The Role of Neuroticism and Mastery in Spouse Caregivers’ Assessment of and Response to a Contextual Stressor

Jamila Bookwala1 and Richard Schulz2,3

1Department of Psychiatry (Geriatric Psychiatry Section), University of Pennsylvania, Philadelphia.
2Department of Psychiatry and University Center for Social and Urban Research, University of Pittsburgh, Pittsburgh, Pennsylvania.
3See Appendix 1 for a list of participating institutions and investigators of the CHS Working Group.

Data from more than 300 spousal caregivers and their care recipients were analyzed to demonstrate the effects of caregivers’ personality attributes—neuroticism and mastery—on their assessment of a contextual stressor (the care recipient’s behavioral and functional impairment) and on their experience of distress associated with that stressor. Caregivers who were high in neuroticism and/or low in mastery reported higher levels of behavioral and functional impairment in their disabled spouse and experienced more strain and depressive symptoms associated with caregiving relative to caregivers with lower neuroticism or higher mastery scores. We further showed that the widely reported association between caregiver-assessed impairment of the care recipient and caregiver outcomes can in part be explained by caregivers’ personality attributes, such as neuroticism and mastery. Our findings that caregivers’ personality variables are related to their assessment of a given objective stressor and their response to a given level of stress have implications for interventions targeting caregivers and for the use of caregivers as proxy informants.

STUDIES on family caregiving typically rely on the caregiver for an assessment of the care recipient’s behavior problems and functional impairment, treating such reports as objective accounts of care recipient impairments. However, a large volume of evidence points to a systematic tendency among family members in general, and caregiving relatives in particular, to report poorer physical and psychosocial functioning for an ill family member compared to assessments provided by other raters, such as the patient himself or herself, physicians, nurses, and trained evaluators (e.g., Epstein, Hall, Tognetti, Son, & Conant, 1989; Magaziner, Simonsick, Kashner, & Hebel, 1988; Mangone et al., 1993; Rothman, Hedrick, Bulcroft, Hickam, & Rubenstein, 1991; Rubenstein, Schairer, Wieland, & Kane, 1984; Seltzer & Buswell, 1994; Teri & Wagner, 1991; Weinberger et al., 1992). Inasmuch as personality traits have been consistently linked to individuals’ appraisal of events in their environment (e.g., Cohen & Edwards, 1989; Costa & McCrae, 1990; Kasl & Rapp, 1991; Krohne, 1990; Lazarus & Folkman, 1984) as well as assessments of their own well-being (e.g., Aldwin, 1994; Friedman, Hawley, & Tucker, 1994), we sought to examine the relationship between caregivers’ personality attributes, their assessment of the care recipients’ behavioral and functional status, and their self-report of caregiving-related strain and depressive symptoms. We focused on two specific personality characteristics considered to be reliably linked to psychological well-being and the subjective appraisal of environmental experiences and events: neuroticism and mastery.

Neuroticism (or negative affectivity) has been described as a susceptibility to psychological distress (Clark, Watson, & Minneka, 1994; Costa & McCrae, 1985; Tellegen, 1985; Watson & Clark, 1984; Watson & Pennebaker, 1989). Accordingly, higher scores on neuroticism consistently have been linked to poorer mental health (e.g., Brief, Butcher, George, & Link, 1993; Clark et al., 1994; Watson, 1988), even among family caregivers (Hooker, Monahan, Shifren, & Hutchinson, 1992; Monahan & Hooker, 1995). Higher scores on neuroticism also are associated with a tendency to focus on the negative aspects of others and the world in general, a heightened sensitivity to minor failures, frustrations, and irritations of daily life, and an intensified focus on negative experiences. Distorted perceptions of objective events associated with neuroticism are commonly visible in the domain of self-reported illness symptoms, with a tendency among high-neuroticism scorers to overreport physical illness symptoms (e.g., Costa & McCrae, 1985; Jorm, Christensen, Henderson, & Korton, 1993; Watson, 1988; Watson & Pennebaker, 1989). This tendency has been attributed to a heightened attention to and vigilance for signs of impending trouble (Tellegen, 1985; Watson & Pennebaker, 1989) and a greater accessibility of negative information during recall (Larsen, 1992; Lishman, 1972; Lloyd & Lishman, 1975). Perhaps such hypervigilance and ready recall of negative information characteristic of high-neuroticism persons also is manifested in a tendency to perceive and report more health problems in other individuals in close proximity. Accordingly, within the caregiving context, greater neuroticism in caregivers may be associated with perceiving more behavior problems and functional impairment in the care recipient.

In contrast with neuroticism, stronger beliefs about personal control are associated with better psychological and
physical well-being (e.g., Cohen & Edwards, 1989; Leffcourt & Davidson-Katz, 1991; Pearl & Schoeller, 1978; Rodin, Timko, & Harris, 1985; Taylor, Helgeson, Reed, & Skokan, 1991). In addition, beliefs about personal control are considered to play a significant role in shaping an individual's assessments of the environment as stressful or non-stressful (Cohen & Edwards, 1989; Cox & Ferguson, 1991; Folkman, 1984; Lazarus & Folkman, 1984; Parkes, 1984), such that stronger beliefs about personal control are associated with a tendency to interpret the environment as less stressful. Among beliefs about personal control, the construct of mastery—the extent to which one believes that one's life experiences are under one's personal control—has received considerable attention (Pearlin, Lieberman, Menaghan, & Mullan, 1981; Pearl & Schoeller, 1978). Like other measures of dispositional control, mastery is related to better well-being (Reich & Zautra, 1991; Roberts, Dunkle, & Haug, 1994; Turner & Noh, 1988), especially among caregivers (Boss, Caron, Horbal, & Mortimer, 1990; Miller, Campbell, Farran, Kaufman, & Davis, 1995; Parks & Pilisuk, 1991; Talking Boyer & Snyder, 1994), and can provide a context for evaluating the threat of stress (Roberts et al., 1994). Appraisals stemming from low levels of mastery may foster a tendency to evaluate the environment as more negative than it is. Hence, lower mastery among caregivers may be related to assessing the care recipient as more behaviorally and functionally impaired.

Theoretically, neuroticism and personal control are described as being negatively correlated such that higher neuroticism scores are correlated with lower perceived control. According to Costa and McCrae (1985), for example, feelings of helplessness (or lower personal control) form a component of the neuroticism personality trait. Empirical support for a negative association between neuroticism and mastery has also been reported in a number of studies (e.g., Andrews, Stewart, Morris-Yates, Holt, & Henderson, 1990; Darvill & Johnson, 1991). Inasmuch as neuroticism and beliefs about personal control are negatively correlated, they are likely to have an interactive impact on individuals' assessments of the environment, and within the caregiving context, caregivers with a combination of high neuroticism and low mastery can be expected to make the most negative assessments of the care recipient's behavioral and functional impairment.

Study Goals

The present study was guided by two major goals. First, we examined the relationship between caregivers' neuroticism and mastery and their assessments of the care recipient's behavior problems and functional impairment. As discussed above, neuroticism and mastery can be expected to influence individuals' subjective representation of the environment. Hence, we hypothesized that higher neuroticism scores and lower mastery scores would be associated with caregivers assessing more behavior problems and poorer functioning in the care recipients. We also expected to find support for a significant neuroticism × mastery interaction effect, such that higher scores on neuroticism combined with lower scores on mastery would predict the greatest levels of assessed care recipient impairment. We would gain added confidence about the relationship between caregivers' personality attributes and their assessments of care recipient impairment to the extent that caregivers reported greater impairment for the care recipients than did the care recipients themselves, and in the absence of a significant correlation between caregiver personality attributes and care recipients' self-assessed impairment. Hence, we also examined (1) mean differences between caregivers' assessments of the care recipients' functioning and care recipients' evaluations of their own functional status; and (2) the relationship between caregivers' personality attributes and care recipients' self-assessed functional status.

Second, we assessed the extent to which caregiver neuroticism and mastery attenuate the strength of the relationship between caregivers' assessment of care recipient impairment and caregivers' strain and depressive symptoms. A review of existing evidence suggests that the strength of the association between the care recipient's behavioral and functional impairment and caregiver outcomes varies based on whether information about the care recipient's impairment is obtained from the caregiver as opposed to some other source. Typically, studies that report strong associations between care recipient behavior problems and caregiver mental health are based on the caregiver's assessment of recipient behavior problems (e.g., Baumgarten et al., 1994; Boss et al., 1990; Tennstedt, Caffarelli, & Sullivan, 1992). Similarly, studies that report strong associations between the functional impairment of the care recipient and caregiver well-being have relied on the caregiver's assessment of recipient functioning (e.g., Albert, Litvin, Kleban, & Brody, 1991; Baumgarten et al., 1992; Hadjistavropoulos, Taylor, Turko, & Beattie, 1994; Haley et al., 1987; Majerovitz, 1995; Mangone et al., 1993; Stull, Kosloski, & Kercher, 1994). In contrast, studies that have found a weak or no relationship between the care recipient's functional impairment and caregiver well-being have relied on the care recipient's self-assessment of functioning (Baumgarten et al., 1994; Boss et al., 1990; Tennstedt et al., 1992). Because neuroticism and mastery are known to be related to mental health and are predicted to shape caregivers' assessments of the care recipient's impairment, we hypothesized that these personality attributes would explain, at least in part, the relationship between caregivers' evaluations of the care recipients and caregivers' strain and depressive symptoms.

Method

The data used in the present study were collected during the first wave of the Caregiver Health Effects Study (CHES), a multisite project that examines the physical and psychiatric health effects of family caregiving. The CHES is an ancillary study of the Cardiovascular Health Study (CHS), which provides descriptive data regarding the health status and risk factors for the onset and course of coronary heart disease and stroke in a large population-based sample of adults 65 years or older (see Fried et al., 1991; Tell et al., 1993, for details regarding sampling, recruitment, and data collection for the CHS). A total of 5,888 individuals were enrolled in the CHS, approximately 1,300 persons at each of four sites: California, North Carolina, Maryland, and western Pennsylvania. Like most large epidemiological
studies of the elderly, the CHS sample is slightly biased toward elderly persons of higher socioeconomic status and higher levels of functioning than the elderly population in general. For the CHES, all individuals in the CHS sample who shared a household and indicated that they were married and living with their spouse were eligible to be recruited into the caregiving study (N = 3,185). A screening instrument was used to identify potential caregivers and non-caregiving spouses. Potential caregivers were defined as individuals whose spouses had difficulty with at least one activity of daily living (ADL) or instrumental activity of daily living (IADL) “due to physical or health problems or problems with confusion” (N = 619, or 19% of married couples). A total of 548 individuals in the caregiving pool were consecutively approached in order to achieve the required sample size, yielding a refusal rate of 28%. The non-caregiving group was comprised of individuals matched by age and gender to the caregiver group, who were married or living as married with a spouse or partner, and whose spouse did not have any difficulty with ADLs or IADLs due to physical or health problems or problems with confusion (N = 2,566). A total of 515 non-caregivers were approached, with a refusal rate of 18%. A total of 819 individuals distributed approximately evenly across the four recruitment sites were enrolled into the CHES. Based on their status at the time of the baseline interview, which occurred approximately 2 weeks after respondents were screened, 395 respondents were classified as potential caregivers and 424 as non-caregivers (the caregiving status of a few individuals changed between screening and the baseline interview). A total of 360 care recipients capable of participating in a structured interview were also approached for participation in the study. Of these, 333 (93%) agreed to participate. The data reported in this article are based exclusively on CHES caregivers and their care recipients.

Measures

For the present analyses, we used data collected from caregivers on their sociodemographic variables and perceived health (used as control variables), neuroticism and mastery, their assessments of care recipients’ behavior problems and functional status (difficulties with ADLs and IADLs), appraisals of strain (physical and emotional strain), and depressive symptomatology. From care recipients, self-assessments of functional impairment were used.

Caregiver personality characteristics: Neuroticism.—The brief version of the neuroticism subscale of the Eysenck Personality Inventory (EPI-N; Eysenck & Eysenck, 1977) was used as the measure of caregivers’ neuroticism. The EPI-N has been used extensively and correlates highly with other measures of the construct (see Watson & Clark, 1984); its brevity and ease of administration in person made it especially appropriate for our elderly sample. The response alternatives were of dichotomous form, with caregivers responding “yes” or “no” to 10 items descriptive of the characteristics that comprise the neuroticism personality trait (e.g., “would you call yourself a nervous person?” and “are you often troubled about feelings of guilt?”). Scores were summed to yield a total score on neuroticism, with higher scores indicating stronger endorsement of the neuroticism trait. A Cronbach’s alpha of .73 was obtained for the EPI-N measure.

Caregiver personality characteristics: Mastery.—Pearlin and Schooler’s (1978) mastery scale was used to assess caregivers’ beliefs about control. This measure was treated as a two-factor measure (see Reich & Zautra, 1991), mastery-fatality (five items; α = .69) and mastery-control (two items) (see Appendix 2, Note 1). All items were answered on a scale ranging from 1 (strongly agree to 5 (strongly disagree). Sample items include “I have little control over the things that happen to me” (mastery-fatality) and “I can do just about anything I really set my mind to do” (mastery-control). Mean scores on both factors were computed such that lower scores indicated lower mastery.

Care recipient behavior problems.—The 30-item Caregiver Supplement of the Problem Behaviors Inventory of the National Medical Expenditure Survey (NMES Caregiver Supplement; National Center for Health Services Research and Health Care Technology Assessment, 1987) was used to assess the frequency of everyday problem behaviors exhibited by the care recipient (e.g., “falls down,” “makes excessive demands,” and “asks repetitive questions”). This scale, based on Zarit and Zarit’s (1982) Memory and Problem Behavior Checklist, lists behaviors that may be associated with physical illness or dementia. The caregiver was asked to report on the frequency with which the care recipient engaged in each listed memory or behavior problem using a 5-point scale, where “0 = never occurred” and “4 = occurs daily or more often.” Mean frequency of behavior problems was computed such that higher scores indicated greater frequency. A Cronbach’s alpha of .80 was obtained for this measure.

Care recipient functional status.—Assessments of the difficulties care recipients experienced with ADLs (e.g., bathing, dressing, eating) and IADLs (e.g., shopping, paying bills, taking medications) were obtained from the caregiver. Responding to items on the IADL and ADL subscales from the Older Americans Resource and Services Scale (OARS; Center for the Study of Aging and Human Development, 1978), caregivers reported their assessments of the care recipient’s functional status. Response alternatives on the IADL and ADL items were dichotomous, and caregivers indicated whether the care recipient experienced difficulty on each activity listed. Scores on each subscale were summed to yield the total number of IADL and ADL difficulties; higher scores reflected more care recipient difficulties reported by the caregiver. Cronbach’s alpha values for the caregiver-completed IADL and ADL scales were .84 and .77, respectively. In a separate interview using the same IADL and ADL subscales of the OARS, each caregiver’s care recipient also provided a self-assessment of functional status. Cronbach’s alpha values for care recipients’ self-assessed IADLs and ADLs were .77 and .76, respectively.

Caregiver strain.—As a measure of the amount of strain caregivers experienced that was related specifically to the
care recipient’s behavior problems and functional impairment, caregivers reported the amount of emotional strain and physical strain they experienced for each item endorsed on the IADL, ADL, and problem behavior measures using a 3-point scale, where “0 = no strain” and “2 = a lot of strain.” Responses indicating any strain experienced were combined to yield two overall strain scores—total emotional strain and total physical strain experienced by the caregiver—with higher scores indicating greater strain. Because of the variability in the items endorsed on the IADL, ADL, and problem behavior scales, internal consistency estimates were not computed for the strain measures.

Depressive symptoms.—Caregivers’ depressive symptoms during the preceding week were assessed with a 10-item version of the Center for Epidemiological Studies—Depression (CES–D) scale (Radloff, 1978). This 10-item version of the CES–D has been found to be highly correlated with the full 20-item CES–D ($r = .96$) and represents little or no loss of sensitivity, specificity, or internal reliability (Shrout & Yager, 1989). Sample items include “I had trouble keeping my mind on what I was doing” and “I felt that everything I did was an effort.” Items were responded to using a 4-point scale, where “0 = rarely or none of the time” and “3 = most of the time.” Total depression symptom scores were computed such that higher scores indicated a greater frequency of depressive symptomatology during the previous week. A Cronbach’s alpha of .80 was obtained for this scale.

Control variables.—Consistent with prior research, caregivers’ demographic data and perceived health were included as control variables in the regression analyses. Caregivers provided information on standard demographic variables (gender, education level, income, and age). Perceived health was measured using a single item that asked caregivers to rate their overall health (1 = excellent, 5 = very poor), a typical measure of self-assessed health (e.g., Bookwala & Schulz, 1996; Idler, 1993; Salthouse, Kausler, & Saults, 1990; Schulz et al., 1994). Schulz et al. (1994) have shown that this measure serves as an excellent proxy indicator of prevalent disease, functional disability, and number of prescription medications taken in the CHS cohort.

RESULTS

The final sample of caregivers for whom complete data were available on the major study variables and the control variables of gender, education, and perceived health was 378 (15 caregivers were excluded because of missing data on one or more variables) (see Appendix 2, Note 2). Because fewer care recipient spouses participated in the study compared to caregivers ($n$ of care recipients = 333), for the paired $t$ test comparisons and regression analyses using data from the care recipient pairs, the analysis sample included 324 caregiver-care recipient pairs.

Characteristics of the Sample

The mean age of our sample of caregivers was 72.4 years. The sample was approximately evenly split by gender (51.8% female) and was predominantly White (89.3%). The median income of the caregivers was in the $16,000–$24,999 range and they had a median education level of grade 12. Consistent with the eligibility criteria for this sample, 100% of the caregivers were married or living as married with a partner. Over 70% of the caregivers perceived their health to be “very good” or “excellent.”

Caregivers’ means on the major study variables and bivariate correlations among these variables are provided in Tables 1 and 2, respectively. On average, caregivers endorsed 2.2 neuroticism characteristics, scored above the midpoint on mastery-fatalism and mastery-control, and obtained a total score of 5.85 on the 10-item version of the CES–D. Table 2 indicates that higher scores on the CES–D were significantly correlated with higher scores on neuroticism, lower scores on mastery-fatalism (i.e., being more fatalistic) and mastery-control (i.e., feeling less in control), and experiencing greater emotional and physical strain. Assessment of more care recipient behavior problems and IADL limitations also were correlated with more depressive symptoms in caregivers. As expected, neuroticism was negatively correlated with mastery, such that higher scores on neuroticism were associated with lower scores on mastery-fatalism and mastery-control (see Appendix 2, Note 3).

Neuroticism, Mastery, and Caregiver Assessments of the Care Recipient’s Behavior Problems and Functional Impairment

In order to study the role of caregivers’ neuroticism and mastery in their assessments of the care recipient’s behavior problems and functional impairment, we performed a series of independent hierarchical regression analyses predicting caregivers’ assessments of care recipient behavior problems, IADL difficulties, and ADL difficulties ($n = 378$). Caregivers’ gender, education level, and perceived health were used as control variables in these analyses.

Assessed behavior problems.—Caregivers’ sociodemographic and perceived health variables, entered on step 1, explained 4% of the variance in caregivers’ assessments of care recipient behavior problems [$F(3,374) = 4.78$, $p < .001$] (see Table 3). Caregiving wives and caregivers who rated their own health less favorably reported a higher frequency of behavior problems in the care recipient. On step 2, neuroticism and mastery together accounted for an additional 16% of the variance in caregiver-assessed problem

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>SD</th>
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<tbody>
<tr>
<td>Neuroticism</td>
<td>2.21</td>
<td>2.22</td>
</tr>
<tr>
<td>Mastery-fatalism</td>
<td>3.24</td>
<td>0.67</td>
</tr>
<tr>
<td>Mastery-control</td>
<td>3.74</td>
<td>0.69</td>
</tr>
<tr>
<td>Perceived CR-IADL</td>
<td>2.88</td>
<td>2.47</td>
</tr>
<tr>
<td>Perceived CR-ADL</td>
<td>1.21</td>
<td>1.61</td>
</tr>
<tr>
<td>Perceived frequency of behavior problems</td>
<td>0.51</td>
<td>0.54</td>
</tr>
<tr>
<td>Emotional strain</td>
<td>5.22</td>
<td>6.58</td>
</tr>
<tr>
<td>Physical strain</td>
<td>3.25</td>
<td>5.04</td>
</tr>
<tr>
<td>Depressive symptoms (total)</td>
<td>5.85</td>
<td>5.19</td>
</tr>
</tbody>
</table>
behaviors of the care recipient \[\Delta F(2,372) = 35.74, p < .0001\]. As hypothesized, higher neuroticism and lower mastery predicted the assessment of more care recipient behavior problems by the caregiver. The interaction of neuroticism and mastery (based on mean-deviated values of these variables), introduced on step 3, accounted for approximately 2% additional variance \[\Delta F(1,371) = 8.73, p < .05\]. The "simple" slope for the perceived behavior problems–mastery relationship at different levels of neuroticism indicated that, as expected, lower mastery combined with higher neuroticism in caregivers was associated with reporting the most care recipient behavior problems.

Assessed functional impairment.—Results from the hierarchical regression analyses predicting caregivers’ assessment of IADL impairment in the care recipient (see Table 3) revealed that the sociodemographic and health variables accounted for 2% of the variance in caregivers’ assessments of the care recipient’s difficulties with IADLs \[F(3,374) = 2.68, p < .05\]. Poorer perceived health of the caregiver was associated with assessments of greater IADL difficulties in the care recipient. On step 2, the personality variables as a set accounted for an additional 3% of the variance in IADLs \[\Delta F(2,372) = 6.14, p < .01\]. Lower scores on mastery significantly predicted caregivers’ reports of more care recipient IADLs, after controlling for all other variables in the model. The interaction term (based on mean-deviated values of neuroticism and mastery), introduced on step 3, accounted for an additional 2% of the variance in caregivers’ assessment of recipient IADL impairment \[\Delta F(1,371) = 6.35, p < .05\]. The "simple" slope for the perceived IADL–mastery relationship at different levels of neuroticism indicated that, as expected, lower mastery combined with higher neuroticism in caregivers was associated with reporting the most IADL difficulties in the care recipient. For perceived ADLs, only lower mastery scores predicted caregivers’ assessment of greater care recipient difficulty.

In order to strengthen the inferences that can be drawn from our findings, we examined whether caregivers reported significantly more impairment for their care recipients than did care recipients for themselves and whether caregivers’ personality attributes explained any variance associated with care recipient self-assessments of functioning (see Appendix 2, Note 4). Paired t tests comparing caregivers’ and care recipients’ evaluations of care recipient functioning \((n = 324\) pairs) indicated that caregivers reported greater functional impairment for the care recipients than did care recipients for themselves. Specifically, caregivers reported that, on average, care
recipients had difficulty with 2.71 IADLs and 1.06 ADLs, compared to the care recipients’ mean of 2.25 IADL difficulties and 0.81 ADL difficulties \( t (323) = 3.99, p < .001 \) and \( t (323) = 3.90, p < .001 \) for IADL and ADL paired comparisons, respectively (see Appendix 2, Note 5). Further analyses revealed that these differences varied by caregivers’ neuroticism. Caregivers who endorsed at least one neuroticism characteristic reported significantly more IADL and ADL impairment for their care recipient compared to the recipient’s self-assessment \( t (227) = 4.35, p < .001 \) and \( t (227) = 3.67, p < .001 \), whereas caregivers who endorsed none of the items on the neuroticism measure were not significantly different in their assessments of recipient functioning relative to the recipient’s self-assessed functioning (95\% CI = 0.44 and 1.51, n.s., for IADL and ADL comparisons, respectively). With regard to mastery, caregivers reported significantly more functional impairment for the care recipient than did the care recipient for himself or herself, regardless of whether caregivers scored above or below the median on mastery (range of \( t \) values: 2.30, \( p < .05 \), to 3.36, \( p = .001 \)). In addition, when care recipients’ self-assessed difficulties with IADLs and ADLs were regressed on caregivers’ neuroticism and mastery (step 1) and their interaction (step 2), no statistically significant relationships were observed. These findings indicate that caregivers with higher neuroticism and/or lower mastery were not likely to have care recipients who perceived themselves to be more functionally impaired.

Effects of Neuroticism and Mastery on the Strength of Association Between Caregivers’ Assessment of the Care Recipient and Caregiver Well-being

We also predicted that the inclusion of personality variables in a multivariate regression model would significantly reduce the strength of the widely reported association between care recipient behavior problems and functioning and caregivers’ well-being, when care recipient assessments are obtained from the caregiver. To test this hypothesis, we compared two predictive models (see Table 4). In model 1, caregivers’ emotional and physical strain and depressive symptoms were regressed separately on caregivers’ assessments of their recipient’s behavior problems and functional status (step 2), after controlling for the role of gender, education, and perceived health (step 1). As Table 4 indicates, on step 2, caregiver-rated care recipient problem behaviors and difficulties with IADLs and ADLs accounted for an additional 64\% of the variance in emotional strain \( \Delta F(3,371) = 270.25, p < .001 \), 43\% in physical strain \( \Delta F(3,371) = 102.30, p < .001 \), and 9\% in depressive symptoms \( \Delta F(3,371) = 15.67, p < .001 \).

In model 2, we introduced caregivers’ neuroticism, mastery, and their interaction on step 2 immediately after the control variables, followed by caregiver assessments of recipient functional and behavioral impairment (on step 3) (see Table 4). Consistent with earlier research, caregivers’ neuroticism and mastery emerged as significant predictors of caregiver outcomes. Specifically, higher neuroticism and lower mastery predicted greater emotional and physical strain and more depressive symptoms. A statistically significant neuroticism × mastery interaction term also was observed, with the “simple” slope indicating that a combination of high neuroticism and low mastery in caregivers predicted experiencing the most emotional strain and depressive symptoms. More important, in model 2 the amount of unique variance in caregiver outcomes that could be attributed to care recipient impairment on step 3 decreased to 47\% for emotional strain.

Table 4. Predicting Caregiver Outcomes With Caregiver-Assessed Recipient Impairment: The Role of Neuroticism and Mastery

<table>
<thead>
<tr>
<th></th>
<th>Emotional Strain</th>
<th>Physical Strain</th>
<th>Depressive Symptoms</th>
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<tbody>
<tr>
<td></td>
<td>( \beta )</td>
<td>S.E.</td>
<td>( \beta )</td>
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<tr>
<td>Models 1 and 2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Step 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Education</td>
<td>.14</td>
<td>.07</td>
<td>-01</td>
</tr>
<tr>
<td>Gender</td>
<td>-.13</td>
<td>.66</td>
<td>-.12</td>
</tr>
<tr>
<td>Perceived health</td>
<td>.18</td>
<td>.37</td>
<td>.20</td>
</tr>
<tr>
<td>Model 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Step 2</td>
<td>( \Delta F = 700.25*** )</td>
<td>( \Delta R^2 = .643 )</td>
<td>( \Delta F = 102.30*** )</td>
</tr>
<tr>
<td>CR-Beh Prob</td>
<td>.73</td>
<td>.38</td>
<td>.55</td>
</tr>
<tr>
<td>CR-IADLs</td>
<td>.16</td>
<td>.11</td>
<td>.18</td>
</tr>
<tr>
<td>CR-ADLs</td>
<td>.04</td>
<td>.15</td>
<td>.04</td>
</tr>
<tr>
<td>Model 2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Step 2</td>
<td>( \Delta F = 31.56*** )</td>
<td>( \Delta R^2 = .191 )</td>
<td>( \Delta F = 20.02*** )</td>
</tr>
<tr>
<td>Neuroticism (N)</td>
<td>.26</td>
<td>.18</td>
<td>.23</td>
</tr>
<tr>
<td>Mastery (M)</td>
<td>-.21</td>
<td>.53</td>
<td>-.19</td>
</tr>
<tr>
<td>N × M</td>
<td>-.10</td>
<td>.21</td>
<td>-.04</td>
</tr>
<tr>
<td>Step 3</td>
<td>( \Delta F = 205.36*** )</td>
<td>( \Delta R^2 = .468 )</td>
<td>( \Delta F = 76.74*** )</td>
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<td>CR-Beh Prob</td>
<td>.68</td>
<td>.40</td>
<td>.51</td>
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<tr>
<td>CR-IADLs</td>
<td>.16</td>
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<td>CR-ADLs</td>
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<td>.04</td>
</tr>
</tbody>
</table>

Note: Gender is coded as 0 = women, 1 = men; higher scores indicate higher education, poorer perceived health, higher neuroticism, higher mastery. Mean-deviated values of neuroticism and mastery were used.

\( *p < .05; **p < .01; ***p < .001 \).
DISCUSSION

Our data point to a significant relationship between caregivers’ level of neuroticism and mastery and their assessments of the care recipient’s behavior problems and functional impairment. As hypothesized, higher neuroticism and lower mastery predicted assessments of more care recipient behavior problems by the caregiver. In addition, neuroticism and mastery had the predicted interactive effect on the assessed frequency of behavior problems, such that higher scores on neuroticism in combination with lower scores on mastery predicted assessments of the most care recipient problem behaviors by caregivers. For caregivers’ assessments of the care recipient’s functional impairment, lower caregiver mastery predicted assessing more care recipient difficulty with IADLs and ADLs; higher neuroticism in combination with lower mastery in caregivers predicted the greatest levels of assessed care recipient difficulty with IADLs. These results suggest that caregivers’ assessments of care recipient impairment are subjective in nature, susceptible to the influence of personality attributes.

Further evidence supporting this conclusion was obtained when caregivers’ assessments of the care recipients’ functioning were compared with care recipients’ self-assessments. Consistent with other findings in the literature (e.g., Epstein et al., 1989; Rothman et al., 1991), caregivers reported higher levels of functional impairment in the care recipients than the care recipients reported for themselves. Interestingly, caregivers’ neuroticism played an important role in this difference, with the difference in caregiver-recipient functional assessments being significant only among caregivers who characterized themselves with one or more neuroticism characteristics. Moreover, caregivers’ neuroticism and mastery had no significant main or interactive effects in explaining variance associated with care recipients’ self-assessed functioning, indicating that caregivers with higher neuroticism and/or lower mastery were not more likely to have care recipients who also rated themselves to be more functionally impaired. Although the availability of a “gold standard” for comparison purposes (such as objective assessments of the care recipient by a physician, nurse, or other health care provider) would permit even more conclusive inferences, our findings strongly support the idea that caregiver personality traits are systematically related to the assessment of the care recipient’s functional and behavioral status.

Second, we estimated the impact of including caregivers’ neuroticism and mastery on the strength of the relationship between care recipient impairment (as assessed by the caregiver) and caregiver outcomes. These analyses revealed that, consistent with prior research (e.g., Hooker et al., 1992; Miller et al., 1995), higher neuroticism and lower mastery in caregivers predicted reports of greater emotional and physical strain and more depressive symptoms. More significant, we found that, as hypothesized, caregivers’ personality attributes attenuated the strength of the relationship between their assessments of the care recipients’ impairment and their experienced outcomes. Specifically, our analyses indicated that the proportion of unique variance in indicators of caregiver distress (i.e., emotional strain, physical strain, and depressive symptomatology) attributable to the caregiver-assessed behavioral and functional impairment of the care recipient decreased substantially when neuroticism and mastery were included in a multiple regression analysis ($R^2$ decreased by approximately 18, 12, and 8 percentage points for the three indicators of distress, respectively). This shared variance suggests that the strength of the association between caregiver well-being and assessed care recipient impairment is systematically related to the caregivers’ personality attributes. Ignoring the role of personality variables and taking at face value a caregiver’s assessment of the recipient may result in overestimates of the care recipient’s behavioral and functional limitations. Accordingly, inferences about the extent to which the care recipient’s behavior problems and functional impairment are related to caregiver outcomes may need to be drawn cautiously when they are based on studies that do not include the examination of the effects of caregiver personality parameters such as neuroticism and mastery on the caregiver’s assessments of the care recipient (e.g., Albert et al., 1991; Hadjisavropoulos et al., 1994; Majerovitz, 1995; Schulz & Williamson, 1993; Talkington-Boyer & Snyder, 1994).

Our findings have significant theoretical, methodological, and clinical implications for understanding caregiving as well as patient assessment more generally. Our findings extend current views of personality traits in stressor–well-being models by clearly showing that specific personality traits, especially neuroticism, are related to both the appraisal of the stressor and the experience of distress. Thus, for example, individuals who are high in neuroticism are likely to assess a given objective stressor as more negative and are likely to be more reactive to a given level of stress, independent of the perceptual distortion inherent in their views of the world around them. Similar explanations may hold for caregivers with low levels of mastery. An important clinical implication of these findings is that the perceptual distortions of caregivers who are high in neuroticism or low in mastery could be the target of intervention efforts. Bringing their perceptions closer to reality might alleviate some of the distress these caregivers experience.

At a broader level, our findings have methodological implications for the use of family members as proxy infor-
ments of patient status. Our results suggest that the assessment of care recipient behavioral and functional impairment may be influenced by personality attributes such as neuroticism and mastery. Health and social service professionals may overprescribe intervention services and undermine the functional capacity of care recipients if they rely exclusively on the caregiver for information on patient status. Obtaining personality information might be a useful shorthand method for identifying subgroups of caregivers who are likely to be less reliable informants.

Despite the potential contribution of our results, the present analysis was limited in the range of caregiver personality characteristics that was included. First, other personality characteristics not considered in our study, such as emotional expressiveness and hostility, also may be related to caregivers' assessments of the care recipient's behavioral problems and functional status. Second, the cross-sectional nature of the data do not permit conclusive causal inferences to be drawn among study variables. Longitudinal data are needed to establish the stability of the relationships among caregiver personality attributes, assessment of the care recipient's behavioral and functional impairment, and caregiver outcomes over time. Finally, the generalizability of our data to other caregivers may be somewhat limited, although not as limited as samples used in the large majority of caregiving studies. For example, our caregiver sample had lower levels of depressive symptoms (total score of 11.70 when converted to the 20-item CES-D scale) compared with other caregiver samples (see Schulz, O'Brien, Bookwala, & Fleissner, 1995). However, this is to be expected given the relatively high proportion of caregiving males in our sample (approximately 50%) compared to other caregiver samples and the relatively low levels of disability of our care recipients when compared to other care recipient samples. In addition, our sample had a higher socioeconomic status relative to the general population. On the whole, however, we argue that our sample is more representative of caregivers in general than most samples described in the existing literature. As Schulz et al. (1995, 1997) point out, the recruitment strategies used in most caregiving studies are aimed at enrolling moderately to highly distressed caregivers, while our caregivers are more likely to represent the full spectrum of caregiving experiences.

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Address correspondence to Dr. Jamila Bookwala, Department of Psychiatry (Geriatric Psychiatry Section), University of Pennsylvania, 328 Ralston Penn Center, 3615 Chestnut Street, Philadelphia, PA 19104. E-mail: bookwala@ccceb.med.upenn.edu

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Appendix 1

Participating Institutions and Principal Staff


Appendix 2

Notes

1. Confirmatory factor analyses indicated that the two-factor measurement model described by Reich and Zautra (1991) yielded a better fit to the data ($\chi^2 = 20.14, df = 13, n.s.$) than a single-factor measurement model ($\chi^2 = 63.10, df = 15, p < .001$).

2. Age and income were not included as control variables in the regression analyses because neither significantly predicted any outcome variable and their inclusion reduced the sample further by up to 38 cases.

3. Although the mastery-control measure had statistically significant zero-order correlations with other study variables of interest, it did not significantly predict any outcome variable in the regression analyses other than perceived care recipient ADLs, where mastery-control had a small but significant effect ($p < .05$). Hence, the mastery-control factor was not included in subsequent analyses. In the remainder of this report, the term mastery is used to represent the mastery-fatalism variable, where lower scores represent higher fatalism and hence, lower mastery.

4. Similar analyses were not conducted for care recipient behavior problems because, consistent with other caregiving research (e.g., Boss et al., 1990; Majerovitz, 1995), these assessments were obtained only from the caregiver.

5. Caregivers reported significantly more IADL and ADL limitations for the care recipients compared to the care recipients’ self-assessments even when care recipients were grouped into “little or no cognitive impairment” (MMSE > 22) versus “some or more cognitive impairment” (MMSE < 22). Moreover, although no objective assessments in the form of observational data were available on care recipients’ IADL and ADL limitations, correlations computed between a performance-based measure of care recipients’ functioning (time taken to walk 15 steps, recorded by the interviewer) and caregivers’ and care recipients’ reports of care recipient IADL and ADL limitations were all statistically significant ($r < .39, p < .001$). These data indicate that both the caregivers’ and care recipients’ assessments of care recipient functioning are associated with more objective data.