Influence of Neuroticism, Ethnicity, Familism, and Social Support on Perceived Burden in Dementia Caregivers: Pilot Test of the Transactional Stress and Social Support Model

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In this study we assessed the new transactional stress and social support model, postulating the role of neuroticism, ethnicity, familism, and social support in perceived burden in dementia caregivers. We used a convenience sample (\(N = 77\)) of African American and White dementia caregivers. Results substantiated interrelationships among social support variables, and the influence of perceived positive social support on burden. Neuroticism was related to the perception of positive social support and burden. Results corroborated the model, focusing on neuroticism and quality of social support in modeling perceived burden in family caregivers. Findings call attention to the role of presumably long-standing individual differences in neuroticism that influence caregiver appraisals of stress and social support.

A THEORETICAL approach to studying social support in dementia caregivers has been limited (Dilworth-Anderson, Williams, & Gibson, 2002). Dementia caregiving is influenced by neuroticism, ethnicity, familism, and social support (Aranda & Knight, 1997; Hooker, Monahan, Bowman, Frazier, & Shifren, 1998). However, to our knowledge, the interplay of all these factors in an ethnically diverse sample of caregivers has not been examined.

The transactional stress and social support model (TSSSM) specifies how social support variables relate to perceived burden, and it emphasizes the role of neuroticism, ethnicity, and familism. Unlike stress and coping models (Knight, Silverstein, McCallum, & Fox, 2000; Lazarus, 1991), the TSSSM does not focus on coping styles as mediators of the connections between caregiving stressors and outcomes.

In the TSSSM (see Figure 1), social contact positively influences the amount of support received, which affects both positive and negative appraisals of social support (i.e., there is a positive relation with perceived positive support and an inverse relation with perceived negative support). Effects of social contact and received support on perceived burden are through the appraisals of social support. Positive and negative appraisals of social support are not related; they independently influence perceived burden.

Neuroticism, a trait sensitivity to stress and the resultant tendency to experience negative affect, potentially affects health by predisposing individuals to interpret events and people in the environment as stressful or threatening (Bromberger & Matthews, 1996). Thus, the appraisal of social support is influenced by trait neuroticism as well as by the actual level of received social support. Caregivers high on neuroticism both underestimate positive support and overestimate negative support (conflict). Neuroticism is directly associated with perceived burden.

As proposed by Knight, Silverstein, and colleagues (2000), ethnicity implies cultural values (i.e., strong feelings of loyalty and reciprocity toward the family, such as familism values) that affect the appraisal of caregiving and psychological outcomes. We expected inverse effects of ethnicity on burden, which would be mediated, at least in part, by familism values. Care recipients’ behavioral problems would be associated with greater burden.

METHODS

Procedures and Participants

In this study we conducted a secondary data analysis of an original sample of caregivers (41 African American and 54 White) recruited from community agencies in Los Angeles, and interviewed in their homes by graduate students in gerontology during 1994–1996. Inclusion criteria included the following: (a) the caregiver had to identify as the person providing the most care to a family relative diagnosed with dementia and (b) the dementia diagnosis had to be made by the care recipient’s doctor. We excluded 18 caregivers as a result of missing data. The final sample consisted of 77 caregivers (42 Whites, 35 African Americans), and, unlike the sample reported by McCallum, Flynn Longmire, and Knight (2005), it included both male and female caregivers.

We found that 51% of African American and 67% of White caregivers were spouses (\(\chi^2[1, N = 77] = 1.84, ns\)); others were children (46% for African Americans, 33% for Whites) or other relatives (3% for African Americans, 0% for Whites). The majority of care recipients (74%) had a diagnosis of Alzheimer’s disease; the rest had other dementias (vascular, Parkinson’s, and not otherwise specified). African American caregivers were significantly more likely to be female [89% vs 67%; \(\chi^2(1, N = 77) = 5.11, (p < .03)\)] and of a younger age [\(t(75) = 2.41, p < .02; M = 62.00, SD = 7.09\) and \(M = 66.00, SD = 7.33\) for African Americans and Whites, respectively], and they were likely to
report a smaller income than Whites \([t(75) = 6.78, p < .001; \text{mean income, } M = 6.80, SD = 1.94 \text{ and } M = 9.38, SD = 1.40 \text{ for African Americans and Whites, respectively}].\) On average, Whites fell in the $28,501–38,500 income range, whereas African Americans fell in the $17,501–19,500 range. Considering these demographic differences between groups, we included the following caregiver variables in the analyses: gender, relationship to care recipient, age, and income.

**Measures**

*Personal factors.*—Personal factors included caregivers’ age (in years), gender (1 = male, 2 = female), ethnicity (1 = White, 2 = African American), income (1 = below $5,500; 2 = $7,501–9,500; 3 = $9,501–11,500; 4 = $11,501–13,500; 5 = $13,501–15,500; 6 = $15,501–17,500; 7 = $17,501–19,500; 8 = $19,501–28,500; 9 = $28,501–38,500; 10 = $38,501–43,500; and 11 = $53,501 or more), relationship to the care recipient (1 = spouse, 0 = nonspouse), neuroticism, and familism.

We measured neuroticism by using the 12 items in Factor N of the NEO Five Factor Index (Costa & McCrae, 1992). Cronbach’s alpha for this subscale was \(\alpha = .73\).

We assessed familism by using the Bardis (1959) 16-item scale, which tapped strong in-group feelings and family goals. Cronbach’s alpha was \(\alpha = .82\).

*Caringiving stressors.*—For caregiving stressors, we assessed care recipients’ behavioral problems by using the nine-item disruptive behavior subscale of the Revised Memory and Behavior Problems Checklist (Teri et al., 1992). Cronbach’s alpha for this subscale was \(\alpha = .73\).

*Frequency of social contact.*—We derived frequency of social contact from the Social Network List (developed by Kenneth Heller at Indiana University), a list of persons with whom caregivers talk on a regular basis. The frequency of face-to-face and telephone contact with network members ranged from 1 (less than once a month) to 6 (daily or more). The frequency of social contact was the sum of face-to-face and telephone contacts with the entire network divided by the total social network size.

*Received support from network.*—The Heller scale had three questions tapping companionship and emotional and instrumental support received by caregivers. Responses were rarely (0), sometimes (1), and often (2). Received support was the sum of the three types of support divided by the total social network size.

*Perceived positive and negative social support.*—We used the Main Helper Questionnaire (MHQ) to assess perceived positive and negative support from the specified main helper.
providing (a) emotional support or (b) both instrumental and emotional support. Of the questions in the questionnaire, 12 measured perceived positive support (i.e., feeling loved and cared for); 5 assessed perceived negative support (i.e., feeling criticized). Answers ranged from 0 (a great deal) to 4 (not at all); we reverse coded the ratings so that higher scores represented more perceived positive and negative support. Cronbach’s alphas for perceived positive and negative support were $\alpha = .72$ and $\alpha = .86$, respectively.

Appraisal of caregiving as stressful.—We measured perceived burden by using the 14-item version (Knight, Fox, & Bach-Peterson, 1980) of the Zarit Burden Interview (Zarit, Reever, & Chou, 2000), examining the impact of caregiving on caregivers’ lives. Cronbach’s alpha was $\alpha = .87$.

RESULTS

Because of skewness, we winorized scores for variables in each ethnic group by 20%; after placing the observations for a variable in order, we transformed the 20% smallest and 20% largest observations to the 21st and 79th values, respectively. Winsorization gives less weight to the values in the tails of a distribution unduly influencing the mean, variance, and correlations (Wilcox, 2001). We used multiple hierarchical regressions with winorized values to test hypotheses in the model predicting burden, including the following steps: 1, personal variables (ethnicity, gender, age, income, caregiver spouse); 2, familism; 3, neuroticism; 4, behavior problems; 5, social contact; 6, received support; and 7, perceived positive and negative social support. Because perceived positive and negative support were not significantly related ($r = -.07$, ns), we entered them simultaneously in Step 7. We used the procedures of Baron and Kenny (1986) to test mediation effects.

Multiple hierarchical regression (Steps 1–5) indicated that social contact ($\beta = .30, SE = 0.07, p < .05$) was significantly and positively related to received support.

Multiple hierarchical regression (Steps 1–6) showed the following significant associations with perceived positive support: ethnicity ($\beta = .77, SE = 1.15, p < .001$), age ($\beta = .26, SE = 0.07, p < .05$), neuroticism ($\beta = -.22, SE = 0.07, p < .05$), and received support ($\beta = .23, SE = 0.52, p < .05$). For influences on perceived negative support, ethnicity ($\beta = -.32, SE = 0.64, p < .05$), gender ($\beta = -.36, SE = 0.60, p < .01$), and age ($\beta = -.54, SE = 0.04, p < .001$) were significant; neither received support nor neuroticism was significant.

Multiple hierarchical regression (Steps 1–7) indicated, as TSSSM predicted, that neuroticism ($\beta = .47, SE = 0.14, p < .001$) and patients’ behavioral problems ($\beta = .24, SE = 0.17, p < .05$) were significantly and positively related to burden. We also found that income ($\beta = .27, SE = 0.39, p < .05$) was positively associated with burden. Ethnicity and familism were not significant. Perceived positive social support ($\beta = -.26, SE = 0.18, p < .05$) was inversely related to burden, as hypothesized; however, perceived negative social support was not. We could not examine mediation effects of appraisals of social support on received support and burden as a result of a lack of significant associations. All of these variables significantly accounted for 55% of the total variance in burden; ethnicity, gender, age, income, and caregiver spouse relationship significantly accounted for 19%, whereas neuroticism and behavior problems significantly accounted for 28% and 4%.

Additional post hoc results showed that perceived positive support partly mediated the relationship between ethnicity and burden; African American ethnicity was related to higher perceived positive support, which was associated with lesser burden. The indirect effect of ethnicity on burden through perceived positive support was $-0.20$, that is, $-0.77 \times (-0.26)$.

African American ethnicity was also associated with higher familism, which was inversely related to perceived positive support, which was associated with less burden. The indirect effect of ethnicity on burden through familism and perceived positive support was $.01$, that is, $-0.25 \times (-0.22) \times (-0.26)$. Thus, the indirect effects of ethnicity on burden through familism and perceived positive support were simultaneous, but in opposite directions, resulting in similar levels of burden between caregivers.

We found a significant relationship between caregiver ethnicity and the relationships of emotional main helpers to caregivers [$\chi^2(1, N = 61) = 6.26, p = .04$]. White caregivers listed children as emotional main helpers more often than African Americans (42% vs 12%), and African American caregivers listed friends as emotional main helpers more often than Whites (56% vs 36%). Both ethnic groups were as likely to name other family members as emotional main helpers (22% Whites vs 32% African Americans).

DISCUSSION

Overall, findings (Figure 1) substantiated relationships among social support variables and perceived burden in the TSSSM, corroborating the work of other researchers (i.e., Redinbaugh, MacCallum, & Kiecolt-Glaser, 1995). Neuroticism influenced appraisals of positive social support and burden in the TSSSM, corroborating findings (i.e., those of Hooker et al., 1998) in White caregiver samples and extending them to African American caregivers. The absence of relationships between neuroticism and perceived negative social support, and the latter with burden, is likely a product of the restricted range of scores obtained for perceived negative social support in this study.

The indirect effects of ethnicity and familism on burden extended the sociocultural model of Knight, Silverstein, and colleagues (2000) by showing opposing influences of ethnicity on perceived positive social support. The absence of a direct effect of ethnicity on burden is inconsistent with their model, and it could be due to perceived positive support’s partly mediating the relationship between ethnicity and burden.

The associations of African American ethnicity with both appraisals of social support is inconsistent with the research of Haley and associates (1996), who found no ethnic differences in perceived satisfaction with social support. The bidimensional measure of perceived support in this study may have been more sensitive to ethnic differences in appraisals of social support. Alternatively, these findings could be attributed to ethnic differences in the sources of support; African American caregivers were significantly more likely to list their friends as their emotional main helper, whereas White caregivers were more likely to name their children. The unexpected influence of familism, female gender, and age on perceptions of social support warrant further examination.
Limitations of this study included a small sample size (reducing power and ability to detect significant small effects and increasing Type II errors), numerous analyses (increasing Type I errors), and a predominantly female convenience sample not representative of the general caregiving population (although similar to the existing literature). The cross-sectional data also restricted our ability to draw causal inferences.

In spite of the study limitations, findings corroborated components of a new theoretical model denoting how ethnicity, familism, neuroticism, and social support variables related to perceived burden in dementia caregivers. Findings call for continued attention to the role of perceived support in appraisal of burden in caregivers, and understanding the factors that influence caregivers’ perceptions of support. Implications for caregiver interventions that emphasize the provision of objective support by formal social services are also an important challenge for the future. Findings also call attention to the role of presumably long-standing individual differences in neuroticism in influencing caregiver appraisals of support and burden. This understanding could help identify caregivers at greater risk for poor emotional outcomes early in their caregiving careers, and thus it could provide a basis for prevention programs.

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REFERENCES


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