<td>RESULTS</td>
<td>21</td>
</tr>
<tr>
<td>DISCUSSION</td>
<td>32</td>
</tr>
<tr>
<td>APPENDIX A</td>
<td>42</td>
</tr>
<tr>
<td>APPENDIX B</td>
<td>45</td>
</tr>
<tr>
<td>APPENDIX C</td>
<td>47</td>
</tr>
<tr>
<td>APPENDIX D</td>
<td>49</td>
</tr>
<tr>
<td>APPENDIX E</td>
<td>50</td>
</tr>
<tr>
<td>APPENDIX F</td>
<td>51</td>
</tr>
<tr>
<td>REFERENCES</td>
<td>52</td>
</tr>
</tbody>
</table>
List of Tables

<table>
<thead>
<tr>
<th>Table</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Scale Means, Standard Deviations, and Frequency of Depression on BDI and GDS</td>
<td>23</td>
</tr>
<tr>
<td>II</td>
<td>Caregiver Characteristics by Relationship of Caregiver to Patient</td>
<td>25</td>
</tr>
<tr>
<td>III</td>
<td>Stepwise Multiple Regression Analysis Using BDI and GDS as Predictors for Each Other</td>
<td>28</td>
</tr>
<tr>
<td>IV</td>
<td>Stepwise Multiple Regression Analysis With BDI and GDS Removed as Predictors</td>
<td>30</td>
</tr>
</tbody>
</table>
DEPRESSION IN CAREGIVERS OF ALZHEIMER'S PATIENTS:
CONCURRENT VALIDITY OF TWO DEPRESSION SCALES

Joyce Sutton
August, 1987

Directed by: Lois Layne, Sally Kuhlen Schmidt, and Karlene Ball

Department of Psychology Western Kentucky University

Forty-five male and female family caregivers of institutionalized and noninstitutionalized Alzheimer's Disease patients were assessed for depression, using the Beck Depression Inventory (BDI) and Geriatric Depression Scale (GDS). Internal consistency and concurrent validity for the BDI and GDS were acceptable, based on item-total correlation, coefficient alphas, and a Pearson's Product-moment correlation. A stepwise multiple regression analysis was carried out to determine which variables predict depression in Alzheimer's caregivers. Using the traditional cut-off score of 11 for each scale, it was found that 42% were depressed on the BDI, while 58% were depressed on the GDS; these rates were not significantly different. No difference in depression rate was found between male and female caregivers or between spouse and adult daughter caregivers. However, the depression rate for the caregiver sample was significantly higher than that reported for the general population of older adults. The regression analysis showed that only two variables were predictive of depression in this group of Alzheimer's
caregivers. The less frequently the caregiver spent time away from the patient, and the less frequently the caregiver had help in caring for the patient, the more likely the caregiver was to be depressed. It is suggested that social support may be an important factor in the prevention and/or alleviation of depression in family caregivers of patients with Alzheimer's Disease. Future research is suggested, including validation of the BDI and GDS for Alzheimer's caregivers, using a large representative sample.
INTRODUCTION

Alzheimer's Disease is manifested by structural changes in the brain which lead to cognitive, behavioral, and personality deterioration in the victim (Zarit, Orr, & Zarit, 1985). Patients require 24-hour a day care, which is usually provided by family members. As a result, family caregivers of Alzheimer's patients undergo much stress, or burden. Most of the research to date on the effects of caregiving has focussed on caregiver stress (Aronson, Levin, & Lipkowitz, 1984; Chenoweth & Spencer, 1986; Morscheck, 1984; Poulshock & Deimling, 1984; Zarit et al., 1985; Zarit, Reever, & Bach-Peterson, 1980). That depression may be a problem for Alzheimer's caregivers has just recently gained attention in the literature. Very little research has been carried out on depression in Alzheimer's caregivers (Gallagher, Wrabetz, Lovett, DelMaestro, & Rose, in press; Pagel, Becker, & Coppel, 1985). Caregiver depression can result in severe physical and mental difficulties, possibly even suicide. Depression is a serious mental health problem which negatively affects the caregiver and may contribute to abuse of the patient (Ambrogi & London, 1985). The purpose of this study was to investigate the prevalence of depression in Alzheimer's caregivers and the validity of
using two depression instruments with this group.

The number of Alzheimer's patients has greatly increased in recent years. This increase is most likely related to the increase in the elderly population. There has been a concomitant increase in family caregivers, as the majority of impaired elderly are cared for by family members. Because the patient slowly deteriorates mentally and physically, sometimes over a period of 15 to 20 years, the caregiver is locked into a long-term stressful situation.

Caregiving is very stressful for the caregiver. The caregiving situation demands that the caregiver accept total responsibility for the patient's well-being. Due to the patient's limited intellect and reasoning abilities, the caregiver often must supervise and care for the patient around the clock.

The literature reveals several factors which have been found to be associated with higher stress in caregivers. These factors may prove helpful in identifying caregivers at higher risk for depression. Studies have reported that having time away from the patient is important in reducing stress (Poulshock & Deimling, 1984). Zarit et al. (1980) found that the number of visits from significant others was strongly correlated with the degree of stress experienced by caregivers; the more visits from friends and family, the less stress. The amount of help the caregiver
receives in caring for the patient has been found to be related to caregiver burden (Zarit et al., 1985). Some studies (e.g., George & Gwyther, 1986) have indicated that the number of psychotropic medications taken by caregivers is linked to their lack of well-being. Alzheimer's caregivers were at least twice as likely to take psychotropic medications as older adults in the general population. These researchers also found that caregivers who lived with their patients were more likely to be emotionally distressed than were caregivers of institutionalized patients.

The present study is designed to assess the prevalence of depression in a sample of Alzheimer's caregivers in southcentral Kentucky, to obtain data on two measures of depression in this population, and to look at some possible predictors of depression when using these instruments with this group.

Assessment of depression in caregivers of Alzheimer's patients is important for three reasons. Firstly, if depression is a problem, proper intervention could be initiated to help the caregiver return to a normal level of functioning. Secondly, assessment could lead to prevention of a more negative caregiver outcome, such as physical illness or suicide. Thirdly, assessment followed by proper intervention could render caregivers better able to appropriately respond to the patient's needs, perhaps
reducing or eliminating patient abuse.

Studies of depression have used lengthy measures or instruments that have not been validated on caregivers (Gallagher, Rose, Lovett, & Silven, 1986; Pagel et al., 1985). Some of these instruments have been criticized as being too heavily weighted on somatic symptoms (LaRue, Dessonville, & Jarvik, 1985; Yesavage, Brink, Rose, & Adey, 1983). Other criticisms are that some items on these instruments are personal and older caregivers may be reluctant to complete them (Meunier & Beuker, 1986). Some instruments are believed to underestimate the presence of depression in caregivers due to social desirability and development of a response set (Gallagher et al., in press).

Alzheimer's Disease affects older adults, for the most part, and approximately two million elderly now suffer from the disease (Morscheck, 1984). The family members often serve as primary caregivers. The elderly population has increased dramatically in the last quarter-century (Butler, 1985), and the trend is expected to continue. The probability of having Alzheimer's Disease increases with age (Wells, 1985). The progressive mental and physical deterioration caused by Alzheimer's Disease results in the patient's loss of memory and reasoning abilities, the inability to feed, bathe, and dress him/herself, the inability to carry on conversation with others, and often
the loss of bladder and bowel control.

Victims of Alzheimer's Disease, therefore, need around-the-clock care. Family members provide about 80% of this care to disabled elderly living in the community (Ory et al., 1985). Eighty-five percent of the time, the caregiver is female--most often a wife or adult daughter (Sommers, 1985). Husbands are more likely than female caregivers to hire outside help (Zarit et al., 1985).

Caring for an Alzheimer's patient is a tremendous challenge to the caregiver. In addition to providing physical care, caregivers bear heavy financial, social, and emotional costs. Once a diagnosis of Alzheimer's Disease is made, Medicare and other insurances usually discontinue reimbursement (Ory et al., 1985). The brunt of financial costs often is incurred by the family. The lives of caregivers and their families are often disrupted as a result of caring for impaired elderly relatives. A national survey of caregivers of elderly persons with various disabilities (Stone, Cafferata, & Sangl, 1986) showed that caregivers often quit work to become caregivers; this is true more often for females than for males. It was also found that caregivers spend several hours each day performing caregiving tasks, leaving little time or energy for themselves, other family responsibilities, or a social life. Thus, Alzheimer's caregivers often have to make many life
changes in order to fulfill the demands of the caregiving role. These life changes (i.e., personal, social, economic, and occupational) have been found to be accompanied by stress (Chiriboga, 1984; Holmes & Rahe, 1967; Paykel et al., 1969).

Numerous researchers have tried to understand what factors influence caregiver stress. In their 1984 study on families caring for impaired elderly in the home, Poulshock and Deimling found that caregiver stress is linked to changes in objective conditions (i.e., family relationships and impact on caregiver activities) within the family. Some studies have indicated that the number of caregiver tasks and the severity of the patient's impairment are stressful (Benedict, Lovett, & Gallagher, 1986; Fitting, Rabins, Lucas, & Eastham, 1986). A major source of strain occurs when there is a lack of social support (i.e., physical and emotional help) for the caregiver. Zarit et al. (1980) concluded that the number of visits from significant others was strongly correlated with the degree of burden, or stress, experienced by the caregiver. In contrast to Benedict et al. and Fitting et al., these authors determined that the actual tasks of caregiving are not predictive of stress. Rather, the caregiver's interpretation of these tasks determines whether caregiving is stressful. This assumption would follow from the analysis of the stress system presented by
Wilder and Plutchik (1985) in which they state that a psychosocial event results in stress only after a cognitive evaluation of the event and an emotional response is made, leading to an attempt to cope with that event. If the coping response is inadequate, the event becomes a stressor. If the stressor is chronic, there is risk for the development of diseases of adaptation (e.g., hypertension, ulcers), psychosomatic illnesses, or emotional disorders (Selye, 1976). In looking at the chronicity of Alzheimer's Disease, it is readily apparent that this group of caregivers may be especially vulnerable to physical illness and/or negative emotional outcomes, such as depression.

Depression is defined as "an emotional state marked by great sadness and apprehension, feelings of worthlessness and guilt, withdrawal from others, loss of sleep, appetite, and sexual desire, or interest and pleasure in usual activities, and either lethargy or agitation" (Davison & Neale, 1986). A serious psychiatric problem, depression can culminate in impairment in concentration and memory, psychomotor retardation, social withdrawal, and even suicide (American Psychiatric Association, 1987). According to survey research, depression affects approximately 17 to 24% of the older population (Gatz, Hurwicz, & Weicker, 1986). Using a nonprobability sample selected from the membership of a metropolitan health maintenance organization, Gatz
et al. evaluated persons aged 55 to 98 (N = 494) for depression. The Center for Epidemiologic Studies-Depression (CES-D) Scale developed by the National Institute of Mental Health (Radloff, 1977) was used in their assessment.

Based on cognitive, behavioral, and learning theories, depression occurs when reinforcers for behavior are reduced or absent (Lewinsohn & Libet, 1972) or when an individual is unable to effect changes in the environment (Abramson, Seligman, & Teasdale, 1978). These theories are highly applicable to caregivers of Alzheimer's patients. As the disease advances, the patient loses the ability to communicate and cannot give reinforcing feedback to the caregiver (Zarit, 1980). Most patients eventually are unable to recognize their caregiver, and some patients become violent toward the caregiver; this results in lack of reinforcers.

Abramson et al. (1978) propose that people learn to be helpless when they realize they have little or no control over an event. Since Alzheimer's Disease is progressive and terminal, caregivers are aware that they have no control over the fate of their loved ones. Thus, these theories would predict that caregivers of Alzheimer's patients are at high risk for depression.

Caregivers are at an additional disadvantage regarding susceptibility to depression because most of them are female
and older. Most research shows that females are twice as likely as males to suffer from depression (Davison & Neale, 1986) until they reach old-old age (i.e., 80), when depression occurs about equally often for females and males. Typically, caregivers are older and are simultaneously dealing with the caregiving situation and losses which may accompany growing older, such as loss of significant others, loss of employment, loss of social contacts, and often a decrease in physical health.

That depression may be a problem for caregivers of patients with Alzheimer's Disease only recently gained attention in the research literature. Much of the literature has emanated from clinical observations, interview data, and case studies. In looking at problems faced by 15 Alzheimer's caregivers attending a support group program, Barnes, Raskind, Scott, and Murphy (1981) observed that feelings of depression were described by most caregivers. Interviews with 55 caregivers of demented patients, most of whom had Alzheimer's Disease, revealed that 87% of the caregivers felt angry, fatigued, and depressed most of the time (Rabins, Mace, & Lucas, 1982). Goldman and Luchins (1984) described three case studies of ensuing depression in Alzheimer's caregivers. Based on years of clinical work with mentally impaired patients, Lezak (1978) believed that virtually all caregivers suffer from depression and that the social
isolation often accompanying caregiving is a contributing factor in its development. There are problems inherent in these reports, namely that depression was not objectively and quantitatively measured but was assessed subjectively by the authors and, therefore, cannot be generalized to the population of Alzheimer's caregivers.

Scientific research on depression in caregivers of patients with Alzheimer's Disease is limited, but some studies have been conducted using quantitative instruments. Gallagher et al. (1986) administered the Beck Depression Inventory (BDI; Beck, Ward, Mendelson, Mock, & Erbaugh, 1961) to 115 family caregivers of frail elderly with various impairments. Clinical depression was identified in 52% of the sample. Strong and positive correlations were found between depression and subjective burden (i.e., perceived stress, total upsetting tasks, and patient problem behaviors) reported by caregivers.

Further evidence of depression in caregivers of victims of Alzheimer's Disease was collected by Pagel et al. (1985). They administered the BDI and the Hamilton Depression Rating Scale (HDRS; Hamilton, 1960) to 68 spouse caregivers of institutionalized and noninstitutionalized patients, using the Research Diagnostic Criteria (RDC; Spitzer, Endicott, & Robins, 1978) for scoring the HDRS. At follow-up 10 months later, only 38 of the original caregivers participated.
Initial and follow-up scores were essentially the same: 40% were currently depressed, 40% had been depressed, and only 20% had never been depressed. They found no difference in the rate of depression for caregivers living with patients and those not living with patients. In addition, these researchers determined that perceived loss of control was significantly correlated with caregiver depression and predicted depression at the time of follow-up. This finding is supportive of the applicability of the reformulated learned helplessness theory of depression to caregivers of patients with Alzheimer's Disease.

Additional data regarding caregivers were provided by George and Gwyther (1986). They investigated caregiver well-being on four dimensions, one of which was mental health. A checklist of psychiatric symptoms, a measure of affect balance, and absence versus presence of psychotropic drug use in the past six months were used to assess mental health. Their sample consisted of 510 North Carolina caregivers of institutionalized and noninstitutionalized demented adults. Results were compared with norms for random community samples. Findings indicated that affect balance was significantly lower (i.e., affect was significantly more negative) for caregivers than for the general population of older adults, and a greater proportion of caregivers resorted to using psychotropic drugs than did
the general population. The authors also found that caregivers providing in-home care to patients with Alzheimer's Disease were more likely to be emotionally distressed and to perceive a need for outside assistance than were caregivers of institutionalized patients.

Very recently, Gallagher et al. (in press) found that 54% of their sample of 52 Alzheimer's caregivers were depressed when evaluated with the Schedule for Affective Disorders and Schizophrenia (SADS; Endicott & Spitzer, 1978). Using 11 as the cut-off score to differentiate depressed from nondepressed caregivers, significantly fewer were identified as depressed on the BDI.

Two instruments frequently used to evaluate depression in older adults, the BDI and the Geriatric Depression Scale (GDS; Brink et al., 1982), will be used in this study. These instruments were chosen because they are relatively less time-consuming than instruments such as the SADS and HDRS. Both the BDI and GDS are well-suited for survey research, since neither requires the presence of an interviewer. Although they have not been validated on Alzheimer's caregivers, both instruments have been found to be reliable and valid measures of depression in the older adult population.

The BDI is a self-report instrument developed to measure depression in adults (Beck et al., 1961). The 21
items cover the major signs and symptoms of depression, such as negative affect, cognition, somatic symptoms, activity level, and interpersonal symptoms. It has been found to be adequately reliable in assessing older adults for depression (Gallagher, Nies, & Thompson, 1982) and has good agreement with diagnoses established using the SADS/RDC approach (Gallagher & Thompson, 1983). However, the BDI has been criticized for its somatic content (Gallagher et al., in press).

The GDS was specifically developed to measure depression in older adults and was validated on persons 55 to 80 years of age. A self-report instrument using simple yes/no responses, it assesses affect, inactivity, withdrawal, distressing thoughts, and negative judgements about the past, present, and future. Convergent validity with other depression instruments has been established (Brink et al., 1982). It takes less time and is thought to be less aversive to older people than the BDI (Meunier & Beuker, 1986). Most caregivers are within the age range of the validation group used for the GDS, suggesting that it may be a useful measure for caregivers as well.

The cited studies suggest that variables such as lack of personal time (Poulshock & Deimling, 1984), lack of social support in the form of visits from significant others and physical help (Zarit et al., 1980), taking psychotropic
drugs and coresiding with the patient (George & Gwyther, 1986) predict stress in caregivers. It is not known whether the same variables are related to depression, but this seems likely. From a common sense perspective, two other variables which appear to be linked to loss of control and lack of reinforcers and, thus, may be related to depression are whether or not the caregiver is employed and the number of caregiving years. These variables will be examined in the present study.

The purposes of this study are to determine the prevalence of depression in caregivers of Alzheimer's patients and to assess the utility and concurrent validity of two depression scales commonly used with older adults, the BDI and GDS, with this group of caregivers. A further purpose of this study is to determine which variables predict depression on these scales with this population.

**Hypotheses**

It is predicted that the BDI and GDS will be internally consistent and positively and significantly correlated, indicating that each instrument probably measures one construct and that both measure a similar construct in these caregivers. It is also predicted that the proportion of depressed Alzheimer's caregivers will be significantly higher than the base rate of 24% reported for older adults in the general population (Gatz et al., 1986). The same
variables are expected to predict depression on both the BDI and GDS.
METHOD

Participants

Participants were selected for this study based on present caregiver status and physician diagnosis of the patient as having Alzheimer's Disease. All participants conveyed to the author that their patients had been diagnosed by one or more physicians, typically neurologists. Participants' names were obtained from past and present leaders of Alzheimer's support groups and from past and present caregivers who knew of others in their community. A total of 117 possible participants were contacted by telephone to verify qualifications for inclusion in the study and to obtain permission to mail the questionnaires to those who met the requirements. After deleting those who were no longer caregivers and those whose patients had not been diagnosed as having Alzheimer's Disease, 52 Caucasian male and female caregivers comprised the sample. Out of the 52 caregivers, five did not respond and two returned uncompleted questionnaires, stating that they changed their minds after seeing the materials. Forty-five caregivers returned completed questionnaires, resulting in an 87% response rate. Forty-three caregivers lived in southcentral Kentucky and two lived in northern Tennessee.
Caregivers' ages ranged from 33 to 84, and their mean age was 59. Fourteen caregivers were male, while 31 were female. Their mean number of caregiving years was 4.7. While 22.2% had at least some college, the typical caregiver (42.2%) had a high school education, 13.3% had some high school, and 22.2% had eight or less years of schooling.

Mean annual caregiver income was between $10,000 and $19,999. Incomes under $5,000 were reported by 11.1%, while 22.2% made $5,000-9,999, 20% made $10,000-14,999, 4.4% reported incomes of $15,000-19,999, 20% had incomes of $20,000-24,999, and 11.1% had incomes of $30,000 and over. Five caregivers failed to report incomes. The modal income was $5,000-9,999.

**Questionnaires**

The instruments used to measure depression in this study were the BDI (see Appendix A) and the GDS (see Appendix B). The BDI is a paper and pencil test with 21 items, each of which consists of four ordered statements relating to a particular symptom of depression. Each statement is scaled from 0 to 3, and item scores are summed to arrive at the total score. The traditional cut-off score of 11 was used to differentiate depressed from nondepressed caregivers (Gallagher & Thompson, 1983). Although its validity with older adults has been questioned due to inclusion of items concerning sex and somatic
symptoms (Meunier & Beuker, 1986), others attest to its concurrence with diagnoses based on the RDC with the elderly (Gallagher & Thompson, 1983). It has been used extensively with both normal and clinical populations of various ages and groups (Rehm, 1985). The BDI's reliability with older adults was found to be adequate in a 1982 study by Gallagher, Nies, and Thompson. Using the RDC as the criterion, the alpha coefficient for depressed older patients and normal elders was .73 and .76, respectively. Split-half reliability estimates have ranged from .53 (Weckowitz, Muir, & Cropley, 1967) to .93 (Beck et al., 1961) in studies with adult patients. A study of older patients and normals revealed a split-half reliability of .84 and a coefficient alpha of .91 when the two groups were combined (Gallagher et al., 1982). Using a normal sample of undergraduates, Miller and Seligman (1973) found a test-retest reliability after three months of .74. The BDI is easy to comprehend and takes about 20 minutes to complete.

The GDS is a paper and pencil test comprised of 30 items with yes/no responses scored 0 or 1 according to direction. The total score is derived by summing negative responses to 10 items and affirmative responses to the remaining 20 items. Scores of 11 and above identified depressed caregivers in this study. Yesavage et al. (1983) found this cut-off produced fewer false positives and
negatives in older adults. Brink et al. (1982) reported item-total correlations of .44 to .61 in their validation study using normal elders and depressed geriatric patients. A correlation of .82 was found with both the Zung Depression Scale (Zung, 1965) and the HDRS. Lesher (1986), in a study of nursing home residents referred for depression, found the item-total median correlation to be .34, the mean inter-item correlation to be .34, and a coefficient alpha of .99. The GDS is easily administered and requires about five minutes to complete.

A demographic data sheet (see Appendix C) constructed by the author allowed collection of demographic data and information about the caregiving situation. The items included on the data sheet were based on research findings in the literature concerning caregiver stress and depression. These items were age and sex of the caregiver and patient, caregiver education, employment, income, psychotropic medications taken by the caregiver in the past three months, relationship to patient, number of years as caregiver, caregiver-patient living arrangement, time away from the patient, help in caring for the patient, and visits to the caregiver by significant others. The Physician's Desk Reference (1985) was used to verify drug classification.

Procedure

Each participant was first contacted by telephone to
determine if she/he was presently caring for an Alzheimer's patient and to obtain permission to include him/her in the study. Materials were mailed to 52 caregivers who met these requirements and agreed to participate in the study. A stamped, self-addressed envelope was enclosed for return mailing. To help eliminate extraneous influence, such as fatigue, counterbalancing was used in the presentation of the BDI and GDS, and participants were instructed to complete the instruments in the order in which they were arranged. These instructions and an explanation of the purpose of the research were included in a letter (see Appendix D) sent to each participant. To encourage a higher response rate, $1 was enclosed in each participant's envelope. Each participant was assured a follow-up letter to explain the results of the study.

In order to conform with ethical guidelines recommended by the American Psychological Association (1985), informed consent was obtained via a written permission form (see Appendix C) signed by participants and returned to the researcher along with the completed instruments. Each participant was assured that her/his name would not be used in the results of this study. One item was inadvertently omitted from the computer print-out of the GDS and was counted as missing data for all participants.
RESULTS

It was predicted that the BDI and GDS would be internally consistent and that the two instruments would be positively and significantly correlated. Support was obtained for both components of this hypothesis. To determine the homogeneity of scale items and their contribution to the internal consistency of these scales for these caregivers, item-total correlations and coefficient alpha were computed for the BDI and for the GDS. These data are displayed in Appendices E and F, respectively. Item-total correlations for the BDI ranged from .18 to .69. The mean item-total correlation for the scale was .44. Coefficient alpha produced an internal consistency reliability of .86 for the total BDI scale. For the GDS, item-total correlations ranged from .14 to .75, and the mean item-total correlation was .52. The alpha coefficient for the total scale was .91. The internal consistency of both the BDI and GDS is supported by these data.

In order to evaluate the concurrent validity of the BDI and GDS with these caregivers, a Pearson's Product-moment correlation procedure (Ghiselli, Campbell, & Zedeck, 1981) was carried out using Student's t as the test for significance. Caregivers' scores on the two instruments
were positively and significantly correlated, having an $r$ of .77, $p < .001$. This result is highly suggestive that the BDI and GDS are measuring the same construct and, therefore, supports the concurrent validity of these scales with this group of caregivers.

The prevalence of depression was assessed via a determination of scale means and standard deviations and a frequency distribution of depression scores obtained on the BDI and GDS. These data are presented in Table 1. Scale means and standard deviations on the BDI and GDS were 11.36 (sd = 8.19) and 12.07 (sd = 8.28), respectively. Fifty percent ($N = 7$) of males and $39\%$ ($n = 12$) of females scored in the depressed range on the BDI, while $64\%$ ($N = 10$) of males and $35\%$ ($N = 17$) of females were depressed on the GDS. The differences between males and females were not significant (BDI: $X^2(1) = 2.44, p > .05$; GDS: $X^2(1) = .72, p > .05$). Forty-two percent of all caregivers scored in the depressive range of 11 or above on the BDI, and $58\%$ scored 11 or above on the GDS and were considered depressed. There was no difference between rates of depression on the two scales ($X^2(1) = .56, p > .05$). It was expected that a significantly higher proportion of Alzheimer’s caregivers would be depressed than the 24% rate (Gatz et al., 1986) reported for older adults in the general population. Although these researchers did not use a national sample,
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<thead>
<tr>
<th>Scale</th>
<th>N</th>
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<th>% Depressed</th>
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</thead>
<tbody>
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<td>8.28</td>
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</tbody>
</table>

\( ^a \) Beck Depression Inventory.

\( ^b \) Geriatric Depression Scale.
their sample was large (N = 494) and should be somewhat representative of the older population. Chi-square tests showed the present rates to be significantly higher than that reported for the general population of older adults. For the BDI, \( X^2(1) = 7.12, p < .005 \). For the GDS, \( X^2(1) = 23.78, p < .0005 \). These findings support the second hypothesis.

Of the 16% who were depressed only on the GDS, four of the

nine were borderline depressed (i.e., scored 9 or 10) on the BDI. One of two caregivers depressed only on the BDI was borderline depressed on the GDS. Overall, 62% (N = 28) of the caregivers were depressed on at least one scale. Of these 28, males comprised 32% and females 68% of the total number. A slightly higher proportion of husband than wife caregivers were depressed, but \( t \) tests (McCall, 1980) indicated the difference was nonsignificant (BDI: \( t(20) = .49, p > .05 \); GDS: \( t(20) = 1.10, p > .05 \)). Mean depression scores obtained by spouses and daughters were not significantly different. For the BDI, \( t(36) = 1.35, p > .05 \), and for the GDS, \( t(36) = .43, p > .05 \). Descriptive data are presented in Table 2.

It was also hypothesized that the same variables would predict scores in the depressive range on both the BDI and GDS. Predictor variables were age and sex of caregiver and patient, caregiver education, employment, income,
### Table 2

**Caregiver Characteristics by Relationship of Caregiver to Patient**

<table>
<thead>
<tr>
<th>Caregiver Relationship to Patient</th>
<th>Caregiver Characteristic</th>
<th>All</th>
<th>Wife</th>
<th>Daughter</th>
<th>Other&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Husband</th>
<th>Son</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female (N = 31; 69%)</td>
<td>N</td>
<td>45</td>
<td>12</td>
<td>16</td>
<td>3</td>
<td>10</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Percent of Sample</td>
<td>100</td>
<td>26.7</td>
<td>35.6</td>
<td>6.7</td>
<td>22.2</td>
<td>8.8</td>
</tr>
<tr>
<td>Male (N = 14; 31%)</td>
<td>Mean Age of Caregiver (SD)</td>
<td>59</td>
<td>68</td>
<td>47</td>
<td>54</td>
<td>73</td>
<td>49</td>
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<tr>
<td></td>
<td></td>
<td>(14.4)</td>
<td>(6.21)</td>
<td>(9.26)</td>
<td>(21.93)</td>
<td>(8.11)</td>
<td>(10.14)</td>
</tr>
<tr>
<td></td>
<td>Mean Age of Patient (SD)</td>
<td>73</td>
<td>73</td>
<td>71</td>
<td>69</td>
<td>69</td>
<td>76</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(6.8)</td>
<td>(5.32)</td>
<td>(18.74)</td>
<td>(7.21)</td>
<td>(9.14)</td>
<td>(2.98)</td>
</tr>
<tr>
<td></td>
<td>Mean Years of Caregiving (SD)</td>
<td>4.7</td>
<td>4.6</td>
<td>4.4</td>
<td>5.7</td>
<td>3.9</td>
<td>4.7</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(2.9)</td>
<td>(2.7)</td>
<td>(4.02)</td>
<td>(4.16)</td>
<td>(1.97)</td>
<td>(2.87)</td>
</tr>
<tr>
<td></td>
<td>Percentage Distribution</td>
<td>Male</td>
<td>31</td>
<td>100.0</td>
<td>12.5</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Female</td>
<td>69</td>
<td>0.0</td>
<td>87.5</td>
<td>100.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>
Table 2 (Continued)

Caregiver Characteristics by Relationship of Caregiver to Patient

<table>
<thead>
<tr>
<th>Caregiver Characteristic</th>
<th>All</th>
<th>Wife</th>
<th>Daughter</th>
<th>Othera</th>
<th>Husband</th>
<th>Son</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Working</td>
<td>49</td>
<td>25.0</td>
<td>81.0</td>
<td>33.0</td>
<td>20.0</td>
<td>75.0</td>
</tr>
<tr>
<td>Coresiding</td>
<td>40</td>
<td>67.0</td>
<td>12.5</td>
<td>33.0</td>
<td>50.0</td>
<td>50.0</td>
</tr>
<tr>
<td>Depressed BDI</td>
<td>42</td>
<td>58.0</td>
<td>19.0</td>
<td>67.0</td>
<td>60.0</td>
<td>25.0</td>
</tr>
<tr>
<td>Mean</td>
<td>11.36</td>
<td>13.7</td>
<td>7.0</td>
<td>12.0</td>
<td>12.0</td>
<td>8.0</td>
</tr>
<tr>
<td>(SD)</td>
<td>(8.19)</td>
<td>(8.6)</td>
<td>(3.6)</td>
<td>(11.0)</td>
<td>(7.3)</td>
<td>(5.4)</td>
</tr>
<tr>
<td>GDS</td>
<td>58</td>
<td>67.0</td>
<td>50.0</td>
<td>33.0</td>
<td>70.0</td>
<td>50.0</td>
</tr>
<tr>
<td>Mean</td>
<td>12.07</td>
<td>15.0</td>
<td>12.0</td>
<td>8.0</td>
<td>11.4</td>
<td>11.5</td>
</tr>
<tr>
<td>(SD)</td>
<td>(8.28)</td>
<td>(8.8)</td>
<td>(12.9)</td>
<td>(8.2)</td>
<td>(8.3)</td>
<td>(9.1)</td>
</tr>
</tbody>
</table>

Note. Daughters cared for 14 mothers, 2 fathers. All sons cared for mothers.
aIncludes 1 daughter-in-law, 1 sister, and 1 niece.
psychotropic medications taken by caregiver in the past three months, relationship to patient, living arrangement, time away from the patient, help in caring for the patient, frequency of visits to caregiver from significant others, number of caregiving years, the BDI, and the GDS. A stepwise multiple regression analysis (Nie, Hull, Jenkins, Steinbrenner, & Bent, 1971) was employed for the purpose of delineating which variables were predictive of a depressive score on the BDI and/or on the GDS for this group of caregivers of Alzheimer's patients. Using the BDI and GDS as predictors for each other, the GDS was the best single predictor of the BDI score, as was the BDI for the GDS, each one evidencing an $R = .77$, $R^2 = .59$, $p < .0003$. These results are presented in Table 3. This indicates that the GDS score accounts for 59% of the variance in BDI scores with these caregivers, as does the BDI for the GDS scores. For the BDI, the step two entry into the equation of help frequency for the caregiver added 12% accuracy to the predictive ability of the GDS, with $R = .84$, $R^2 = .71$, $p < .03$. Thus, GDS score and frequency of help together account for 71% of the variation in BDI scores. The BDI was the only predictor entering the equation for the GDS. No other variables met the .05 level of probability criteria for either scale for entry into the equation.

Since the BDI and GDS were so highly correlated, they
Table 3

**Stepwise Multiple Regression Analysis Using BDI and GDS as Predictors for Each Other (N = 45)**

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Step</th>
<th>Independent Variable Entered</th>
<th>R</th>
<th>R²</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>BDI</td>
<td>1</td>
<td>GDS</td>
<td>.77</td>
<td>.59</td>
<td>.0003</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Help Frequency(^a)</td>
<td>.84</td>
<td>.71</td>
<td>.03</td>
</tr>
<tr>
<td>GDS</td>
<td>1</td>
<td>BDI</td>
<td>.77</td>
<td>.59</td>
<td>.0003</td>
</tr>
</tbody>
</table>

Note. Only coresiding caregivers (N = 19) were assessed for Help Frequency.

\(^a\)Frequency of receiving help in caring for patient.
were removed as predictors for each other in order to assess how well the remaining variables predicted depression scores on the BDI and GDS. Under these constraints, support was obtained for the hypothesis that the same variables would predict depression on both scales. For the BDI, time away from the patient predicted, or accounted for, 36% of the variation in total scores, $R = .60$, $p < .01$. The same variable accounted for 29% of the total score variations on the GDS, $R = .54$, $p < .02$. These data are shown in Table 4. No other variables met the .05 probability criteria for entry into the equations. Because the frequency of spending time away from the patient was not applicable to non-coresiding caregivers, this regression was assessed only for coresiding caregivers ($N = 19$).

In addition to testing the above hypotheses, a Pearson's correlation revealed significant relationships between depression on the BDI and age of caregiver ($r = .33$, $p < .05$) and number of psychotropic medications taken by the caregiver in the past three months ($r = .31$, $p < .05$).

Because it has been suggested that the GDS may be easier than the BDI for older adults to complete (Meunier & Beuker, 1986), one question concerning the ease with which caregivers completed the two instruments was added to the data questionnaire. Seventy-seven percent said that there was no difference in the ease with which they completed the
Table 4
Stepwise Multiple Regression Analysis With BDI and GDS
Removed as Predictors for Each Other (N = 45)

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Step</th>
<th>Independent Variable Entered</th>
<th>R</th>
<th>R²</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>BDI</td>
<td>1</td>
<td>Time Away&lt;sup&gt;a&lt;/sup&gt;</td>
<td>.60</td>
<td>.36</td>
<td>.01</td>
</tr>
<tr>
<td>GDS</td>
<td>1</td>
<td>Time Away&lt;sup&gt;a&lt;/sup&gt;</td>
<td>.54</td>
<td>.29</td>
<td>.02</td>
</tr>
</tbody>
</table>

Note. Time Away assessed only for coresiding caregivers (N = 19).
<sup>a</sup>Frequency of spending at least one hour away from the patient.
instruments. Of those who had a preference, four more chose the GDS over the BDI.
DISCUSSION

Although the BDI and GDS have been found to have excellent reliability and validity with older adults (Brink et al., 1982; Gallagher et al., 1986), no study was found in which the internal consistency reliability and concurrent validity of these scales were determined for caregivers of Alzheimer's patients. The present findings indicate that these scales are probably measuring one construct in these caregivers; caregivers generally responded in a similar manner to individual items on the scales. The item-total correlations were acceptable, and high alpha coefficients were produced for both scales.

The utility of the BDI and GDS with Alzheimer's caregivers appears to be satisfactory. A strong and significant positive correlation between the BDI and GDS suggests that they are to a large extent measuring a similar construct in this group of caregivers. A perfect correlation would not be desired, as this would indicate that the two instruments measure the same construct in exactly the same way in these caregivers. Having two perfectly correlated instruments which assess depression in Alzheimer's caregivers would perhaps diminish or negate the usefulness of one of them. It should be noted that, since a criterion measure,
such as the RDC, was not used in this study, these results cannot determine which, if either, instrument is a more accurate measure of depression.

Depression among caregivers of Alzheimer's patients appears to be high. Mean scores on the BDI and GDS were above the cut-off score of 11 used to identify depressed caregivers. The proportion of caregivers found to be depressed on the BDI and on the GDS is significantly higher than the reported rate of 24% (Gatz et al., 1986) for older adults in general. The high rate of depression found in the present study is comparable to rates of depression found in other studies of Alzheimer's caregivers (Gallagher et al., 1986; Gallagher et al., in press). Thus, depression seems to be a serious problem for Alzheimer's caregivers.

When caregivers were separated into groups by their relationship to the patient, the differences in depression were not significant. Based on these findings, it appears that depression occurs about equally often in male and female caregivers, regardless of their relationship to the patient.

Knowing which variables predict depression may help identify caregivers at high risk for physical illness, other mental difficulties, and abuse of the patient. To determine which variables were predictive of depression, a stepwise multiple regression analysis was carried out. The
initial regression analysis, which included the BDI and GDS as predictors for each other, resulted in the BDI being the strongest and only predictor of GDS score. The GDS score and help frequency were predictive of a depressive score on the BDI. After removal of the highly correlated scales as predictors for each other, a single variable, time away from the patient, was the sole predictor of depression on both the BDI and GDS. The significant intercorrelation between time away and help frequency probably explains why help frequency did not enter the regression equation. Caregivers who spent less time away from the patient and caregivers who received help less often were more likely to score in the depressed range on the BDI. Caregivers who spent less time away from the patient were also more likely to score in the depressed range on the GDS.

Several variables found in past research to predict stress in Alzheimer's caregivers seem promising as predictors of depression in this population. These variables include lack of personal time, lack of visits from family and friends, lack of help in caring for the patient, taking psychotropic drugs, and coresiding with the patient. Only two of these variables—time away from the patient and help in caring for the patient—were predictive of depression in the present group of caregivers. It appears that only some variables which predict stress also predict
depression in Alzheimer's caregivers. Considering the small sample (N = 19) on which these two variables were assessed, these findings need to be duplicated in future studies using larger samples.

Both cognitive and behavioral theories of depression are applicable to caregivers of Alzheimer's patients. Two theories useful in conceptualizing depression in caregivers of Alzheimer's patients are learned helplessness (Abramson et al., 1978) and positive reinforcement (Lewinsohn & Libet, 1972). While both would predict depression, each theory emphasizes different aspects of caregiver experience.

Based on learned helplessness theory, the perception of lacking control results in feelings of helplessness and hopelessness when caregivers realize they cannot change the situation. Caregivers are cognizant that they have little or no control over their lives or the outcome of their patients. According to positive reinforcement theory, Alzheimer's caregivers may experience very few pleasant events and, therefore, lack positive reinforcement for their behavior. The 24-hour a day responsibility of caregiving results in social isolation for caregivers. Psychological symptoms, such as depression, may develop when caregivers do not have enough personal time, social interaction, and help in caring for the patient. The present results appear to support the assumptions of both these theories.
The correlations produced by the multiple regression analysis showed that older caregivers were significantly more likely to score in the depressed range on the BDI than were younger caregivers. This relationship was somewhat surprising since about half the sample was over 65; this restriction in range would be expected to lower the correlation between the two variables. In spite of the fact that only five caregivers took psychotropic drugs, there was a weak relationship between the number of drugs taken and depression scores obtained on the BDI; caregivers who took more drugs were more likely to score in the depressed range. It is not clear why age and drugs were related to the scores obtained on the BDI but not to GDS scores. This may be a topic of interest for future research.

Finally, the ease with which these caregivers completed the instruments was evaluated. In their determination of the concurrent validity of these two instruments with a nursing home population, Meunier and Beuker (1986) stated that in their observations the GDS appeared less threatening and thus easier for older adults to complete. They contend that the BDI may be more problematic due to inclusion of somewhat personal items. In the present study, each caregiver was asked which instrument, if either, was easier to complete. The majority reported no difference in the ease with which they completed the BDI and GDS; those with a
preference chose the BDI and GDS about equally often.

In summary, the key findings of this study for the most part supported the hypotheses. The BDI and GDS were internally reliable and concurrently valid, which supports their appropriateness for use with Alzheimer's caregivers. There was no significant difference in rates of caregiver depression on these scales, suggesting that they probably are equally satisfactory for use with this group. There was no difference between rates of depression reported by other studies of Alzheimer's caregivers and those found in the present study using the BDI and GDS, which supports the utility of both the BDI and GDS with this population. A significantly higher rate of depression was found for Alzheimer's caregivers than has been reported for the general population of older adults.

Using a stepwise multiple regression analysis, only two variables were found to predict depression in this group of Alzheimer's caregivers. Under the constraints of removing the BDI and GDS as predictors for each other, the same variable, time away, was predictive of depression scores on both scales for coresiding caregivers. Help frequency predicted depression on the BDI in this group. It appears that social support is extremely important in alleviating or preventing depression in Alzheimer's caregivers who coreside with their patients.
From a clinical practice perspective, the results of this study suggest that the BDI and GDS may be equally good measures to use with Alzheimer's caregivers. However, both instruments should be validated on a large representative sample from the population of Alzheimer's caregivers, using a criterion measure, such as the RDC. Rather than developing instruments to measure depression only in caregivers, it would be more appropriate to validate existing instruments so that caregivers can be compared to those persons in the general population who are depressed.

The high rate of depression found for this sample of caregivers strongly suggests the importance of assessing all caregivers of Alzheimer's patients for this serious psychiatric disorder. It appears that these caregivers are at great risk for depression. Assessment of this population could result in reducing or alleviating caregiver suffering as well as patient abuse. Unless interventions are carried out to give these caregivers some relief so that they are emotionally healthy enough to continue caring for their patients in the home, there seems to be a good possibility for increased institutionalization of Alzheimer's patients in the future.

Several limitations were observed in this study and should be considered in carrying our future research. In multiple regression analysis, replication of a study is of
utmost importance in verifying the reliability and
generalizability of the findings (Kerlinger & Pedhazur,
1973). Some of the independent variables in this study
were correlated, and this may have influenced the regression
equations by disallowing entry of some of the variables.
Due to the numerous comparisons, there is a possibility
that one or more obtained correlations may have been
spurious (Keppel, 1982). For these reasons, the replication
study should involve the removal of variables which are less
meaningful and consolidation of variables measuring some of
the same things (Kerlinger & Pedhazur).

The ratio of independent variables to the size of the
sample was too large. Sample size should be increased to
allow for a more representative group of caregivers and to
help in preventing restriction in range of individual
differences (Anastasi, 1982). Kerlinger and Pedhazur (1973)
recommend an N of at least 100 when doing a multiple
regression analysis with several independent variables.

The sampling method used in the present study was
highly conducive to a biased sample, since many caregivers
were not considered for inclusion in the sample. Minority
caregivers were not represented, as the entire sample was
white. The sample was geographically restricted to small,
rural communities in southcentral Kentucky. One item on
the GDS concerning concentration was inadvertently omitted
on the computer print-out and was counted as missing data for all caregivers. Only one caregiver's score could have changed from nondepressed to depressed, had this item been included and the caregiver responded affirmatively. The results could have been affected to some degree by omission of this item.

Future research should be directed toward both better assessment and intervention concerning the emotional and psychological costs of caregiving, specifically depression. Longitudinal studies should be done to determine at what point most caregivers become depressed, if depression worsens over time, and at what point placement is most apt to occur. These studies should not be limited to large, metropolitan areas but should also include those caregivers who live in rural communities and may experience the effects of caregiving in a different way. Rural caregivers may feel more isolated and trapped due to fewer services, such as respite care, being offered. A study comparing these two groups would be informative.

Coresiding and non-coresiding caregivers of Alzheimer's patients could be compared on which symptomatology contributes to depression in each group; guilt may be outstanding in depressed non-coresiding caregivers. It would also be of value to know how persistent depression is following placement and what situational phenomena precede
its abatement in Alzheimer's caregivers.

The results of this study suggest that those variables found to predict stress in Alzheimer's caregivers do not necessarily predict depression. There is a paucity of research studies on depression in the caregiver population. It seems that, since the caregiving situation is inherently stressful, more studies should focus on determining how rampant depression is so that support, therapy, medication, etc., can be initiated to relieve caregiver suffering. In addition, future research needs to separate caregivers by type. Results of studies on caregivers of patients with very different types of impairment cannot automatically be generalized to the population of Alzheimer's caregivers.

These kinds of research studies would add greatly needed knowledge about depression in caregivers of patients with Alzheimer's Disease. When more valid information is available in the literature, health professionals will become more aware of the devastating effects of caring for Alzheimer's patients and will prepare themselves to apply both proper assessment and intervention techniques.
APPENDICES
Appendix A

Beck Depression Inventory

On this questionnaire are groups of statements. Please read each group of statements carefully. Then pick out the one statement in each group which best describes the way you have been feeling the PAST WEEK, INCLUDING TODAY! Circle the number beside the statement you picked. If several statements in the group seem to apply equally well, circle each one. Be sure to read all statements in each group before making your choice.

1. 0 I do not feel sad.
   1 I feel sad.
   2 I am sad all the time and I can't snap out of it.
   3 I am so sad or unhappy that I can't stand it.

2. 0 I am not particularly discouraged about the future.
   1 I feel discouraged about the future.
   2 I feel I have nothing to look forward to.
   3 I feel that the future is hopeless and that things cannot improve.

3. 0 I do not feel like a failure.
   1 I feel I have failed more than the average person.
   2 As I look back on my life, all I can see is a lot of failure.
   3 I feel I am a complete failure as a person.

4. 0 I get as much satisfaction out of things as I used to.
   1 I don't enjoy things the way I used to.
   2 I don't get real satisfaction out of anything anymore.
   3 I am dissatisfied or bored with everything.

5. 0 I don't feel particularly guilty.
   1 I feel guilty a good part of the time.
   2 I feel quite guilty a good part of the time.
   3 I feel guilty all of the time.

6. 0 I don't feel I am being punished.
   1 I feel I may be punished.
   2 I expect to be punished.
   3 I feel I am being punished.

7. 0 I don't feel disappointed in myself.
   1 I am disappointed in myself.
   2 I am disgusted with myself.
   3 I hate myself.
8. 0 I don't feel I am any worse than anybody else.
1 I am critical of myself for my weaknesses or mistakes.
2 I blame myself all the time for my faults.
3 I blame myself for everything that happens.

9. 0 I don't have any thoughts of killing myself.
1 I have thoughts of killing myself, but I would not carry them out.
2 I would like to kill myself.
3 I would kill myself if I had the chance.

10. 0 I don't cry any more than usual.
1 I cry more now than I used to.
2 I cry all the time now.
3 I used to be able to cry, but now I can't even though I want to.

11. 0 I am no more irritated now than I ever am.
1 I get annoyed or irritated more easily than I used to.
2 I feel irritated all the time now.
3 I don't get irritated at all be the things that used to irritate me.

12. 0 I have not lost interest in other people.
1 I am less interested in other people than I used to be.
2 I have lost most of my interest in other people.
3 I have lost all of my interest in other people.

13. 0 I make decisions about as well as I ever could.
1 I put off making decisions more than I used to.
2 I have greater difficulty in making decisions than before.
3 I can't make decisions at all anymore.

14. 0 I don't feel I look any worse than I used to.
1 I am worried that I am looking old or unattractive.
2 I feel that there are permanent changes in my appearance that make me look unattractive.
3 I believe that I look ugly.

15. 0 I can work about as well as before.
1 It takes an extra effort to get started at doing something.
2 I have to push myself very hard to do anything.
3 I can't do any work at all.
16. 0 I can sleep as well as usual.
   1 I don't sleep as well as I used to.
   2 I wake up 1-2 hours earlier than usual and find it hard to get back to sleep.
   3 I wake up several hours earlier than I used to and cannot get back to sleep.

17. 0 I don't get more tired than usual.
   1 I get tired more easily than I used to.
   2 I get tired from doing almost anything.
   3 I am too tired to do anything.

18. 0 My appetite is no worse than usual.
   1 My appetite is not as good as it used to be.
   2 My appetite is much worse now.
   3 I have no appetite at all anymore.

19. 0 I haven't lost much weight, if any, lately.
   1 I have lost more than 5 pounds.
   2 I have lost more than 10 pounds.
   3 I have lost more than 15 pounds.

   I am purposely trying to lose weight by eating less. Yes__ No____

20. 0 I am no more worried about my health than usual.
   1 I am worried about physical problems such as aches and pains; or upset stomach; or constipation.
   2 I am very worried about physical problems and it's hard to think of much else.
   3 I am so worried about my physical problems that I cannot think about anything else.

21. 0 I have not noticed any recent change in my interest in sex.
   1 I am less interested in sex than I used to be.
   2 I am much less interested in sex now.
   3 I have lost interest in sex completely.
Appendix B

Geriatric Depression Scale

Circle the best answer for how you felt over the past week.

1. Are you basically satisfied with your life?  Yes/No
2. Have you dropped many of your activities and interests?  Yes/No
3. Do you feel that your life is empty?  Yes/No
4. Do you often get bored?  Yes/No
5. Are you hopeful about the future?  Yes/No
6. Are you bothered by thoughts you can't get out of your head?  Yes/No
7. Are you in good spirits most of the time?  Yes/No
8. Are you afraid that something bad is going to happen to you?  Yes/No
9. Do you feel happy most of the time?  Yes/No
10. Do you often feel helpless?  Yes/No
11. Do you often feel restless and fidgety?  Yes/No
12. Do you prefer to stay at home, rather than going out and doing things?  Yes/No
13. Do you frequently worry about the future?  Yes/No
14. Do you feel you have more problems with memory than most?  Yes/No
15. Do you think it is wonderful to be alive now?  Yes/No
16. Do you often feel downhearted and blue?  Yes/No
17. Do you feel pretty worthless the way you are now?  Yes/No
18. Do you worry a lot about the past?  Yes/No
19. Do you find life very exciting?  Yes/No
20. Is it hard for you to get started on new projects? . . . . . . . . . . . . . . . . . . Yes/No

21. Do you feel full of energy? Yes/No

22. Do you feel that your situation is hopeless? Yes/No

23. Do you think that most people are better off than you are? Yes/No

24. Do you frequently get upset over little things? Yes/No

25. Do you frequently feel like crying? . . . . . . . . . . . . . . . . . . Yes/No

26. Do you have trouble concentrating? Yes/No

27. Do you enjoy getting up in the morning? Yes/No

28. Do you prefer to avoid social gatherings? Yes/No

29. Is it easy for you to make decisions? Yes/No

30. Is your mind as clear as it used to be? Yes/No
Appendix C

Permission Form and Demographic Questionnaire

Permission Form

I agree to take part in this research project. I understand that my name will not be used in the results and that I will be informed about the results after the project is completed.

Signature__________________________

Please circle the correct response or fill in the blanks.

1. Your Age____ Sex - Male Female

2. Your Education: Years of School Completed____

3. Do you now work outside the home? Yes____ No____

4. Your Total Yearly Income: Circle One

   Under $5,000 $5,000-9,999 $10,000-14,999
   $15,000-19,999 $20,000-24,999 $25,000-29,999
   $30,000 and over

5. What medications have you taken in the past three months?

6. Patient's Age____ Sex - Male Female

7. How long have you been taking care of the patient? Years____ Months____

8. Does the patient live with you? Yes____ No____

9. What relationship is the patient to you? Circle One

   Parent Husband Wife Sister Brother
   Friend Parent-in-law Aunt Uncle
   Grandparent Other________________

10. How often do you spend some time (at least one hour) away from the patient?

    Daily 2-3 Times a Week Weekly Every 2 Weeks

    Monthly Other________________
11. How often do you have help in caring for the patient?
   Daily   2-3 Times a Week   Weekly   Every 2 Weeks
   Monthly   Other

12. How often do relatives or friends visit your home?
   Daily   2-3 Times a Week   Weekly   Every 2 Weeks
   Monthly   Other

13. Which questionnaire was easier to complete?
   The one with Yes/No answers.
   The one with 4 answer choices.
   There was no difference.
Appendix D

Letter of Explanation

Dear

I am a graduate student at Western Kentucky University and am interested in examining the relationship between stress and caregiving. If you are willing, I would appreciate your taking about half an hour to complete three (3) questionnaires and return them in the enclosed envelope.

Through research, health professionals and the health care system get a clearer understanding of the caregiver's situation. The goal of this project is to learn whether caring for a person with Alzheimer's Disease is associated with stress in caregivers like yourself. Our ability to achieve this goal depends on your willingness to complete the questionnaires. Your privacy will be protected, as your name will not be used in the results.

I have enclosed $1 as a small demonstration of appreciation in hopes that you will take part in this important research project. You will receive a letter explaining the results after the project is completed.

Please return the completed questionnaires within two weeks. Please fill out the questionnaires in the order in which they are arranged. Thank you for your time and effort in providing this vital information.

Sincerely,

Joyce Sutton
Psychology Graduate Student
Western Kentucky University

Lois Layne, Ph.D.

Sally Kuhlenschmidt, Ph.D.
### Appendix E

#### Item-Total Correlations for MDI

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### Appendix F

**Item-Total Correlations for GDS**

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REFERENCES
References


Beck, A., Ward, C. Mendelson, M., Mock, J., & Erbaugh, J.


