Upsetting Social Interactions and Distress Among Alzheimer's Disease Family Care-Givers: A Replication and Extension

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Although several studies have suggested that negative aspects of relationships have a greater impact on mood than positive elements, the individuals in these studies have been victims of life crises. To assess the generality of these findings, social support and mood data were collected from two well-matched groups that differed with respect to the presence of a chronic stressor in their lives. The 34 family care-givers for Alzheimer's disease victims and 34 comparison persons (non-care-givers) did not differ in the frequency of contacts, the closeness of their relationships, or ratings of the helpfulness or upset associated with the relationships. However, while upset accounted for a significant portion of the variance in care-givers' depressive symptoms in regression equations, neither upset nor helpfulness was significantly related

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to mood in non-care-givers. Care-givers whose relatives had more symptomatic Alzheimer’s disease behaviors were more distressed and described their relationships with others as more upsetting. Implications for interventions and for the contextual importance of upsetting or negative support are discussed.

Social support is not a universally conceptualized or operationalized construct (Barrera, 1981). In the past, researchers have not distinguished among measures of social interactions, whether meaningful or cursory, helpful or upsetting, referring to them all as measures of social support. More recent efforts have focused on identifying the elements of social support. Some researchers have drawn distinctions between social “embeddedness” and functional support (Cohen & Wills, 1985). Others have pointed out the potentially detrimental effects of some types of support. For example, Fischer (1982) cited alcoholic husbands, delinquent children, and senile parents as examples of members of support networks who might prove to be more upsetting than helpful.

Several studies have suggested that negative or nonsupportive facets of interpersonal relationships have a more significant impact on mental health than positive elements. Fiore, Becker, and Coppel (1983) studied 44 individuals who provided care to a spouse with a diagnosis of Alzheimer’s disease (AD); 73% of their research participants either currently met Research Diagnostic Criteria (Spitzer, Endicott, & Robins, 1978) for depression or had met the criteria earlier in the spouse’s illness. They found that while the helpfulness or care-givers’ social network interactions was unrelated to depression, the degree of upset was a significant predictor of depressive symptoms in regression analysis.

Similarly, negative aspects of social network interactions were better and more consistent predictors of well-being than positive aspects in a sample of 120 women between the ages of 60 and 89 who had been widowed for an average of 4 years (Rook, 1984). Results from a study by Barrera (1981) are consistent with the data from Rook (1984). Conflicted social relationships accounted for more variance in psychological variables than did network indices of supportive relationships in a sample of pregnant adolescents.

In this study we were interested in the possibility that well-matched groups who differed with respect to the presence of a chronic stressor in their lives might also differ with respect to the size and closeness of their social networks, the perceived valence of those relationships, and the impact of those relationships. Following Fiore et al. (1983) we used family care-givers or AD victims, since the long-term care of these patients may be conceptualized as a chronic stressor. Cross-sectional data from several laboratories suggest that the stresses of AD care-giving leave family members at high risk
for depression (Crook & Miller, 1985; Eis dorfer, Kennedy, Wisnieski, & Cohen, 1983; Fiore et al., 1983; George & Gwyther, 1986). The progressive cognitive impairments that are characteristic of AD lead to increasing needs for supportive care of afflicted individuals. The irreversible deterioration of brain tissue eventually culminates in profound cognitive and behavioral changes including disorientation, incontinence, and an inability to provide any self-care (Heckler, 1985). The modal survival time after onset is approximately 8 years (Heston, Mastri, Anderson, & White, 1981).

There may be some progressive deterioration in care-givers' well-being related to the increasing impairment in the AD family member. George and Gwyther (1984) found substantial deterioration in several well-being measures taken a year apart. These changes were particularly noteworthy because the baseline (Time 1) levels of well-being in these care-givers were already quite low in absolute terms. Care-givers are more likely to become isolated from their usual companions and social activities because of time demands than individuals without comparable responsibilities (George & Gwyther, 1984; Johnson & Catalano, 1983). If care-givers have fewer relationships and less time for social participation than their age peers, then the quality of the remaining relationships might become more salient, and the negative aspects of social interactions may have an increasingly powerful impact.

Moreover, Shinn, Lehmann, and Wong (1984) argued that negative interpersonal interactions may be better conceptualized as stressors than as indicators of lack of support; they suggest that negative interactions may potentiate the effect of other stressors. It is possible that the chronic stressors in care-givers' lives could leave them more vulnerable to negative aspects of interactions than non-care-givers, who may have a less pressing need for interpersonal support.

Thus, troubled aspects of relationships were expected to be much more strongly related to depression than positive aspects in care-givers than non-care-givers; the former were also expected to have fewer social contacts than the latter. In contrast, we expected that both supportive and nonsupportive aspects of interpersonal relationships would be significantly related to mood in non-care-givers. Consistent with the care-giver studies discussed above, greater impairment in the AD patient was expected to be associated with fewer social contacts.

METHOD

Research Participants

The 34 family members who provided care to a relative with an AD diagnosis were obtained through referrals from two Ohio State physicians
(n = 20) and members of local support groups affiliated with the Alzheimer’s Disease and Related Disorders Association (n = 14). Seventeen of the care-givers lived with their impaired relative, 10 of the care-givers’ impaired relatives were institutionalized, and 7 lived elsewhere, either alone or with another relative. All care-givers defined themselves as primary care-givers, and even the relatives of institutionalized patients spent over 3 hours a day, on the average, with the patient. Twenty of the care-givers were spouses, 13 were adult children, and 1 was an in-law. The average time that had elapsed since the physician had given the care-giver the AD diagnosis was 2.83 years, with a range from a new diagnosis to 11 years. The average time elapsed since the care-giver had first noticed any AD symptoms ranged from 9 months to 16 years, with a mean of 5.45 years (SD = 3.82).

Care-givers and non-care-givers were matched on three sociodemographic dimensions: age, sex, and education. Education was used as the socioeconomic variable for matching because occupation is of limited value in a population composed largely of older women, many of whom have never worked outside the home (Rook, 1984). All were white. Since collection of immunological data was another goal of a larger project on stress and health in the elderly, subjects were included only if they had no acute or chronic health problems that might have an immunological and/or an endocrinological component; these criteria eliminated two non-care-givers. The 34 non-care-givers were recruited from newspaper advertisements, an Ohio State alumni list, notes placed on community bulletin boards, and personal contacts; the study was described as a research project on stress and health that included taking a blood sample. Non-care-givers were paid $10 for their participation.

Self-Report Measures

Depression. The 13-item short form of the Beck Depression Inventory (BDI; Beck, 1967) was used because of its greater sensitivity to mild to moderate levels of depression than other, more biologically based scales (Hammen, 1981). It has fewer somatically related items that may be characteristic of older, nondepressed adults. Population norms provide cutoffs for varying levels of depression.

Social Support. The social network interview developed by Hirsch (1980) assesses multiple dimensions of support and has served as the basis for the measurement used in two studies with older adults (Fiore et al., 1983; Heller & Mansbach, 1984). Following Fiore et al. (1983), research participants listed up to 10 network members, then independently rated both the degree to which they perceived the relationships to be helpful and upsetting (0 = not at all, 6 = extremely) with respect to five social support categories: socializ-
ing, tangible assistance, cognitive guidance, emotional support, and self-disclosure. The mean ratings for the upset and helpful variables were averaged across network members’ ratings for each subject. An estimate of the number of contacts was made by giving monthly contacts a value of 1, weekly contacts a value of 4, and daily contacts a value of 28 (Fiore et al., 1983). Closeness was rated from (0) extremely close to (100) not at all close. The frequency that research participants had requested any support or assistance from each network member in the last few months was rated from (1) never to (4) constantly.

Confidant Information. Following Heller and Mansbach (1984), research participants were asked “Is there anyone in particular that you confide in or talk to about yourself or your problems?” Those with confidants were asked how often they talked to this person: (1) more than once a week to (5) less than once a month.

AD Patient Data. Family members can provide one source of reliable information for evaluating the functioning of the AD patient (Reifler & Eisdorfer, 1980). In this study, care-givers completed the Memory and Behavior Problems Checklist (MBPC; Zarit, Orr, & Zarit, 1985). They provided ratings for the frequency of symptomatic behaviors, as well as separate reaction ratings for the degree of associated bother or upset. The sum of the cross-products of these ratings provides a measure of the impact of the behaviors (Zarit, Todd, & Zarit, 1986).

RESULTS

Sociodemographic and Health Information

Sociodemographic data showed good correspondence between the groups on key variables. The two groups did not differ in age, \( F < 1 \), with a mean of 59.32 (\( SD = 12.98 \)) in care-givers, and 60.29 (\( SD = 13.27 \)) in non-care-givers; the age range was 34 to 82. There were 11 men and 23 women in each group. Years of education did not differ between groups, \( F < 1 \), and both were quite well-educated; 28 care-givers and 28 non-care-givers had spent a year or more in college. There were 32 married care-givers, 1 was divorced, and 1 was widowed; for non-care-givers the respective figures were 29, 4, and 1. The modal research participant reported and annual family income of $30,000 or greater, \( n = 20 \) for care-givers and 19 for non-care-givers; only 2 care-givers and 3 non-care-givers reported incomes in the lowest range, $10,000 to $14,999. The two groups did not differ on the number of days ill in the last 6 months, or the number of physician visits in the same period, \( Fs < 1 \).
Beck Depression Inventory

Care-givers had significantly higher scores on the BDI than non-care-givers, $F(1, 66) = 4.02, p < .05$. However, the magnitude of the difference was surprisingly small, in contrast to other care-giver research described earlier: the mean score for care-givers was 4.88 ($SD = 6.18$) whereas Fiore et al. (1983) reported a mean BDI score of 10.73 ($SD = 5.61$). The non-care-givers' mean was 2.48 ($SD = 2.58$). The distribution of depression scores was similar for both samples, with care-givers' differences largely a function of two extreme scores. Analyses without these two extreme care-givers assessed the possibility that their data skewed the small sample and inflated correlations; there was little difference in the magnitude of the correlations when they were excluded.

Support Comparisons: Care-Givers and Non-Care-Givers

The helpfulness and upset ratings for each of the five support dimensions were included in a principal components factor analysis to examine the overlap between the positive and negative components. The analysis showed two distinct factors that had eigenvalues greater than 1.0, accounting for 36.9 and 30.0% of the variance, respectively. Inspection of rotated factor scores showed that the helpfulness and upset support dimensions loaded consistently and unambiguously on different factors, with very high intercorrelations with each factor, consistent with other research (Hirsch & Rapkin, 1986). Thus, each individual's helpfulness and upset ratings were averaged across the five dimensions to reduce the number of variables used in the support ratings for the remainder of the analyses. The correlation between the average helpfulness and upset ratings was negligible, $r = .01$.

Correlations between depression and support perceptions were initially computed two ways for care-givers, following Fiore et al. (1983). The first set included the AD relative in the average ratings, while the AD victim was excluded for the second set. Although there was little difference for the helpfulness rating (correlations of $-.06$ vs. $-.04$), the inclusion of the impaired relative in the ratings strengthened the relationship between depression and the upset rating (increasing from $r = .43, p < .01$, to $r = .52, p < .001$). Because upsetting relationships can be conceived as stressors (Shinn et al., 1984), the data analyses include the AD relative in the care-givers' support ratings to more accurately reflect the differences between the two cohorts. In this way our analyses differ from Fiore et al. (1983).

Table I shows comparisons between care-givers and non-care-givers across the support dimensions. Contrary to our hypothesis, there were not statistically significant differences between the groups when the support vari-
Table I. Means and Standard Deviations for AD Care-Givers and Non-Care-Givers in Ratings of Frequency, Closeness, Upset, and Helpfulness

<table>
<thead>
<tr>
<th>Area of support</th>
<th>AD Care-givers</th>
<th>Comparison subjects</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>Frequency</td>
<td>2.99</td>
<td>0.80</td>
</tr>
<tr>
<td>Closeness</td>
<td>15.81</td>
<td>14.11</td>
</tr>
<tr>
<td>Upset</td>
<td>1.73</td>
<td>0.51</td>
</tr>
<tr>
<td>Helpfulness</td>
<td>3.70</td>
<td>0.78</td>
</tr>
</tbody>
</table>

ables shown in Table I were included in a MANOVA, $F < 1$. Similarly, only one person within each of the two groups said that he/she did not have a confidant.

To test the hypothesis that upsetting aspects of relationships would be a stronger predictor of depression than helpful support in care-givers, two hierarchical multiple regression equations were used. In each, the subsample variable was entered first (care-givers were dummy coded 0 and comparison subjects 1), the upset or helpfulness rating was entered on the second step, and the interaction term was entered last. Table II shows that the interaction term was highly significant for upsetting support, and the regression equation shows that upset is a strong predictor of depression only in the caregivers’ group as predicted. This interaction is also highly significant when gender is entered as a covariate. The main effect for helpfulness and the helpfulness by group interaction were not significant.

Since the valence of support is a more reliable predictor of mood for care-giver than non-care-givers, the relationships between positive and negative support dimensions and other support variables, such as the frequency of contact and the frequency that support is requested, might also differ by

Table II. Hierarchical Multiple Regressions Predicting Depression

<table>
<thead>
<tr>
<th></th>
<th>Adjusted $R^2$ cumulative</th>
<th>1 in $r$</th>
<th>$F$</th>
<th>$df$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group memberships ($X_1$)$^a$</td>
<td>.04</td>
<td>.04</td>
<td>3.64</td>
<td>1, 65</td>
</tr>
<tr>
<td>Upset ($X_2$)</td>
<td>.08</td>
<td>.04</td>
<td>3.38</td>
<td>2, 64</td>
</tr>
<tr>
<td>Upset $\times$ Membership interaction ($X_3$)</td>
<td>.24</td>
<td>.16</td>
<td>14.94$^b$</td>
<td>3, 63</td>
</tr>
</tbody>
</table>

Regression equation: $Y = 10.1(X_1) + 6.4(X_2) - 7.0(X_3) - 6.3$

<table>
<thead>
<tr>
<th></th>
<th>Adjusted $R^2$ cumulative</th>
<th>1 in $r$</th>
<th>$F$</th>
<th>$df$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group membership ($X_1$)$^a$</td>
<td>.04</td>
<td>.04</td>
<td>3.64</td>
<td>1, 65</td>
</tr>
<tr>
<td>Helpfulness ($X_2$)</td>
<td>.04</td>
<td>.00</td>
<td>2.35</td>
<td>2, 64</td>
</tr>
<tr>
<td>Helpfulness $\times$ Membership interaction ($X_3$)</td>
<td>.02</td>
<td>.00</td>
<td>1.55</td>
<td>3, 63</td>
</tr>
</tbody>
</table>

Regression equation: $Y = -1.3(X_1) - 0.5(X_2) - 0.3(X_3) + 6.7$

$^a$Dummy coded: care-givers = 0, comparison subjects = 1.

$^b$p < .01.
groups. Indeed, Table III shows a different pattern of correlations for the two cohorts. More frequent contact was associated with less upset in caregivers than non-care-givers using Ferguson's (1971) test of differences between correlations. Helpfulness was associated with more frequent contact in both groups. No significant differences associated with requests for support were found between the two groups.

Assessment of Variables Related to the Care-Giving Context

All care-givers defined themselves as the primary care-giver for the AD patient, whether or not they lived with the patient. Differences in the total time spent each day in care-giving activities as a function of the AD patient's residence did not reach significance, $F(2, 31) = 2.0$, because of the considerable variability within each of the three groups. Those individuals who lived with their impaired relative reported an average of 9.87 hours a day ($SD = 9.99$), those whose relative was institutionalized reported a mean of 3.1 hours ($SD = 2.33$), and those whose relatives lived elsewhere reported an average of 6.42 hours ($SD = 7.93$). Thus, while those care-givers who care for institutionalized individuals report lower mean times, they are not significantly different. In fact, many of our care-givers for institutionalized patients went to the nursing home once a day to feed their AD relative; they felt that it was necessary to assure adequate care and nutrition. Finally, there were not significant differences in MBPC scores related to the AD patient's residence, $Fs < 1$, consistent with other care-giver literature (Zarit et al., 1985).

In order to assess the possibility of other important subgroups among our care-givers, spousal care-givers were compared with non-spousal caregivers, and individuals who were recruited from support groups were compared with care-givers who did not attend a support group. Neither MANOVAs that included the support variables nor univariate comparisons with BDI scores showed significant differences, $F < 1$. 

### Table III. Product-Moment Correlations of Depression and Upsetting and Helpful Support With Frequency of Contact and Requests for Support

<table>
<thead>
<tr>
<th></th>
<th>Frequency of contact</th>
<th>Requests for support</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Care-givers</td>
<td>Non-care-givers</td>
</tr>
<tr>
<td>Beck Depression Scale</td>
<td>-.01</td>
<td>-.22</td>
</tr>
<tr>
<td>Upset</td>
<td>-.38a,b</td>
<td>.25a</td>
</tr>
<tr>
<td>Helpfulness</td>
<td>.50c</td>
<td>.31b</td>
</tr>
</tbody>
</table>

*aCorrelations with the same subscript are significantly different at $p < .01$.

$^b p < .05$.

$^c p < .01$. 

Reference to Ferguson's (1971) test of differences.
Table IV. Product-Moment Correlations of MBPC Scores With Depression, Closeness, Frequency of Contact, Requests for Support, and Upsetting and Helpful Support in Care-Givers

<table>
<thead>
<tr>
<th>Variable</th>
<th>MBPC frequency</th>
<th>MBPC upset</th>
<th>MBPC cross-product</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beck Depression Scale</td>
<td>.28(^b)</td>
<td>.48(^c)</td>
<td>.60(^d)</td>
</tr>
<tr>
<td>Closeness</td>
<td>.18</td>
<td>.34(^b)</td>
<td>.51(^d)</td>
</tr>
<tr>
<td>Contact frequency</td>
<td>.08</td>
<td>-.07</td>
<td>-.12</td>
</tr>
<tr>
<td>Support requests</td>
<td>.29(^b)</td>
<td>.02</td>
<td>-.03</td>
</tr>
<tr>
<td>Upset</td>
<td>.28(^b)</td>
<td>.51(^d)</td>
<td>.54(^d)</td>
</tr>
<tr>
<td>Helpfulness</td>
<td>-.07</td>
<td>-.39(^c)</td>
<td>-.44(^c)</td>
</tr>
</tbody>
</table>

\(^a\)Support ratings do not include the impaired patient for these data.

\(^b\)\(p < .05\).

\(^c\)\(p < .01\).

\(^d\)\(p < .001\).

**AD Patient Impairment and Support Perceptions**

We were interested in the possible relationships among impairment indices in the AD victim and support perceptions. Are care-givers for more impaired AD victims more distressed, and do they show differences in their evaluations of support? To address these questions we correlated the three MBPC scores with BDI scores and with the support scores, excluding the AD patient for these analyses.

Table IV shows the correlations among the three MBPC impairment indices, depression, and support ratings. The rated frequency of symptomatic behaviors was positively related to requests for support, as well as positively related to upset in socializing. Both the degree to which the behaviors were troublesome as well as the MBPC frequency/upset cross-product were significantly related to depression and all of the support indices except frequency of contact and support requests. Those care-givers who were more troubled by their AD relative's behaviors described their relationships with others as more distant, more upsetting, and less helpful.

**DISCUSSION**

We found no differences between care-givers and non-care-givers in the frequency of contacts, the closeness of their relationships, or the helpfulness or upset associated with the relationships. However, upset contributed significantly to variance in care-givers' depressive symptoms, while the helpfulness rating made no significant contribution, replicating the pattern found in spousal caregivers by Fiore et al. (1983). Moreover, the independence of negative and positive dimensions of support is consistent with data from several studies (Fiore et al., 1983; Hirsch & Rapkin, 1986; Rook, 1984).
In contrast to the evidence that upsetting aspects of social relationships were significantly related to depression in care-givers, we found no evidence of a similar relationship among well-matched non-care-givers. We found no evidence that helpful aspects of support were reliably related to mood in either group. These data are not consistent with other data from both older and younger adults that suggest that supportive interpersonal relationships may moderate both affective and health-related changes (Cohen & Syme, 1985; Kiecolt-Glaser, Garner, Speicher, Penn, & Glaser, 1984; Kiecolt-Glaser & Greenberg, 1984; Sarason & Sarason, 1985).

Gottlieb (1983) has argued that perceptions of support may be different for individuals who are undergoing more difficult times, in contrast to individuals whose lives are less stressful: for the former, support perceptions may reflect the actual behavior of others, while the latter may evaluate support based on expectations of its availability for future needs. Following this line of reasoning, Cutrona (1986) suggested that frequency of contact might therefore be a more salient determinant of support perceptions during more stressful times. Cutrona's suggestion is consistent with the significantly lower upset associated with more contact and stronger (though not significantly stronger) relationships found between frequency of contact and helpfulness of support in care-givers, in contrast to the data from non-care-givers.

There are several additional factors that may account in part for the absence of significant relationships between mood and support in our non-care-givers. Our research participants had more education and higher incomes than most of the older adult samples used in other studies (e.g., Heller & Mansbach, 1984; Rook, 1984). Low education and low incomes are two of the key features of individuals who lack contact with nonkin (Fischer & Phillips, 1982); low education and income are also associated with greater distress in response to stressful life events (Thois, 1982). Health and income have been the most critical predictors of well-being in other research with older adults (Duff & Hong, 1982; Larson, 1978).

In addition, Coyne and DeLongis (1986) reviewed evidence for a "threshold effect," where a distinction is made between having no supportive relationships and having at least one. They note that some researchers have operationalized social support as the presence of at least one connection. All but two of our research participants and care-givers reported that they had a confidante, and the average frequency of contact with the confidante was several times per week. Thus, our two groups have several relative advantages over their average age peers: their education and income exceeded those of their average age peers, and virtually all had a confidante.

These relative advantages may account in part for the fact that our care-giver group was considerably less distressed than other similar samples described in the literature, including the spousal care-givers described by Fi-
ore et al. (1983). We may be seeing a “best case scenario” among our care-
givers in terms of their functioning (Gwyther & George, 1986).

Care-givers’ functioning has implications for the placement of their im-
paired relatives: There is evidence that care-giver characteristics, including
perceptions of social support, are better predictors of institutionalization than
objective evaluations of impairment in the AD victim (e.g., Zarit et al., 1986).
The absence of significant differences in MBPC scores as a function of the
AD victim’s residence is consistent with these data.

Care-givers whose AD relatives had more symptomatic AD behaviors were
more distressed and described their relationships with other as more up-
setting. It has been suggested that more distressed individuals might underes-
timate the amount of support available to them (Heller, 1979). There is also
some evidence that individuals who are most in need of support may be least
likely to receive it (Coates & Wortman, 1980); a victim who is more distressed
and whose life circumstances appear more unfortunate is likely to get less
support from others (Worthman & Lehman, 1985). Moreover, even mild
depression has been associated with impairments in an individual’s ability
to provide emotional support to others (Coyne & DeLongis, 1986). Unfor-
tunately, the cross-sectional nature of this study does not provide informa-
tion on the direction of causality that would permit an assessment of these
possibilities.

These data may have broader implications for community interventions.
The development of interfamily support and/or professional support pro-
grams that complement natural intrafamily support can help meet the psy-
chosocial needs of relatives who care for demented relatives (Meissen,
Maguin, & Woodruff, 1987). These kinds of programs would theoretically
enhance positive support. However, these data suggest that the reduction
of upsetting support is an important priority. The AD patient is one obvious
source of upset in care-giver’s lives; family members who are involved in care-
giving may benefit from educational programs that teach them behavioral-
management strategies for working with the impaired patient. In addition,
the provision of respite care would provide some relief from patient contact—
one important source of upset in the care-givers’ lives. Further research is
needed to better delineate the sources of upset and means for remediation.

Taken together, these data suggest that the contribution of upsetting
support to mood may be related to certain individual characteristics, partic-
ularly the presence of a chronic stressor. However, our care-giver and non-
care-giver samples are small and heterogeneous, and these data must be in-
terpreted very cautiously. Future studies that address the importance of up-
setting social support should also assess the presence or absence of life
stressors or strains that may intensify the contribution of upsetting support
to depression (Shinn et al., 1984).
REFERENCES


