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COPING WITH STRESSORS OF CAREGIVING

A Thesis

Presented to the

School of Social Work

and the

Faculty of the Graduate College

University of Nebraska

In Partial Fulfillment

of the Requirements for the Degree

Master of Social Work

University of Nebraska at Omaha

By

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April 2003

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THESIS ACCEPTANCE

Acceptance for the faculty of the Graduate College,
University of Nebraska, in partial fulfillment of the
requirements for the degree Master of Social Work,
University of Nebraska at Omaha.

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Date May 23, 2003

Acknowledgments

There are a number of people to whom I wish to express my gratitude. I would like to thank the members of my thesis committee, Dr. Jane Woody, Dr. Ann Coyne, and Dr. Karl Kosloski for their encouragement and guidance. I would especially like to thank Dr. Kosloski, who provided me with an incredible opportunity to learn from him during the last two years. I would also like to thank Dr. Rhonda Montgomery for including me on her research team.

Thank you to Joyce Messick, who patiently listened to my many questions and provided support in so many ways. Thank you to my family, William, Arlene, Karen, and Brenda Allwardt, who provided moral support and waited patiently for the storm to subside.

Finally, I would like to express my sincere appreciation to the families who have allowed me to care for their loved ones and welcomed me into their lives: Joe and Joanne, Gigi and Brud, and Tom and Pat. These families revealed to me what it means to care.

COPING WITH STRESSORS OF CAREGIVING

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University of Nebraska at Omaha, 2003

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Individuals who take on the role of caregiving for a family member with Alzheimer's disease face many simultaneous stressors. Effective coping with such stressors has profound implications for caregiver well-being and the ability to provide effective care. The purpose of this study was to evaluate the effect of various coping strategies on caregiver depression, controlling for the effects other factors previously shown to be related to depression. Using data from interviews with 427 caregivers of Alzheimer's patients, items derived from Endler and Parker's Multidimensional Coping Inventory were factor analyzed to confirm the underlying structure. A five-factor structure was found to have the best fit to these data. Avoidance-focused coping was retained from the original factors. In addition, the following factors were derived: self-blame, wishful thinking, planning, and finding meaning. Scores on the CES-D depression scale were then regressed on the 5 coping factors and 23 covariates. Ten of the 23 covariates were significant. Caregivers more likely to be depressed were younger, Caucasian, in poor health, taking psychotropic medications, and spouses of the

patient. More depressed caregivers also indicated having less affection for the patient and a greater perception of social obligation to provide care. They tended to be assisted by multiple caregivers, and were overall less satisfied with assistance received from others, and less satisfied with direction and guidance received in caregiving. In addition to these covariates, three of the five coping factors were significantly related to depression: wishful thinking and self-blame were positively related to depression, and escapism was negatively related to depression. The implications of these results are applicable to the design and availability of services for caregivers. It is known that caregivers seek respite services most often, and from this analysis it appears that aiding caregivers in finding personal time and enjoyable outlets should be beneficial.

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A diagnosis of Alzheimer's disease is undoubtedly stressful, both for the patient and for the caregiver faced with the responsibility that ensues. Those who choose to take on the caregiving role face many simultaneous stressors. Pearlin, Mullan, Semple, and Skaff (1990) describe the stressors of caregiving as "the conditions, experiences, and activities that are problematic for people; that is, that threaten them, thwart their efforts, fatigue them, and defeat their dreams" (p. 586).

In the context of caregiving, coping encompasses the thoughts or actions which result from the stress of caregiving responsibilities. As a researcher and social worker, the objective of this analysis was to ascertain if certain styles of coping were related to the level of depression experienced by the caregiver. This knowledge could then be used to educate caregivers about those actions that are and are not associated with less depression.

Prior to examination of the relationship between coping styles and caregiver depression, it was necessary to confirm that styles of coping were still relevant to depression after controlling for other factors known to be associated with depression. Using data from interviews conducted with caregivers of a family member with Alzheimer's disease, the relationship between coping and depression was examined using a model controlling for other factors known to be related to depression.

The hypothesis presented was that the style of coping would have an independent significant relationship to depression. That is, coping styles would be significantly related to depression even while controlling for known correlates of depression. Once the relationship between coping and depression was examined, and it was established that

these factors were independently relevant to depression, there was an opportunity in which to examine factors that were amenable to change, and to incorporate this information into the design and delivery of interventions for caregivers.

Literature Review

Conceptualization of Coping

The concept of coping is perhaps best defined by Lazarus and Folkman as "the process through which the individual manages the demands of the person-environment relationship that are appraised as stressful and the emotions they generate" (Lazarus & Folkman, 1984, p19). These authors suggested that in the stressful relationship between person and environment, the two processes that mediate this relationship are cognitive appraisal and coping.

Cognitive appraisal is a process of evaluation to determine if a situation is relevant to the individual's well-being. Cognitive appraisal is composed of primary and secondary appraisal. Primary appraisal assesses what is at stake in the situation, and secondary appraisal is a consideration of what can be done to prevent harm or to overcome a threatening situation. Therefore, it is not the event itself, but the assessment of the event that determines if the individual perceives the incident as threatening.

Coping, the second process in Lazarus and Folkman's model, is an effort to manage a stressful situation cognitively and behaviorally. Coping serves two functions in managing a situation. First, coping is a way of managing or altering the stressful situation, referred to as problem solving. Second, coping serves as a mechanism to reduce or manage the emotional response to a stressful situation, referred to as emotion-focused coping. These functions are not exclusive, as Folkman and Lazarus (1980) found that both problem-focused and emotion-focused coping were used in 98% of self-reported stressful incidents.

Measures of Coping

There have been numerous tools used to measure coping styles. One of the more widely utilized measures has been the Ways of Coping Checklist (Folkman & Lazarus, 1980). This measure was utilized in several studies, but the factor structure was not replicable (see review in Parker, Endler, & Bagby, 1993). With nearly as many coping measures as there are coping studies, the wide range of items makes comparison across scales difficult. A comparison of coping measures and their relationship to outcomes lacks meaning unless the domains are conceptually similar.

While each measurement tool is different, there are three fundamental domains of coping which are found in the majority of coping measurement instruments: problem solving techniques, emotion focused mechanisms, and avoidance techniques. A better understanding of coping styles may be gained by further examining the individual variables that make up each coping style.

The endorsement of problem solving techniques indicates that the individual has formed a plan to address the stressful situation. Individual variables often include making a plan, creating several solutions to the problem, and working harder to do what must be done. Emotion focused strategies encompass wishful thinking, withdrawal, daydreaming, and acceptance. Examples of variables used to indicate emotion focused coping are a wish to be stronger, looking at the bright side, accepting sympathy, and trying to forget about the situation.

Avoidance strategies are often included within the heading of emotion focused coping. Avoidance strategies include concepts that can be either rewarding or self-

destructive, and may be interpreted differently depending on the context. Examples of rewarding strategies are visiting a friend or seeing a movie, while self-destructive strategies include using alcohol, tobacco, or medications, keeping feelings to ones self, or avoiding people.

Relating Coping Styles and Depression

Coping styles are often studied in the context of daily stressful events. In studies of the general population, problem focused coping techniques were consistently found to be associated with less depression (Billings & Moos, 1984; Folkman, Lazarus, Gruen, & DeLongis, 1986; Vitaliano, Russo, Carr, Maiuro, & Becker, 1985). Both emotion-focused and avoidance strategies were positively associated with depression (McCrae & Costa, 1986; Rhode, Tilson, Lewinsohn, & Seeley, 1990; Vitaliano et al., 1985; Williamson & Schulz, 1993).

Turning to coping research on caregivers, the relationship between coping and depression paralleled that of the general population. Wishfulness, an avoidance strategy, was again positively related to depression (Pruchno & Resch, 1989; Vitaliano et al., 1985; Williamson & Schulz, 1993), as was avoidance coping (Haley et al., 1996; Powers, Gallagher-Thompson, & Kraemer, 2002). Knight, Silverstein, McCallum, & Fox (2000) found that active coping, similar to problem focused coping, was associated with less depression, while emotion-focused coping was associated with increased depression. Acceptance was negatively correlated with depression (Pruchno & Resch, 1989).

Correlates of Depression Among Caregivers

The model of coping in this analysis held constant several factors that were known or hypothesized to be related to depression. The literature on the experiences of caregivers gave some indication of how these factors could be expected to relate to depression in the analysis.

It has been well established in the caregiving literature that elevated levels of depression among caregivers were primarily attributed to the stresses of providing care for a loved one (Williamson & Schulz, 1993). In a meta-analysis by Schulz, O'Brien, Bookwala, and Fleissner (1995), all of the studies reviewed found that caregivers had higher mean scores on the CES-D in comparison to the general population.

In this analysis, George's (1996) model of social precursors of mood impairment as described by Hays, Landerman, George, Flint, Koenig, Land, and Blazer (1998) was used as framework to organize covariates hypothesized to be associated with depression. This framework arranged factors of mood impairment into four groups: background factors, vulnerability factors, provoking agents, and protective factors.

Covariates

Background Factors. The first group of covariates was background factors, which include demographic and socioeconomic indicators. Background factors included in the model were age, race, gender, level of education, income, relationship to the care receiver, outside employment, affection for the care receiver, and sense of social expectation to provide care for the elder.

Previous research with caregivers found that age was inversely related to depression (Young & Kahana, 1995). Several studies found that African American caregivers had less depression than Caucasian caregivers (Haley et al., 1996; Kosloski et al., 1999), although not consistently (Knight et al., 2000). Female caregivers consistently revealed higher levels of depression than male caregivers (Clyburn and Stones, 2000; Kosloski et al., 1999).

Education has been negatively related to depression (Alspaugh, Zarit, Stephens, Townsend, & Greene, 1999; Kosloski et al., 1999), although there was no relationship found among adult children caring for a parent (Dura et al., 1991). Less income was related to higher levels of depression (Alspaugh et al., 1999). Spouses were more likely to be depressed than other caregivers (Clyburn & Stones, 2000; Kosloski, Young, & Montgomery, 1999), although Dura, Stukenberg, and Kiecolt-Glaser (1991) found the rates of depression in separate studies of adult and child caregivers to be only slightly higher among spousal caregivers (26% of adult children vs. 30% of spouse caregivers).

Employment outside of the caregiving role was unrelated to depression among children providing parental care (Dura et al., 1991). The expectation to provide care was positively related to depression (Kosloski et al., 1999).

Vulnerability Factors. Vulnerability factors include the caregiver's health conditions that make the caregiving experience detrimental to their physical well-being. The health of the caregiver has historically been a predictor of depression. In Schultz and colleagues' (1995) summary of studies that focus on health outcomes and depression, all

but an analysis by Draper, Poulos, Cole, Poulos, and Ehrlich (1992) found that low self-rated health was a strong predictor of depression. The use of psychotropic medications was found by Clipp and George (1990) to have a strong association between symptoms of depressions and the use of psychotropic drugs.

Provoking Agents. Provoking agents were defined by Hays and colleagues (1998) as personal loss, bereavement, or family crisis. The care receiver's losses of cognitive, social, and physical abilities were particularly depressing to the caregiver. The care receiver's impairment of activities of daily living or instrumental activities of daily living were not found to be related to depression (Alspaugh et al., 1999; Kosloski et al., 1999). Problematic behaviors demonstrated by the care receiver were positively associated with depression (Alspaugh et al., 1999; Kosloski et al., 1999), although there was no relationship between cognitive impairment of the elder and caregiver depression (Hays et al., 1996). The length of time in the caregiving role was positively related to depression. Hays and colleagues (1996) found that those who had cared for their loved one longer had higher levels of depression, although not consistently (Li, Seltzer, & Greenberg, 1997).

Protective Factors. Protective factors are those things that perceived by the caregiver as helpful. Included in this factor was the amount of actual assistance and satisfaction with support the caregiver received pertaining to the caregiving role. The number of other caregivers available was not found to be significantly related to depression (Kosloski et al., 1999). Satisfaction with overall support was associated with

less depression (Krause, 1987). The number of respite services used was positively correlated with depression (Kosloski et al., 1999).

Potential for Intervention

The relationship between coping styles and depression is an important tool when creating caregiver interventions. The existing literature on the description and evaluation of intervention programs included several meta-analysis and literature reviews on various types of interventions. Because the outcome of interest in this analysis was depression, the literature review was limited to intervention programs that used a measure of depression as the dependent variable of interest (for other outcomes, see reviews by Bourgeois, Schulz, & Burgio, 1996; Cooke, McNally, Mulligan, Harrison, & Newman, 2001; Knight, Lutzky, & Macofsky-Urban, 1993).

Two aspects of intervention were the primary focus of review articles: the method or format in which the intervention was implemented, and the content of the intervention. The method of intervention compares organizational forms of interventions, whereas the content outlines specific activities, skills or information taught, or therapeutic approaches used in the intervention. Many articles failed to note the content of the intervention, and focused only on the method.

While the actual means of providing the intervention were of less interest when examining interventions in the context of coping, the majority of the literature focused on this area. A framework created by Gallagher-Thompson (1994) grouped services into those that target the elder and those that target the caregiver, although she noted that services designed for the elder that reduce behavioral problems or improve functioning

could be expected to produce secondary effects on the well being of the caregiver. Examples of services for the elder include case management, home environment modifications, and respite or day care programs. Services for the caregiver include support groups, psychoeducational programs, and individual or family counseling. Individual interventions were found to be more effective than group settings (Knight et al., 1993). Gonyea (1989) found in a study of 47 groups, that while the participants found the groups to be helpful in providing information and support, they did not address the caregiver's psychological needs.

The second point addressed in the intervention literature was the content of the intervention. It was very difficult to examine specific interventions, as most studies report multiple methods and intervention types, confounding the reported effects. Cooke and colleagues (2001) conducted a meta-analysis of interventions and included information on individual intervention components, but were unable to make specific conclusions about the effectiveness of any theory or intervention technique, as there were multiple methodological issues that prevented such an analysis. None of the intervention strategies were consistently successful.

The literature showed that interventions have been relatively unsuccessful in decreasing caregiver depression. In a review of intervention studies with dementia caregivers, only eighteen of the forty-four interventions that measured psychological well-being as an outcome reported improvements (Cooke et al., 2001).

When evaluating the efficacy of intervention programs, it must be noted that there were several issues that made gaining information from intervention studies difficult.

Several literature reviews pointed out that research has demonstrated numerous methodological shortcomings that prohibit the evaluation of interventions (Bourgeois et al., 1996; Cooke et al., 2001; Gallagher-Thompson, 1994, Knight et al., 1993).

Many studies failed to use a control group or collect baseline data prior to the intervention. Cooke et al., (2001) found that nearly half of the articles they reviewed either did not include a control group, or did not analyze between-group differences. Many intervention studies reported the use of multiple interventions that were evaluated with one measurement instrument assessing the overall benefit, without distinguishing the separate effects of interventions (Bourgeois et al., 1996). Other concerns involved sample size and low intensity of the programs.

A final concern was the lack of details about the intervention components. Cooke and colleagues (2001) provided a review and addressed the issue of the lack of information about intervention components. As many of these articles stated, it can only be after the methodological issues are overcome that conclusions can be made. The findings of this study may contribute to the improved design of interventions and a framework methodology in which to evaluate them.

Statement of Purpose

Using data from interviews conducted with caregivers of a family member with Alzheimer's disease, this study examined the relationship between coping and depression by using a model that controlled for other factors known to be related to depression. The first task in the analysis was to examine the factor structure of the coping variables. After

the use of an appropriate model structure was confirmed, a regression of the coping factors and the covariates was performed on the total depression score.

Expected Findings

There were three hypotheses to be tested from this analysis. The first was that the style of coping used would have a significant relationship to depression, independent of the covariates. Task-oriented coping would be inversely associated with depression. Finally, both emotion-focused and avoidance coping would be positively associated with depression.

Method

Data Collection

The data used in this analysis were taken from research conducted under a grant from the National Institute of Mental Health (1R01 MH45840), "Targeting Respite to Promote Mental Health of Alzheimer's Families." Face to face interviews were conducted with 458 caregivers of Alzheimer's disease patients in Michigan. Participants were recruited through local service providers, such as discharge planners, case managers, and medical service providers, who identified caregivers whom they believed to be in need of respite services. Participants were informed of the study by the service providers, after which the participants individually contacted study personnel to arrange for participation in the study. In my analysis only white and black caregivers were selected due to the low representation of other minority groups, and only spouse or child or child-in-law caregivers were selected, reducing the sample size to 427. These data were used with the permission of the studies co-investigators, Dr. Rhonda Montgomery and Dr. Karl Kosloski.

Power Analysis

To determine the sample size required for the proposed analysis, a power analysis was conducted. Power refers to the probability of rejecting the null hypothesis when it is false (Cohen & Cohen, 1975). In the present study, the primary null hypothesis is that coping does not affect caregivers' depression, net of other factors in the model. Previous research (Kosloski et al., 1999) indicated that a model of the social precursors of depression, which did not contain any coping variables, explained approximately 35% of

the variance in depression. It was estimated that the coping variables would explain an additional 5% of the variance in depression, over and above the set of 23 covariates specified in the model. Using the conventional alpha level of .05 for statistical significance, and a desired power of .90, a total sample size of 227 subjects was required (Cohen & Cohen, 1975). The available sample size for the present analysis, using listwise deletion for missing data, was 344, raising the estimated power in the present analysis above .95.

Description of Variables

Depression

The caregiver's level of depression was assessed using the Center for Epidemiologic Studies Depression Index (CES-D; Radloff, 1977). The CES-D consists of twenty variables which are listed with their subfactor groupings in Appendix A. Responses were recoded as applicable so that higher scores reflect greater depression. The CES-D is a common measure used in the assessment of depression in caregivers (Schulz et al., 1995). The estimated reliability (Cronbach's alpha) for the depression composite measure using the present data was .88.

Coping

The measure of coping styles used in this analysis consists of variables that were selected from Endler and Parker's (1990) Multidimensional Coping Inventory. The instrument consists of three subscales of coping strategies: task-oriented, emotion-oriented, and avoidance-oriented. Respondents assess how much they use different ways of dealing with stress by responding: a great deal (5), a lot (4), moderately (3), a little (2),

or not at all (1). Larger scores indicate a greater frequency. Task-oriented coping included five variables: 1) outline my priorities; 2) work to understand the situation; 3) think about the event and learn from my mistakes; 4) analyze the problem before reacting; and 5) adjust my priorities. The reliability for the task-oriented coping composite measure was .68. Emotion-oriented coping consisted of: 1) blame myself for procrastinating; 2) became very tense; 3) blame myself for being too emotional about the situation; 4) daydream about a better time or place; and 5) fantasize about how things might turn out. The reliability for the emotion-oriented coping composite measure was .65. Avoidance-oriented coping consisted of: 1) treat myself to a favorite food or snack; 2) visit a friend; 3) spend time with a special person; 4) see a movie; 5) take time off and get away from the situation. The estimated reliability (Cronbach's Alpha) for the avoidance-oriented coping composite measure was .61.

Covariates

The covariates included in the model are organized using George's (1996) model as a framework. This framework arranges factors affecting mood impairment into four groups: background factors, vulnerability factors, provoking agents, and protective factors.

Background Factors. Background factors in the analysis include caregiver's age, race, gender, annual income, level of education, relationship to the care receiver, employment status of the caregiver, affection for the elder, and sense of social expectation to take the caregiving role. The age of the caregiver was coded in actual years. Race of the caregiver was a binary variable: white (1) and African American (2).

Due to small sample sizes, other ethnic groups were not included in the analysis. Gender of the caregiver was coded as male (1) and female (2). Education of the caregiver was assessed with a nine-point ordinal scale ranging from no education (0) to a doctoral degree (8).

The caregiver's income was grouped into seven ordinal categories ranging from an annual gross income of less than \$5,000 to over \$50,000. Relationships between the caregiver and care receiver included care by a spouse (1) or adult child or children-in-law (2). The caregiver's level of employment included full time and part time employment. Two dummy variables were created to compare full time and part time workers with non-employed caregivers.

The caregiver's affection was estimated by combining six variables: (1) I am extremely close to him/her; (2) I love him/her very much; (3) I have great affection for him/her; (4) I genuinely like him/her; (5) I am completely devoted to him/her; (6) I have a strong attachment to him/her. Variables were coded on a four-point scale ranging from not true at all (1) to definitely true (4), with higher scores indicating agreement with the statement. These variables were combined into an additive composite of overall affection with an estimated reliability (Cronbach's alpha) of .89.

Social expectation was computed from four variables indicating the extent to which the caregiver agreed with the following statements about caregiving: (1) A person wouldn't be a very good (spouse/child), if he/she didn't care for his/her (relative); (2) It is socially expected that a (spouse/child) assist his/her (relative); (3) A (spouse/child) should be responsible for his/her (relative); (4) People expect me to provide care for my

(relative). Variables were coded on a five-point scale ranging from strong agreement to strong disagreement with the statement. Responses were reverse coded so that higher scores indicate a greater sense of social expectation. The composite of these items had an estimated reliability (Cronbach's alpha) of .74.

Vulnerability Factors. Two vulnerability factors were included: the overall health of the caregiver, and whether the caregiver used psychotropic medications. Caregiver health was assessed as a composite of four questions. The first question addressed the caregivers' overall view of their health, the second question addressed the caregivers' satisfaction with their health, the third asked caregivers to compare their own health to others of the same age and sex, and the fourth assessed the extent to which the caregivers' health interfered with their ability to carry out caregiving activities. The second item was coded on a four-point scale; the others on a five point scale, with high scores indicating better health. The estimated reliability (Cronbach's alpha) was .83. To assess the use of psychotropic drugs or other similar medications, caregivers were asked if they were presently taking any medications to "lift their spirits" or help them sleep (no=1, yes=2).

Provoking Agents. Provoking agents included four variables that relate to the functioning of the care receiver: activities of daily living, instrumental activities of daily living, problem behaviors, and cognitive impairment, as well as the number of years in the caregiving role. The first two variables were scales which addressed the amount of assistance needed to perform a broad range of tasks. Items selected from the Katz Index of Independence in Activities of Daily Living Scale (Katz, Ford, Moskowitz, Jackson, &

Jaffee, 1963) were used to assess the amount of assistance required to perform activities of daily living (ADL). ADL disability variables include use of the toilet, moving in and out of bed, bathing, dressing, and eating. The Instrumental Activities of Daily Living Scale (IADL), developed by Lawton and Brody (1969), was used to assess everyday functioning. Activities in this measure include shopping for food or clothing, using transportation, cooking meals, using the telephone, housekeeping, using public transportation, taking medications, and managing money. Variables in both scales were measured on a three-point scale indicating that the patient needs no assistance, needs some assistance, or is not able to perform the stated task. The estimated reliability (Cronbach's alpha) of the composite variable found from these variables was .90 for ADL and .80 for IADL, respectively.

Assessment of the patient's problematic behaviors by the caregiver was measured using an estimate of the number of days during the past week in which the caregiver personally needed to address the behaviors indicated. These variables, taken from Pearlin et al. (1990), are listed in Appendix B. The items were combined into a single composite variable with an estimated reliability (Cronbach's alpha) of .76.

The level of cognitive impairment of the elder was assessed using a composite of eight variables assessing the ability to remember time and place, and to recognize familiar things and people (see Pearlin et al., 1990). Scores ranged from (1) can't do at all to (5) not at all difficult, and were recoded so that higher scores indicated greater impairment. The reliability (Cronbach's alpha) for these variables was .82. The length

of time as a caregiver was coded directly in years, but was capped at twenty years, as several responses indicated being a caregiver for up to fifty-four years.

Protective Factors. Protective factors were represented by the following variables: the number of other caregivers, the extent of use of respite services, and satisfaction with the support received from others. The number of other caregivers was coded directly as the number of other people who were currently providing care for the patient. Use of respite services was assessed with a list of several available respite services and was recorded as a composite of the number of times the services were used in the past four months.

The respondent's level of satisfaction with several aspects of support received from others was considered with four questions. Each of the four questions was a referent to a previous set of questions. For clarity, I have included these in Appendix C. The four areas of satisfaction are: emotional support from others, supportive actions of others, informational support, and direction or guidance. Responses to these questions were coded as either satisfaction with the amount of support received (2), or a wish to receive that particular type of support more or less often (1). Responses indicating a desire for more or less support were recoded into one group which represented dissatisfaction.

RESULTS

Description of the Sample

Characteristics of study participants are outlined in Appendix D. The caregiver's average age was 63 years, ranging from 22 to 91. Nearly ninety percent of the caregivers were Caucasian, and eighty percent of caregivers were female. The majority of caregivers were married. There were 264 spouse caregivers and 163 child or children-in-law caregivers. The average length of time as a caregiver was 5.8 years.

Fifty-three percent of caregivers had at least a high school education, with twenty-seven percent holding a college degree. Close to half of caregivers reported that there was no other person who provided care to the elder (41%). The number of other caregivers available ranged from 0 to 8.

Analysis

Confirmatory Factor Analysis

The first task was to examine the factor structure of the Multidimensional Coping Inventory. I wanted to determine if I could replicate the factor structure found by Endler and Parker (1990). I used EQS to perform the confirmatory factor analysis, and my objective was to test the goodness of fit of the hypothesized three factor model. The results were assessed using several different criteria. In my model, the χ^2 value was 334.99, based on 105 degrees of freedom, which is statistically significant ($p < .001$), leading to a rejection of the null hypothesis that the observed data fit the 3 factor model. The χ^2 statistic is generally not considered to be an adequate test of model fit because as the sample size increases it is more likely to detect trivial deviations (Jöreskog, 1969). An

alternative is to divide the χ^2 by its degrees of freedom. Suggested favorable ratios are those less than 3 (Kline, 1998). The χ^2 to degrees of freedom ratio is 3.19 in this model. This test is unfortunately also sensitive to sample size.

Given the problems with the χ^2 statistic in large samples, several subjective fit indexes are commonly used to assess model fit. The Goodness of Fit Index (GFI) and the Adjusted Fit Index (AGFI) normally range from a poor fit of 0 to a perfect fit of 1. In this model, the GFI was .899 and the AGFI was .861. Other common measures are the Normed Fit Index (NFI; also referred to as the Tucker-Lewis Index), the Comparative Fit Index (CFI) and the Non-Normed Fit Index (NNFI). These measures indicate the proportion in the improvement of overall fit compared to a null model, and are interpreted as the percentage of overall fit. The values in my model were a NFI of .713, a CFI of .767, and NNFI of .719. Hu and Bentler (1999) suggest cutoff values close to .95 for many of these indices, including the NFI and CFI. Finally, they suggest values less than .06 for the Root Mean Square Error of Approximation (RMSEA). In this analysis the RMSEA value was .082. Thus, both the χ^2 criteria and the subjective fit indices suggest that the three factor model is not a good fit to the observed data.

Exploratory Factor Analysis

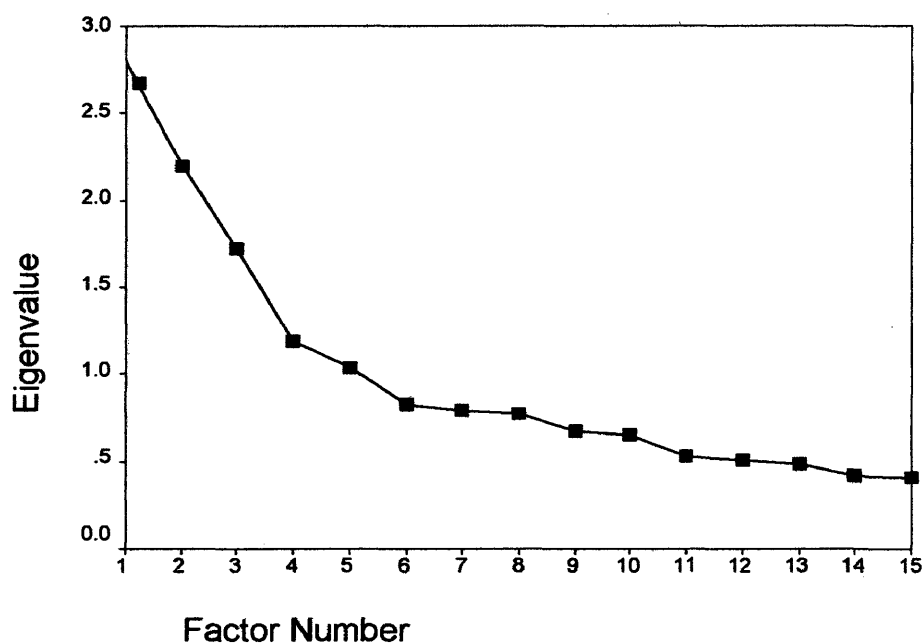
With the knowledge that the proposed model was a poor fit, I performed an exploratory factor analysis in order to understand the factor structure of the 15 items from the MCI more adequately. Exploratory factor analysis examines the relationship between variables and their underlying factor structure without a hypothesized model structure.

The first decision addressed in performing a factor analysis was to select a factor extraction procedure. I used Principal Axis Factoring, which assumes that the variance of each variable can be separated into common and unique portions, with unique variance containing random error variance and systematic variance specific to the measured variable (Widaman, 1993). This method is appropriate when variables are assumed to be a linear function of a set of latent variables (Ford, MacCallum, & Tait, 1986), and is generally more appropriate than approaches such as principal component extraction (Widaman, 1993).

The results of a factor analysis depend on the number of factors that are extracted prior to rotation, but there are no set criteria for determining the number of factors. There are, however, several well-supported methods. Two were used in this analysis. The first method for determining the number of factors considered was the Kaiser criterion, which retains factors with eigenvalues greater than one. The Eigenvalue is based on the amount of variance accounted for by the items. The factor analysis produced five factors with Eigenvalues greater than one.

The second method is the scree test. In this method, the graphical pattern of eigenvalues is examined for breaks, with the number of factors being those before the point where values level off. The scree plot is shown in Figure 1. It suggests that a 3-factor selection may be adequate, although there is a clear leveling off after the fifth factor.

Figure 1. Scree Plot.



The next step in the process of performing the factor analysis was choosing a method of factor rotation. Factor rotation is used to maximize the loadings of items, thereby increasing their interpretability. The most common methods of rotation are orthogonal rotation, which produces uncorrelated factors, and oblique rotation, which allows factors to be correlated. Ford and colleagues (1986) summarized the efficacy of various methods of rotation and found that varimax is an acceptable orthogonal method, while there doesn't appear to be a clearly dominant technique for oblique rotations. The authors suggest trying several oblique rotations to determine if a consistent solution has been found. I therefore performed both the varimax method of orthogonal rotation, as

well as promax and oblimin oblique rotations. The factor loadings for oblique rotation with promax rotation are shown in Appendix E. Composite variables were formed from the bolded items in each factor.

The final step in the factor analysis was interpretation. Variables with high factor loadings on a particular factor were retained as part of that factor. A factor loading is a coefficient that expresses how much an observed variable “loads” on a factor; the criteria for a high loading is usually around .40, with some authors stating that .30 may be acceptable (Kerlinger, 1979).

Several authors conclude that it is better to overestimate than to underestimate the number of factors as too few factors incorrectly force the common factor variance into too few dimensions (Ford et al., 1986, Comrey, 1988). Perhaps most importantly, Zeller and Carmines (1980) suggest that the most important criterion to consider when retaining factors is that each factor is substantively meaningful and interpretable.

While it would be inappropriate to compare the model fit from the three and five factor models on the same data, it does appear that the five factor model contributes unique information that justifies the separation of at least one of the factors. Further analysis with a new sample is needed to conclude that these results are not simply an artifact of the sample used in this analysis.

New Coping Factors

The content of each factor was examined and then named to reflect the items that factors appear to represent. The items used in the first factor, avoidance, had identical

loadings in the exploratory factor analysis and thus the reliability and items included were unchanged.

The task-oriented factor was separated into two new factors, “planning” and “find meaning”. Factor 2, planning, included the following items: adjust my priorities, analyze the problem before reacting, and outline my priorities. These items had an estimated reliability (Cronbach’s Alpha) of .65. The remaining items from the task-oriented factor, find meaning (factor 5), included the following items: think and learn from mistakes and understand the situation. The estimated reliabilities (Cronbach’s Alpha) for factors 2 and 5 were .65 and .66, respectively.

The variables originally included under emotion-oriented coping also loaded into two factors. Factor 3, labeled “blame”, included the following three items: blame myself for being too emotional, become very tense, and blame myself for procrastinating. The remaining variables, daydream about a better time and place, and fantasize about how things will turn out, loaded as factor 4, “wishful thinking”. The estimated reliabilities (Cronbach’s Alpha) for factors 3 and 4 were .60 and .66, respectively.

Confirmation of Model Fit

In order to further examine the five factor model, the confirmatory factor analysis was repeated using the five factor model as indicated in the exploratory factor analysis. The revised five factor model proved to be a better fit. The χ^2 was 141.48, based on 80 degrees of freedom. This is statistically significant, but I again note that this is less important because as the sample size increases it is more likely to detect trivial deviations (Jöreskog, 1969). The ratio of χ^2 to degrees of freedom was 1.77. Values for other fit

indices were: NFI=.88; NNFI=.92; CFI= .94; GFI=.96; AGFI=.94; RMSEA=.04. Using the previously noted criteria, this model demonstrates acceptable fit.

Regression

In the regression analysis, depression was regressed on a set of covariates structured according to George's (1996) model of the precursors of mood impairment. These covariates serve as statistical controls for many of the factors known to be associated with depressed affect. In the presence of such controls, it is possible to assess the unique contribution of the coping strategies, that is, information that is not redundant to what the other predictors of depression contributed.

The results of the regression of the CES-D on the coping styles and other covariates are presented in Appendix F. The twenty-three covariates explained 44% of the variance in depression ($F(23,320) = 10.9; p < .001$). When the five coping factors were added to the model, they contributed an additional 9% ($F(5,315) = 11.63; p < .001$) of the variance. Thus, the coping styles and covariates as one set together explained 53% of the variance in depression.

Ten covariates and three coping styles based on the five factor coping model were significantly related to depression. The following covariates obtained significance: age, race, relationship, health of the caregiver, affection for the elder, social obligation, and number of other caregivers available. Also, those less satisfied with the help that they received from others, or amount of direction and guidance from others, were significant covariates, as were those that were taking medications for depression.

Finally, three of the five coping factors were significantly related to depression. “Avoidance-Oriented Coping” (factor 1) obtained significance, as did the two remaining factors that had originally comprised the “Emotion-Oriented Coping” factor, referred to as blame (factor 3) and wishful thinking (factor 4).

DISCUSSION

Regression

The regression indicated that thirteen of the variables contributed uniquely to the understanding of depression. Each of the individual relationships is described as follows.

Covariates

Background Factors. The age, race, and relationship of the caregiver were all significantly related to depression, as was consistent with previous findings (Young & Kahana, 1995; Haley et al., 1996; Clyburn & Stones, 2000; Schultz et al., 1995). Specifically, younger caregivers were more likely to be more depressed, as were white caregivers and spouses. Caregivers who indicated a lower level of affection as indicated by several items were more likely to be depressed, indicating that it is depressing to be in the role of caring for someone to whom you do not feel close. The composite variable indicating a higher sense of social obligation to provide care was related to greater depression, as was also found by Kosloski and colleagues (1999). It seems logical that when a person takes on a role to meet expectations as opposed to personal motivations that they might come to resent this burden, particularly when the task involved is as life altering as the role of caregiver.

Vulnerability Factors. The health of the caregiver was significantly related to depression, with those in poor health being more likely to have depression, which was consistent with findings by Schulz et al., (1995). Caregivers taking medications for depression indicated higher levels of depression, consistent with findings by Clipp & George (1990).

Protective Factors. Caregivers who had a larger number of other caregivers available to care for the elder had higher depression. The reason for the direction of this relationship may be that when caregivers are faced with a care recipient who needs a great deal of attention and requires multiple caregivers, they are in a more challenging situation; and it is this fact rather than the presence of the additional caregivers that is related to depression. It is also possible that the caregiver feels that there are people who are available but are not providing the amount of assistance that the caregiver feels they are capable of providing, and so resents that they are forced to compensate. Finally, caregivers less satisfied with the help that they received from others, or amount of direction and guidance from others, experienced more depression, as was consistent with previous findings (Krause, 1987).

Coping Styles

Avoidance-oriented Coping. The first coping factor, labeled “Avoidance-Oriented Coping” (factor 1), had a significant negative relationship to depression. That is, greater endorsement of these activities was related to less depression. The variables used in the present research under the avoidance-oriented coping factor are unique in the sense that they consisted of primarily positive and constructive activities. Other studies using the avoidance label included a combination of concepts, such as cognitive avoidance, emotional discharge, and resignation, which were positively related to depression. Most interesting about the factor used in this analysis is that items appear to support the value of taking time to care for oneself and may not merit the avoidance label. The results suggest that when respite services are used in this context they will enable caregivers to

participate in activities that improve their well being. Given that the items used differed greatly from prior research, it was difficult to predict how the factor would relate to depression, but it was none the less surprising that this factor produced a negative significant relationship.

Emotion-oriented Coping. The emotion-oriented factor was hypothesized to be positively related to depression, and this study supported that relationship. Emotion-oriented coping has been consistently related to more depression among caregivers when focusing specifically on wishful thinking (Knight et al., 2000; Quayhagen & Quayhagen, 1988; Vitaliano et al., 1985; Williamson & Schulz, 1993). The use of self-blame is used less frequently, but has also been related to increased depression (Quayhagen & Quayhagen, 1988). In my analysis, the direction of their relationship to depression was that same as prior research, showing a positive significant relationship, but it is important to note that the two factors were independently significant, indicating that they are different constructs.

Task-oriented Coping. The two “Task-Oriented Coping” factors, emphasizing finding meaning (factor 5) and planning (factor 2), were not significantly related to depression either as one factor or as two factors. Thus, the hypothesis that task-oriented coping would be negatively related to depression was not supported in this sample of caregivers. Literature noting the relationship between task-oriented coping and depression among caregivers has found that there is a negative relationship (Haley et al., 1993; Knight et al., 2000; Vitaliano et al., 1985).

Conclusion

It is evident from both the literature and this analysis that caregiving is a stressful and challenging undertaking. My objective was to determine coping styles that were and were not effective in relation to depression, and then to interpret the coping factors and apply what I found to interventions. There were two points of greatest interest to me in the application of this knowledge about coping: how the coping factors related to structuring interventions, and the extent to which these techniques would alleviate depression.

The first step in my analysis was to better understand the ways in which people respond to caregiving stress. While the data suggest that of the variables used in this analysis, there were five distinct concepts related to coping, the structure of the model of coping is uncertain. Empirically, it is evident that the three factor model did not fit the data as well as the five factor model. Each of the individual factors derived from emotion-oriented coping provided unique information, demonstrating that each was useful in providing unique information.

Avoidance coping in this measure appears to promote the use of activities afforded by respite care. Caregivers appear to intuitively seek out this kind of assistance, as caregivers most frequently request formal respite care programs (Snyder & Keefe, 1985). What is useful is that direct activities seem to have the potential to reduce caregiver depression. This has been empirically established, although it is unclear what the conceptual relationship is. It is possible that people are simply benefiting by removing themselves from the situation. It is also possible that people are seeking out

ways to maintain their previous role identities and maintain their self image. This continuity is comforting and reduces the depression that the caregiving role has added.

As was expected, those strategies which supported self blame or wishful thinking responses were not beneficial to the caregiver. Directing the blame internally for a disease process over which they have no control is not only far from reality, but denies the sacrifice that they have had to make to compensate for the losses that result. When considering that the disease process can last longer than a decade, it is unreasonable that denying reality can be sustained for that length of time. The relationship of these strategies to depression support the concept that individual therapy may be most beneficial in changing caregiver's beliefs about both the disease and what they can reasonably expect of themselves.

The task-oriented items were not found to be significantly related to depression. This was interesting in light of the fact that many interventions focused on some type of educational component. This is not to say that education is not effective: the narrow scope of variables included in this factor does not make such a conclusion appropriate, but it does suggest that simply education alone does not address the emotional toll of the caregiving role.

Limitations

The sample used in this analysis was a convenience sample, and therefore cannot be assumed to be representative of the greater caregiving population. This study was also limited by the small number of coping items that were used in the survey. It would have

been useful to have had all of the items from the MCI to better examine the various components of avoidance coping, as the low number of variables affected reliability.

Future Direction

Longitudinal analysis is needed to understand the nature of coping with the stress of caregiving over time, and would be useful to analyze the benefits of these so-called avoidance strategies, and if it is possible to adapt these strategies and produce the desired result of alleviating depression. There is a possible implication that increasing the activities that are made possible in conjunction with respite care would lead to a positive change in the mental health of caregivers. It appears to be an important part of the respite use process that caregivers use the time to do things that they enjoy. Caregivers who recognize the importance of taking time to care for themselves appear to be better off. One way to continue in this direction is to examine the way in which caregivers use respite for personal time, as opposed to fulfilling other obligations, and the relationship to these motivations with depression.

Finally, the concept of avoidance coping here remains unclear. Further analysis is needed to understand the variety of both positive and enjoyable attributes, as well as negative and self-harming behaviors. The variables suggest the benefit of social support, role continuity, and personal space. Only with a larger breadth of variables can these relationships be understood. What is clear is that there are things that caregivers do to alleviate depression, and this process can be facilitated by practitioners and service providers.

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Appendix A

The Center for Epidemiologic Studies Depression Scale

Root Question: How often have you felt this way during the past week?

(1) Rarely/none of the time; (2) Some/little of the time; (3) Occasionally/moderate amount of time; (4) Most/all of the time

Depression

I had crying spells.

I felt sad.

I felt lonely.

I felt I could not shake off the blues, even with help from friends.

I thought my life had been a failure.

I felt fearful.

I felt depressed.

Somatic

I did not feel like eating; my appetite was poor.

I had trouble keeping my mind on what I was doing.

I could not get going.

I was bothered by things that usually don't bother me.

I felt that everything I did was an effort.

I talked less than usual.

My sleep was restless.

Positive Affect

I felt hopeful about the future.

I enjoyed life.

I felt that I was just as good as other people.

I was happy.

Interpersonal

People were unfriendly.

I felt that people disliked me.

Appendix B

Problematic Behavior Variables

Root Question: In the past week, on how many days did you personally have to deal with the following behavior of your relative?

Kept you up at night

Repeated questions or stories

Tried to dress the wrong way

Bowel or bladder accident

Cried easily

Hid belongings and forgot about them

Got depressed or downhearted

Clung to you or followed you around

Became restless or agitated

Became irritable or angry

Swore or used foul language

Threatened people

Wandered

Showed inappropriate sexual behavior or interests

Became suspicious or believed someone would harm them

Appendix C

Survey Questions Pertaining to Satisfaction Variables

Root Question: How often in the last 4 months has someone (1) Not at all; (2) Once in a while; (3) Fairly often; (4) Very often

Emotional Support

Told you that they feel close to you.

Comforted you by showing you some physical affection.

Told you that you are O.K., just the way you are.

Offered help if you needed assistance.

Help from others

Watched after your possessions while you were away.

Pitched in to help you do something that needed to be done.

Looked after a family member while you were away.

Provided you with a place where you could get away.

Informational support

Told you how they felt in a similar situation.

Told you what they did in a similar situation.

Gave you nonjudgmental feedback on how you were doing.

Gave you some information on how to do something.

Direction/guidance

Helped to make it clear what was expected of you.

Told you whom you should see for assistance.

Assisted you in setting a goal for yourself.

Gave information to help you understand your situation.

Appendix D

Demographic Characteristics of the Sample

Variable		Mean/SD	Frequency	%
BACKGROUND FACTORS				
Age		63.7/12.7		
Race	White		383	89.7
	African-American		44	10.3
Gender	Female		337	78.9
	Male		90	21.1
Education	8 th Grade or less		27	6.3
	Attended high school		35	8.2
	Completed high school		137	32.1
	Vocational training		32	7.5
	Attended college		78	18.3
	College graduate		66	15.5
	Some graduate school		40	9.4
	Doctorate		10	2.3
	Missing		2	0.5
Relationship	Spouse		264	61.8
	Child/child-in-law		163	38.2

Appendix D (continued).

Demographic Characteristics of the Sample

Variable		Mean/SD	Frequency	%
Background Factors (continued).				
Income	Less than \$10,000		59	13.9
	\$10,001-\$20,000		117	27.4
	\$20,001-\$30,000		107	25.1
	\$30,001-\$40,000		50	11.7
	\$40,001-\$50,000		33	7.7
	Over \$50,000		41	9.6
	Missing		20	4.7
Employment	Full-time		51	11.9
	Part-time		43	10.1
	Retired		174	40.7
	Unemployed		15	3.5
	Homemaker		126	29.5
	Other		17	4
Affection for Elder		21.9/3.1		
Social Expectation to care		15.5/2.9		

Appendix D (continued).

Demographic Characteristics of the Sample

Variable		Mean/SD	Frequency	%
VULNERABILITY FACTORS				
Caregivers Health		14.1/2.9		
Psychotropic drug use	Yes		60	14.1
	No		367	85.9
PROVOKING AGENTS				
ADL impairment		5/2.1		
IADL impairment		11.2/1.5		
Behavioral problems		28.3/18.1		
Cognitive impairment		21.9/8.1		
Years caregiving		5.8/7.3		
PROTECTIVE FACTORS				
Respite use	Yes		274	64.2
	No		153	35.8
Number of Other Caregivers		1.37/1.61		
Satisfaction with Emotional Support				
	Satisfied		248	58.1
	Unsatisfied		179	41.9

Appendix D (continued).

Demographic Characteristics of the Sample

Variable	Mean/SD	Frequency	%
Satisfaction with Help from others			
Satisfied		191	44.7
Unsatisfied		235	55
Satisfaction with Information			
Satisfied		244	57.1
Unsatisfied		183	42.9
Satisfaction with Direction/Guidance			
Satisfied		237	55.5
Unsatisfied		189	44.3
Coping Styles			
Factor 1- Avoidance oriented	11/3.3		
Factor 2- Planning	9.2/2.8		
Factor 3- Blame	7.8/2.7		
Factor 4- Wishful thinking	4.6/2.3		
Factor 5- Find meaning	6.9/2.0		

Appendix E

Factor Loadings

	Factor				
	1	2	3	4	5
Spend time with a special person	.69	.19	-.06	.04	.13
Visit a friend	.69	.05	-.13	.10	.19
Get away from the situation	.51	.04	-.09	-.06	.13
See a movie	.42	.08	.06	.06	.09
Treat myself to food	.26	.17	.23	.11	.06
Adjust my priorities	.11	.67	.07	.08	.29
Analyze the problem before reacting	.09	.65	-.17	-.00	.21
Outline my priorities	.11	.55	.16	.05	.28
Blame myself for being too emotional	-.08	-.05	.68	.42	.27
Become very tense	-.15	.02	.68	.36	.28
Blame myself for procrastinating	.02	.05	.39	.09	.16
Daydream about a better time and place	.05	.02	.36	.75	.17
Fantasize how things will turn out	.03	.08	.28	.69	.26
Think and learn from mistakes	.23	.31	.32	.23	.81
Understand the situation	.09	.38	.25	.25	.60

Factor 1 = Avoidance; Factor 2 = Planning; Factor 3 = Blame;

Factor 4 = Wishful thinking; Factor 5 = Find meaning

Extraction Method: Principal Axis Factoring. Rotation Method: Promax

Appendix F

Regression Analysis for Variables Predicting Depression in Caregivers

Variable	b	SEB	β
Background Factors			
Caregiver age	-0.13*	0.05	-0.17
Race-White	3.02*	1.47	0.09
Gender	-0.49	1.09	-0.02
Caregiver education	0.11	0.26	0.02
Caregiver income	-0.16	0.29	-0.03
Relationship-Spouse	3.46*	1.17	0.17
Employed full-time	0.69	1.35	0.02
Employed part-time	-0.23	1.42	-0.01
Affection for Elder	-0.37*	0.15	-0.11
Social Expectation	0.43*	0.16	0.13
Vulnerability Factors			
Caregiver's Health	-0.92*	0.14	-0.28
Psychotropic Medications	4.70*	1.26	0.16
Provoking Agents			
ADL Impairment	0.13	0.24	0.03
IADL Impairment	-0.06	0.33	-0.01
Behavioral Problems	0.02	0.03	0.03
Cognitive Impairment	-0.12	0.07	-0.10
Years Caregiving	-0.01	0.09	-0.00

Appendix F (continued).

Regression Analysis for Variables Predicting Depression in Caregivers

Variable	B	SEB	β
Protective Factors			
Number of Other Caregivers	0.52*	0.26	0.09
Satisfied with A	-0.15	0.96	-0.01
Satisfied with B	-2.73*	1.00	-0.14
Satisfied with C	0.59	1.02	0.03
Satisfied with D	-2.27*	1.01	-0.11
Respite use	-0.39	0.87	-0.02
Coping Factors			
Cope 1- Avoidance	-0.30*	0.14	-0.10
Cope 2- Planning	0.05	0.16	0.01
Cope 3- Blame	1.07*	0.17	0.29
Cope 4- Wishful thinking	0.54*	0.20	0.12
Cope 5- Find meaning	-0.02	0.24	-0.00
R ² =.53			
*p < .05			