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Caregiver cognitive status and potentially harmful caregiver behavior

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Abstract
The association between caregiver cognitive status and potentially harmful caregiver behavior was assessed in a sample of 180 caregiver-care recipient dyads. Compromised cognitive status was identified in 39% of these informal caregivers. Beyond variance explained by demographic factors, amount of care provided, care recipient cognitive status, and caregiver depressed affect, care recipients reported more frequently being subjected to potentially harmful caregiver behavior when their caregivers evidenced compromised cognitive status. While preliminary, critical areas of caregiver cognition appeared to be deficits in language comprehension and memory. Results indicate that compromised cognitive status is common among informal caregivers of impaired elders and that this may adversely influence the quality of care they provide.

Introduction

When older adults can no longer live independently, informal caregivers (typically, family members) are faced with multiple, often complex and challenging, tasks that can range from assistance with basic activities of daily living (e.g., feeding, bathing, toileting) to managing medications and handling financial and legal matters. These tasks often require the ability to make appropriate judgments, solve problems, recall necessary information, and communicate effectively. Thus, a minimal level of cognitive ability would seem to be a prerequisite for adequately caring for another person. Although poor caregiver physical health and functional limitations have been cited as factors in elder abuse (e.g., Goodrich, 1997; Wolf, 1996), how caregiver cognitive status, in particular, may influence the quality of care elders receive has not been determined in empirical studies.

On the other hand, it is clear that poor cognition is associated with decrements in one's own ability to function independently (Gill et al., 1996; Lichtenberg et al., 2003; Willis et al., 1992; Yu et al., 1993). Many caregivers are, themselves, old enough to experience reductions in cognitive capacities associated with the aging process (e.g., Davies et al., 1999; National Alliance for Caregiving and the American Association of Retired Persons, 1997), suggesting that they may have trouble caring for themselves, let alone another person. But poor cognitive status is not limited to older people. For a variety of reasons (e.g., developmental problems, lack of education), some younger individuals who occupy a caregiving role may similarly be less than cognitively equipped to handle caregiving responsibilities. It stands to reason then, that, regardless of age, compromised cognitive status may predict some aspects of quality of care. This study was designed to assess this hypothesis.

The intent of this research was not to specify the underlying source of poor caregiver cognition (whether age-related or otherwise) but, instead, to provide preliminary evidence about the prevalence of low or compromised cognitive status in informal caregivers and the extent to which this may contribute to potentially harmful caregiver behavior. To our knowledge, this is the first study to investigate caregiver cognitive status in this context. Rather, much of the caregiving literature has focused on determining the impact of providing care on caregiver emotional health, most frequently, depressed affect. These efforts have resulted in a consensus that substantial proportions of caregivers

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of impaired elders are subject to elevated levels of depressive symptoms (e.g., Baumgarten et al., 1992; Bodnar & Kiecolt-Glaser, 1994; Bookwala, Yee, & Schulz, 2000; Dura, Stukenberg, & Kiecolt-Glaser, 1991; Schulz et al., 1995; Schulz, Visintainer, & Williamson, 1990). Moreover, depressed caregivers are more likely to be abusive (e.g., Goodrich, 1997; Paveza et al., 1992; Williamson et al., 2001).

In this study, we assessed the cognitive abilities of informal caregivers of impaired older adults and, consistent with prior analyses (Davies et al., 1999), expected to find evidence of cognitive deficits in substantial numbers of these caregivers. We also expected to replicate previous findings showing that depressed caregivers are more abusive. However, our primary goal was to investigate the extent to which caregiver cognitive status is related to the quality of care elders receive beyond variance explained by caregiver depression and other variables previously shown to be related to elder mistreatment. Because there is some, albeit inconclusive, evidence that demographic factors, the amount of care provided, and the extent of care recipient cognitive impairment are related to elder abuse and neglect (e.g., Jogerst et al., 2000; Lachs et al., 1997), we also controlled for these factors in our analyses.

Method

Sample and procedure

Data were provided by participants selected from the first wave of the Family Relations in Late Life (FRILL) study in which a voluntary, non-probability sample of caregiver-care recipient dyads was recruited from various medical and community resources in areas served by the University of Georgia, the University of Pittsburgh, and the University of Texas Southwestern Medical Center at Dallas. (Aspects of these data have been preliminarily discussed elsewhere. Analyses of data provided by spousal caregivers ($N = 142$) at Time 1 have appeared in a previously published paper (Williamson et al., 2001) and summary cognitive results for caregivers have been described in Beach et al. (2005) in relation to caregiver physical health as a predictor of negative caregiver outcomes. Although there is overlap in some of the variables analyzed in this study and those in Williamson et al. (2001) and Beach et al. (2005), the purpose of this paper is entirely different and uses a different compilation of participants and exclusionary criteria).

The FRILL project was approved by human subjects review boards at each institution, and all participants signed informed consent forms that, in part, advised that suspected maltreatment would be reported to the appropriate authorities. No potential participants refused to be interviewed after receiving this information.

FRILL criteria stipulated that caregivers provide unpaid assistance with at least two instrumental activities of daily living (IADL, e.g., managing money, taking care of personal business) or one basic activity of daily living (ADL, e.g., bathing, using the toilet) to a community-dwelling person age 60 or older. Source of care recipient impairment was not a criterion for inclusion in this study, resulting in a sample with a variety of disabling conditions.

After screening by telephone to assure eligibility, those who met study requirements were interviewed, typically in their own homes. To prevent data contamination, researchers interviewed care recipients and caregivers simultaneously and separately (e.g., in separate rooms). On average, interviews lasted 1.5–2.0 hours. Researchers completed comprehensive training prior to interviewing, both in collecting questionnaire data as well as multiple hours specific to cognitive test data collection. Caregivers and care recipients were each paid $20.00 per interview.

Because our outcome variable was caregiver behavior as reported by care recipients, elders were screened for cognitive ability to provide valid data. Of the total FRILL sample of 283 caregiver-care recipient dyads, 103 were excluded due to care recipient cognitive impairment (criteria described below), leaving 180 dyads for these analyses. Using these same criteria, no dyads were excluded on the basis of caregiver cognitive status. Statistical analyses comparing our 180 included dyads to the 103 excluded dyads showed no significant differences between the two groups on the variables of age, gender, relationship with the care recipient, or years of caregiving.

Similar to national estimates (e.g., National Alliance for Caregiving and the American Association of Retired Persons, 1997; Select Committee on Aging, 1987), 74% of the caregivers in this sample were women, and most were either spouses (50%) or adult children (35%) of the care recipient. Mean caregiver age was 63 years ($SD = 15$, range = 20–87); mean care recipient age was 77 years ($SD = 9$, range = 60–98). The sample was predominantly White (83%); most minority respondents were African-American (81%), with the remainder identifying themselves as either Hispanic (13%) or members of other ethnic groups (6%). Caregivers were generally well-educated; 87% had at least a high school diploma. On average, they had been providing care to the elders in this study for seven years ($SD = 8$ years, range = 1 month–55 years).

Measures

Caregiver and care recipient cognitive status. Both caregivers and care recipients completed the Neurobehavioral Cognitive Status Examination

(NCSE; Kiernan et al., 1987). As a brief and efficient measure of cognitive functioning in ten domains (orientation, attention, language comprehension, memory, constructions, language repetition, naming, calculations, reasoning, and judgment), the NCSE has been carefully standardized in normative, geriatric, and neurosurgical populations (Kiernan et al., 1987; Northern California Neurobehavioral Group, Inc. (NCNG), 1995). Although this type of screening does not lend itself to traditional reliability assessment (i.e., the range of scores within the general population is by necessity restricted, with a high ceiling effect), test–retest reliability in impaired populations has been good (Lamarre & Patten, 1994; Mitrushina, Abara, & Blumenfeld, 1994). Moreover, the NCSE has a high level of sensitivity in detecting cognitive impairment (Drane & Osato, 1997; Fields et al., 1992; Wiederman & Morgan, 1995). While administration and scoring of the NCSE is a relatively straightforward process, all researchers conducting interviews were carefully trained in its use, then post-training tested by the first author, a clinical neuropsychologist with extensive experience administering, scoring, and interpreting the NCSE. Any question regarding administration or scoring was flagged at the time of the interview and resolved through discussions with the first author.

NCSE results served several purposes in these analyses. The ability of cognitively compromised individuals to provide valid data is a subject currently under debate (e.g., Feinberg & Whitlatch, 2001; Kiyak, Teri, & Borson, 1994). In these analyses, we adopted a conservative approach that involved excluding dyads in which care recipients scored less than eight (out of 12) on the orientation domain (indicating moderate or greater impairment in orientation) and less than 13 (out of 26) on the language comprehension domain (indicating moderate or greater impairment in language comprehension). The same standard was applied to caregivers. As noted previously, no caregivers in our sample met these exclusionary criteria. Within the remaining sample, both care recipient and caregiver cognitive status was evaluated on the basis of composite NCSE scores. That is, performance on each of the subscales was rated as 1 = average, 2 = mildly impaired, 3 = moderately impaired, or 4 = severely impaired, and responses were summed to produce the composite NCSE Total Score (possible range = 10–40) with higher scores representing lower cognitive status. Individual subtest raw scores were converted to this four-point rated score using age-corrected scores provide in the NCSE test manual (NCNG, 1995). Finally, caregiver scores on individual components of the NCSE were evaluated. For prevalence figures, caregivers were categorized as impaired or non-impaired based on whether they performed in the impaired range (i.e., subscale score of 2 or higher) on at least two domains of the NCSE (Drane & Osato, 1997). Although the NCSE Manual (NCNG, 1995) indicates that any individual subtest score in the impaired range (i.e., greater than 1) suggests cognitive impairment, it has been criticized for potentially inflating false positive rates. Thus, we followed Drane and Osato's (1997) recommendations as they have shown a significant increase in specificity without significant loss of sensitivity by using performance in the impaired range in two or more domains. As shown in Figure 1, in this sample of caregivers, the most frequent deficits were in memory (37%), language repetition (32%), similarities (18%), and judgment (18%), with 39% ($n = 71$) being at least mildly impaired on two or more domains of the NCSE. Caregiver scores on the

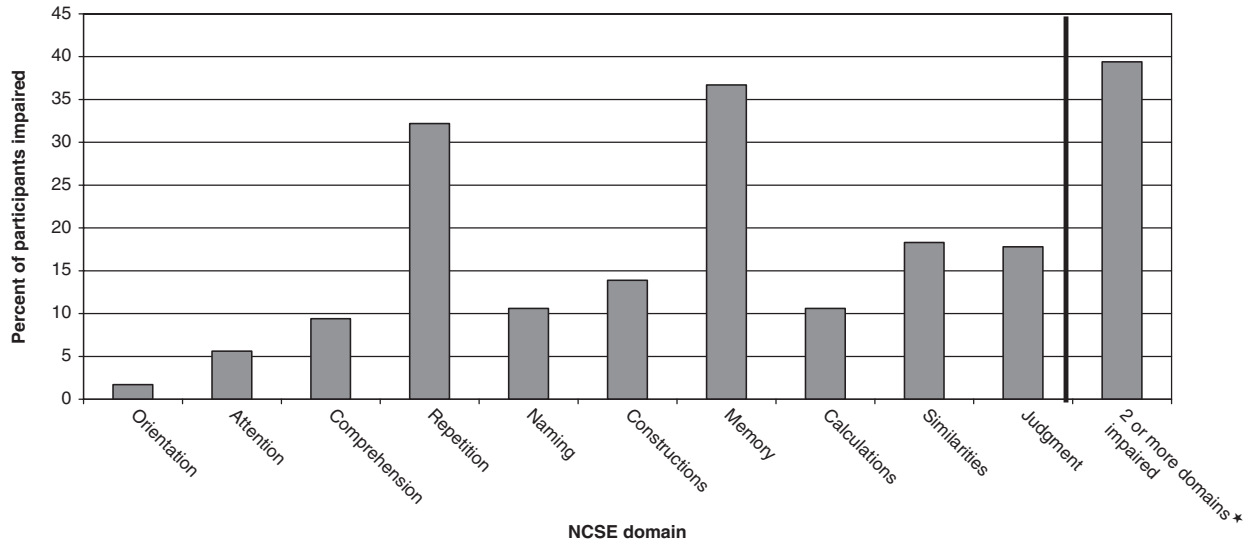

Figure 1. Proportions of caregivers with deficits in specific NCSE domains. *Proportion of caregivers with deficits in two or more domains impaired.

composite NCSE varied widely, with a mean of 12 (SD = 3) and a range of 10 (no impairment) to 23 (significant impairment).

Caregiver-reported amount of help provided. As in prior studies (e.g., Davies et al., 1999; Williamson & Schulz, 1990; Williamson, Shaffer, & Schulz, 1998; Williamson et al., 2001), we employed an 18-item (e.g., personal grooming, taking care of personal business) assessment adapted from the Activities of Daily Living instrument (ADL; Older American Resources and Services; Duke University, 1978). To avoid confounding ADL tasks that care recipients have never done (e.g., some older women have never filed tax returns, and some older men have never done laundry) with tasks that caregivers do not help with (either because help is not needed or because someone else helps), caregivers evaluated each ADL item on a scale of 0 (care recipient never did this), and 1 (I do not help with this) to 5 (complete help, I do this for him/her all the time). Our experience indicates that differentiating between whether care recipients never conducted a particular activity and whether caregivers do not help with that activity produces less respondent confusion about the appropriate answer, resulting in more accurate data. Scores could range from 0–90. As in our previous research, internal reliability was high, with Cronbach's α in this sample = 0.89. Mean ADL assistance was 44 (SD = 17, range 3–86).

Caregiver-reported depressed affect. Symptoms of caregiver depression were measured with the Center for Epidemiological Studies Depression scale (CES-D; Radloff, 1977). Twenty items rated, on a four-point scale (0 = rarely or none of the time, less than one day, 3 = most or all of the time, 5–7 days), frequency of depressive symptoms during the past week. The CES-D has been shown to be internally consistent (e.g., Hertzog et al., 1990; Radloff, 1977), and Cronbach's α in this sample was 0.90. Average CES-D score was 11 (SD = 10, range 0–49). Individuals scoring 16 or above on the CES-D are considered to be 'at risk' for clinical depression, and 26% of this sample of caregivers were in this category.

Care recipient-reported potentially harmful caregiver behavior. Our outcome variable was care recipient reports of caregiver behavior that could be detrimental to the elder's psychological and physical well-being. Using items adapted from previous research (Pillemer & Suitor, 1992; Steinmetz, 1988; Straus, 1979), the Potentially Harmful Behavior scale (PHB; Williamson et al., 2001) assessed the frequency (0 = never, 4 = all the time) of five indicators of psychological mistreatment (screaming and yelling; threatening with nursing home placement; threatening to use physical force; threatening to abandon; verbal abuse that involves using a harsh tone of voice, insulting, calling names, or swearing) and five indicators of physical mistreatment (withholding food; hitting or slapping; shaking; handling roughly in other ways; being afraid that caregiver might hit or try to hurt you). These questions were placed near the end of the structured interviews and, to decrease reactance (Steinmetz, 1988), were introduced as 'methods that people use to get others to do what they want them to do'. Care recipients were asked to report how often their caregiver (i.e., the other member of the dyad) used any of these methods. Responses were summed to create a measure with Cronbach's $\alpha = 0.70$ in this sample of care recipients. Using raw scores, care recipient-reported PHB was, on average, infrequent ($M = 2$), but there was adequate variability (SD = 3, range 0–18). The most frequently cited indicators of PHB were psychological in nature—for instance, at least on occasion, care recipients reported that their caregivers screamed and yelled at them (39%), used a harsh tone of voice, insulted, called them names, or swore at them (25%), threatened to send them to a nursing home (6%), threatened to stop taking care of them (4%), and threatened to use physical force (4%). However, care recipients also reported, at least on occasion, being hit or slapped by their caregivers (2%), being shaken by their caregivers (3%), being handled roughly in other ways (6%), having food withheld from them (2%), and being afraid that their caregivers might hit or try to hurt them (3%).

Data analyses

Data were analyzed in stages. First, the sample was described in terms of the variables of interest in this study. The specific domains in which caregiver cognitive status was most frequent were determined, as was the proportion of caregivers who were cognitively deficient in two or more NCSE domains. Zero-order correlations were then conducted to identify: (a) the extent to which compromised caregiver cognitive status was related to the amount of care provided, caregiver depressed affect, and care recipient-reported PHB; and (b) demographic variables that should be included in subsequent analyses (i.e., those related to amount of care provided, caregiver depressed affect, and PHB). The primary test of our hypothesis involved entering these demographic factors in the first step of a hierarchical regression analysis to predict PHB, followed by amount of care provided and care recipient severity of cognitive impairment in the second step, caregiver CES-D scores in the third step, and caregiver cognitive status in the final step. Our primary focus was on caregiver total NCSE scores. We also, however, conducted an analogous regression analysis that replaced total NCSE scores with NCSE subscale values to preliminarily explore

the aspects of caregiver cognitive status that may be most critical in predicting PHB.

Results

Bivariate analyses

Correlations shown in Table I indicate the extent to which demographic factors and caregiver and care recipient NCSE scores were related to ADL, CES-D, and PHB. Of the demographic factors, caregiver–care recipient kinship, shared residence, care recipient gender, and caregiver age emerged as significant. Spousal caregivers reported providing more care, were more likely to be depressed, and were more likely to be reported as abusive as were non-spousal caregivers. The same was true for those who lived in the same household as care recipients. Reported PHB was more frequent among older caregivers and caregivers of male care recipients. The latter group also reported more symptoms of depression. Given these results, kinship, shared residence, care recipient gender, and caregiver age were retained for multivariate analyses.

Bivariate results also indicated that caregiver cognitive status was related to PHB, with care recipients whose caregivers evidenced lower cognitive status reporting more PHB. The major contributors to this effect appeared to be in the language comprehension, memory, and similarities domains. In addition, lower scores in the naming and similarities domains were modestly associated with higher CES-D scores. Care recipient cognitive status was related to the amount of care provided, but the same was not evident for caregiver cognitive status.

Table I. Zero-order correlations: Demographic factors and caregiver (CG) and care recipient (CR) cognitive status as related to amount of care provided (ADL), CG depressed affect (CES-D), and CR-reported potentially harmful behavior (PHB).

	ADL	CES-D	PHB
Demographics			
Kinship[a]	−0.18*	−0.22**	−0.30***
Shared residence[b]	0.31***	0.21**	0.23**
Time in caregiving role	0.07	−0.11	0.04
CR age	0.01	−0.04	−0.14
CG age	0.07	0.13	0.16*
CR gender[c]	0.11	0.21**	0.15*
CG gender[c]	0.12	−0.04	0.07
Ethnicity[d]	0.06	0.06	0.09
CR total NCSE[e]	0.24**	0.13	0.10
Caregiver cognition[e]			
Total NCSE	0.00	0.15*	0.22**
NCSE subscales			
Orientation	0.08	0.07	0.07
Attention	0.05	0.01	0.02
Comprehension	−0.11	0.10	0.21**
Repetition	−0.03	0.01	0.05
Naming	−0.03	0.15*	0.12
Constructions	0.00	0.04	0.01
Memory	−0.09	0.11	0.24***
Calculations	0.11	0.06	−0.01
Similarities	0.03	0.16*	0.18*
Judgment	0.08	0.05	0.12

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$. ADL, Activities of Daily Living scale; CES-D, Center for Epidemiological Studies Depression scale; PHB, Potentially Harmful Behavior scale; NCSE, Neurobehavioral Cognitive Status Examination. Except for CR NCSE and PHB, all other data were reported by CGs. [a] 1 = spouse, 2 = other. [b] 0 = no, 1 = yes. [c] 1 = female, 2 = male. [d] 1 = White, 2 = Other. [e] Higher scores = more deficits.

Multivariate analyses

Table II presents the results of a hierarchical regression analysis to determine whether caregiver cognition (total NCSE scores) would account for significant variance in PHB beyond the effects of caregiver depression. Because they were related to at least some of our measures (see Table I), kinship, shared residence, care recipient gender, and caregiver age were entered as control variables in the first step, followed by ADL assistance and care recipient cognitive status in the second step. Caregiver CES-D scores were entered in the third step, with caregiver composite NCSE scores in the fourth and final step.

Kinship remained significant through all steps, indicating that, regardless of care recipient gender, sharing a residence, caregiver age, the amount of care provided, caregiver depressed affect, and caregiver and care recipient cognitive status, elders being cared for by spouses reported more frequently being subjected to PHB than did those who were not married to their caregivers. Shared residence, care recipient gender, and caregiver age did not emerge as significant factors. When entered in Step 2, neither ADL assistance nor care recipient NCSE scores predicted PHB, and this was the case through subsequent steps in the analyses. After controlling for demographic factors, ADL assistance, and care recipient cognition, caregiver depressed affect was a significant predictor of care recipient-reported PHB and remained significant after the entry of caregiver total NCSE scores in Step 4. However, beyond the variance explained by all of these variables, caregiver total NCSE scores accounted for a significant (albeit relatively small) portion of the variance in PHB. Overall, this regression equation explained 21% (adj $R^2 = 0.17$) of the variance in care recipient-reported PHB.

To explore the dimensions of caregiver cognitive status as predictors of care recipient-reported PHB, we conducted another hierarchical regression analysis, substituting NCSE subscale scores for NCSE composite performance (see Table III). This analysis not only resulted in an increase in the amount of explained variance ($R^2 = 0.27$, adj $R^2 = 0.19$) but also was informative in that it indicated that language comprehension and memory may be the primary aspects of caregiver cognitive status that contribute to elder reports of PHB.

Table II. Hierarchical regression predicting care recipient (CR)-reported potentially harmful caregiver (CG) behavior using CG composite NCSE scores.

	R^2_{change}	Step 1	Step 2	Step 3	Step 4
Step 1	0.11**				
Kinship[a]		−0.32*	−0.31*	−0.29*	−0.31*
Shared residence[b]		0.11	0.07	0.06	0.04
CR gender[c]		−0.02	−0.01	−0.04	−0.04
CG age		−0.09	−0.07	−0.08	−0.12
Step 2	0.02				
ADL		–	0.12	0.06	0.08
CR total NCSE[d]		–	0.08	0.06	0.05
Step 3	0.05**				
CES-D		–	–	0.24*	0.21*
Step 4	0.03*				
CG total NCSE[d]		–	–	–	0.18*
Total R^2	0.21**				
	(Adj $R^2 = 0.17$)				

* $p < 0.01$; ** $p < 0.001$. ADL, Activities of Daily Living scale; CES-D, Center for Epidemiological Studies Depression scale; PHB, Potentially Harmful Behaviors scale; NCSE, Neurobehavioral Cognitive Status Examination. Except for CR NCSE and PHB, all other data were reported by CGs. [a] 1 = spouse, 2 = other. [b] = no, 1 = yes. [c] 1 = female, 2 = male. [d] Higher scores = more deficits.

Table III. Hierarchical regression predicting care recipient (CR)-reported potentially harmful caregiver (CG) behavior using caregiver NCSE subscale scores.

	R^2_{change}	Step 1	Step 2	Step 3	Step 4
Step 1	0.11***				
Kinship[a]		−0.32**	−0.31**	−0.29**	−0.27*
Shared residence[b]		0.11	0.07	0.06	0.02
CR gender[c]		−0.02	−0.01	−0.04	−0.02
CG age					
Step 2	0.02				
ADL		–	0.12	0.06	0.13
CR total NCSE[d]		–	0.08	0.06	0.13
Step 3	0.05**				
CES-D		–	–	0.24**	0.17*
Step 4[d]	0.09*				
Orientation		–	–	–	0.04
Attention		–	–	–	0.04
Comprehension		–	–	–	0.16*
Repetition		–	–	–	0.03
Naming		–	–	–	0.05
Constructions		–	–	–	−0.05
Memory		–	–	–	0.20**
Calculation		–	–	–	−0.10
Similarities		–	–	–	0.09
Judgement		–	–	–	0.10
Total R^2	0.27***				
	(Adj $R^2 = 0.19$)				

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$. ADL, Activities of Daily Living scale; CES-D, Center for Epidemiological Studies Depression scale; PHB, Potentially Harmful Behaviors scale; NCSE, Neurobehavioral Cognitive Status Examination. Except for CR NCSE and PHB, all other data were reported by CGs. [a] 1 = spouse, 2 = other. [b] 0 = no, 1 = yes. [c] 1 = female, 2 = male. [d] Higher scores = more deficits.

Discussion

To date, the caregiving literature has ignored the potential impact of caregiver cognitive deficits on quality of informal care. Intuitively, providing care would seem to depend, at least to some extent, on caregiver cognitive abilities, but this assumption has not previously been empirically validated outside of our laboratory (e.g., see Beach et al., 2005). In our sample, a surprisingly large percentage of caregivers (39%) evidenced at least mildly compromised cognitive status. Given the voluntary nature of our participants, it seems reasonable to expect that population-based studies would reveal even higher rates of low cognitive status in informal caregivers.

At the inception of this research, we did not expect to identify severe cases of elder abuse.

Rather, we were interested in caregiver behavior that might be harmful to impaired elderly care recipients, hoping to find ways to identify problematic situations that could be targeted for intervention before they deteriorate to abusive behavior. Still, in this select sample, we found that substantial numbers of care recipients reported being subjected to hostile caregiver behavior. More relevant to our primary goal, care recipients whose caregivers evidenced low cognitive status reported more frequently being treated in (most often, verbally) abusive and threatening ways, a finding that persisted beyond variance explained by relevant demographic factors, amount of care provided, level of care recipient cognitive impairment, and caregiver depressed affect. Exact mechanisms underlying this effect remain unclear, but our initial investigation of the individual components of caregiver cognitive status provides some clues. That is, language comprehension and memory may be important factors in the association between caregiver cognitive status and potentially harmful behavior. Deficits in these domains are typical of the cognitive declines seen in dementia. Thus, our cognitive measure likely identified caregivers who have difficulty with self care (Grigsby et al., 1998; Royall, Chiodo, & Polk, 2000), including at least some that were, themselves, developing symptoms of dementia. It is hardly surprising, then, that similar to less than optimal individual functional independence, low cognitive status may result in compromised ability to adequately care for others and, perhaps, in potentially harmful behavior.

Limitations and directions for future research

These analyses are limited in several respects, including their cross-sectional nature, and, consequently, it remains unknown how changes in caregiver cognition are related to changes in potentially harmful caregiver behavior. No data on whether such caregiver behavior deteriorates over time have, to date, been reported. On the other hand, there is evidence that once a pattern of negative interaction is established between family members, it tends to persist or worsen as environmental stressors increase (e.g., Kazdin, 1995; Patterson, Reid, & Dishion, 1992; Strassberg, 1995; Wolf, 1996).

Another shortcoming is that our voluntary sample may not represent the entire population of informal caregiving dyads. Still, we found substantial evidence of demographic consistency between the composition of our caregiver sample and national estimates of the caregiving population. In addition, although we did not expect to enroll dyads in which severe maltreatment was occurring, the 2–6% of care recipients who reported, at least occasionally, being subjected to physically abusive caregiver behavior is congruent with population estimates of the frequency of elder abuse (e.g., Lachs et al., 1997; National Center on Elder Abuse (NCEA), 1998; Pillemer & Finkelhor, 1989; Schofield & Mishra, 2003). And, the percentage of care recipients who reported some form of psychological maltreatment (39%) is consistent with research based on caregiver reports of similar types of potentially harmful behavior (e.g., Pillemer & Suitor, 1992; Steinmetz, 1988). Our findings also are in line with research showing that psychological abuse is more common than physical abuse (e.g., Kurrle et al., 1997; Marshall, Benton, & Brazier, 2000; NCEA, 1998; Pavlik et al., 2001).

Moreover, we did not include data from dyads in which the care receiver evidenced severe cognitive impairment. Currently, the validity of information provided by cognitively impaired elders is a matter of considerable debate with, as yet, no resolution. Therefore, we relied on available evidence indicating that mildly to moderately impaired individuals can provide reasonably reliable data in some circumstances (e.g., Feinberg & Whitlatch, 2001; Kiyak et al., 1994). It is unknown whether PHB is one of these situations. Given the state of the relevant literature, we opted for a conservative approach by excluding dyads in which the care receiver was clearly more than moderately impaired. That we found no differences between our included and excluded dyads on potentially important demographic variables (i.e., caregiver age, caregiver gender, years of caregiving, and caregiver/care receiver kinship) adds some confidence in our approach, but it does not solve problems associated with assessing PHB among elders with severely compromised cognitive abilities. We expect that direct, ongoing observation by a neutral third party is the best (perhaps, only) way to collect these data.

Issues surrounding the association of familial relationship and the likelihood of abuse have yet to be resolved, but conflicting findings may reflect differences in methodology and the population under investigation (e.g., NCEA, 1998; Lachs et al., 1994). Elder abuse research has relied largely on information gleaned from legal and social service records—for example, reported and/or substantiated cases of abuse—and these studies tend to document that adult children and other relatives, especially those with substance abuse problems and who depend on the elder for financial support, are more likely to be abusive (e.g., APA, 1999; NCEA, 1998; Lachs et al., 1997; Wolf, 1996; 1997). On the other hand, studies of community-based, voluntary samples (e.g., Pillemer & Suitor, 1992; Steinmetz, 1988), like ours, are less likely to identify clear cases of physical abuse and more likely to identify spouses as perpetrators of psychological maltreatment that may not meet criteria for social service or legal intervention. Resolving these issues is an important direction for future research.

Finally, in these analyses, we did not evaluate the potential mediating and/or moderating effects of numerous other variables. Rather, we felt it was

important to establish that caregiver cognitive status can play a role in quality of informal elder care. The impact that other factors may have on our results warrants attention. For instance, social support may intervene in the relation between cognitive status and PHB such that supportive others increase the likelihood that a cognitively impaired CG will have help in dealing with caregiving demands that might otherwise become overwhelming. Caregiver physical health status is another potential intervening factor. In fact, in a recent paper from FRILL in which caregivers were not screened for cognitive status (Beach et al., 2005), a small but significant relation was found between caregiver global health and PHB. As this area of research matures toward developing a comprehensive model, both social support and caregiver physical health deserve special attention.

Conclusion

A goal of the FRILL project was to specify a predictive profile of caregivers at risk for providing sub-optimal elder care, under the assumption that verbally hostile and threatening behavior can escalate over time, perhaps to actual physical abuse and neglect. In this context, our data suggest that, because they share a household with their care recipients, are older, and thus more subject to age-related cognitive declines, spousal caregivers deserve special attention. Overall, the picture that emerges from these data is that caregiving spouses who are depressed and who have compromised cognitive status, particularly in terms of language comprehension and memory, may constitute a high-priority group in need of interventions not only to improve their own quality of life but also to forestall declines in the quality of care they provide.

Despite its limitations, this study could have important social and policy implications. There currently are no legal requirements, or even recommended guidelines, specifying either emotional or cognitive competence to provide care. Our data confirm prior research (e.g., Paveza et al., 1992; Williamson et al., 2001) indicating that depressed caregivers are more likely to behave in ways that may be harmful to their care recipients. Going beyond previous research, they further indicate that low cognitive status not only is common among informal caregivers of impaired elders but also may adversely influence the quality of care they provide.

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References

Beach, S. R., Schulz, R., Williamson, G. M., Miller, L. S., Weiner, M. F., & Lance, C. E. (2005). Risk factors for potentially harmful informal caregiver behavior. *Journal of the American Geriatric Society*, *53*, 255–261.

Baumgarten, M., Battista, R. N., Infante-Rivard, C., Hanley, J. A., Becker, R., & Gauthier, S. (1992). The psychological and physical health of family members caring for an elderly person with dementia. *Journal of Clinical Epidemiology*, *45*, 61–70.

Bodnar, J. C., & Kiecolt-Glaser, J. K. (1994). Caregiver depression after bereavement: Chronic stress isn't over when it's over. *Psychology and Aging*, *9*, 372–380.

Bookwala, J., Yee, J. L., & Schulz, R. (2000). Caregiving and detrimental mental and physical health outcomes. In G. M. Williamson, D. R. Shaffer, & P. A. Parmelee (Eds.), *Physical illness and depression in older adults: A handbook of theory, research, and practice* (pp. 93–131). New York: Plenum.

Davies, M. S., Miller, L. S., & Family Relations in Late Life Project (1999). Caregiver cognitive status and quality of care to the elderly [abstract]. *The Clinical Neuropsychologist*, *13*, 233.

Drane, D. L., & Osato, S. S. (1997). Using the Neurobehavioral Cognitive Status Examination as a screening measure for older adults. *Archives of Clinical Neuropsychology*, *12*, 139–143.

Duke University (1978). *Multidimensional functional assessment, the OARS methodology: A manual* (2nd ed.). Durham, NC: Duke University, Center for the Study of Aging and Human Development.

Dura, J., Stukenberg, K. W., & Kiecolt-Glaser, J. A. (1991). Anxiety and depressive disorders in adult children caring for demented parents. *Psychology and Aging*, *6*, 467–473.

Fields, S. D., Fulop, G., Sachs, C. J., & Strain, J. (1992). Usefulness of the Neurobehavioral Cognitive Status Examination in the hospitalized elderly. *International Psychogeriatrics*, *4*, 93–102.

Feinberg, L. F., & Whitlatch, C. J. (2001). Are persons with cognitive impairment able to state consistent choices? *Gerontologist*, *41*, 374–382.

Gill, T. M., Williams, C. S., Richardson, E. D., & Tinetti, M. E. (1996). Impairments in physical performance and cognitive status as predisposing factors for functional dependence among non-disabled older persons. *Journal of Gerontology*, *51*, 283–288.

Goodrich, C. S. (1997). Results of a national survey of state protective services programs: Assessing risk and defining victim outcomes. *Journal of Elder Abuse and Neglect*, *9*, 69–86.

Grigsby, J., Kaye, K., Baxter, J., Shetterly, S. M., & Hamman, R. F. (1998). Executive cognitive abilities and functional status among community dwelling older persons in the San Luis Valley Health and Aging Study. *Journal of the American Geriatric Society*, *46*, 590–596.

Hertzog, C., Van Alstine, J., Usala, P. D., & Hultsch, D. F. (1990). Measurement properties of the Center for Epidemiological Studies Depression Scale (CESD) in older populations. *Psychological Assessment*, *2*, 64–72.

Jogerst, G. J., Dawson, J. D., Hartz, A. J., Ely, J. W., & Schweitzer, L. A. (2000). Community characteristics associated with elder abuse. *Journal of the American Geriatrics Society*, *48*, 513–518.

Kazdin, A. E. (1995). *Conduct disorders in childhood and adolescence* (2nd ed.). Thousand Oaks, CA: Sage.

Kiernan, R. J., Mueller, J., Langston, J. W., & Van Dyke, C. (1987). The Neurobehavioral Cognitive Status Examination: A brief but differentiated approach to cognitive assessment. *Annals of Internal Medicine*, *107*, 481–485.

Kiyak, H. A., Teri, L., & Borson, S. (1994). Physical and functional health assessment in normal aging and in Alzheimer's disease: Self-reports versus family reports. *Gerontologist*, *34*, 324–330.

Kurrle, S. E., Sadler, P., Lockwood, K., & Cameron, D. (1997). Elder abuse: Prevalence, intervention, and outcomes in patients referred to four aged care assessment teams. *Medical Journal of Australia*, *166*, 119–122.

Lachs, M. S., Berkman, L., Fulmer, T., & Horwitz, R. I. (1994). A prospective community-based pilot study of risk factors for the investigation of elder mistreatment. *Journal of the American Geriatrics Society*, *42*, 169–173.

Lachs, M. S., Williams, C., O'Brien, S., Hurst, L., & Horwitz, R. (1997). Risk factors for reported elder abuse and neglect: A nine-year observational cohort study. *Gerontologist*, *37*, 469–474.

Lamarre, C. J., & Patten, S. B. (1994). A clinical evaluation of the Neurobehavioral Cognitive Status Examination in a general psychiatric inpatient population. *Journal of Psychiatry and Neuroscience*, *19*, 103–108.

Lichtenberg, P. A., MacNeill, S. E., Lysack, C. L., Bank, A. L., & Nuefeld, S. W. (2003). Predicting discharge and long-term outcome patterns for frail elders. *Rehabilitation Psychology*, *48*, 37–43.

Marshall, C. E., Benton, D., & Brazier, J. M. (2000). Elder abuse: Using clinical tools to identify clues of mistreatment. *Geriatrics*, *55*, 42–53.

Mitrushina, M., Abara, J., & Blumenfeld, A. (1994). The Neurobehavioral Cognitive Status Examination as a screening tool for organicity in psychiatric patients. *Hospital and Community Psychiatry*, *45*, 252–256.

National Alliance for Caregiving, & the American Association of Retired Persons (1997). *Family caregiving in the US: Findings from a national survey,* Final Report. Bethesda, MD: National Alliance for Caregiving.

National Center on Elder Abuse. (1998). *The national elder abuse incidence study*, Final report. [On-line]. Available www.aoa.gov/abuse/report

Northern California Neurobehavioral Group, Inc. (1995). *Manual for the Neurological Cognitive Status Exam*. Fairfax, CA.

Patterson, G. R., Reid, J. B., & Dishion, T. (1992). *Antisocial boys*. Eugene, OR: Castalia Publishing.

Paveza, G. J., Cohen, D., Eisdorfer, C., & Freels, S. (1992). Severe family violence and Alzheimer's disease: Prevalence and risk factors. *Gerontologist*, *32*, 493–497.

Pavlik, V. N., Hyman, D. J., Festa, N. A., & Bitondo-Dyer, C. (2001). Quantifying the problem of abuse and neglect in adults: Analysis of a statewide database. *Journal of the American Geriatrics Society*, *49*, 45–48.

Pillemer, K., & Finkelhor, D. (1989). Causes of elder abuse: Caregiver stress versus problem relatives. *American Journal of Orthopsychiatry*, *59*, 179–187.

Pillemer, K., & Suitor, J. J. (1992). Violence and violent feelings: What causes them among family caregivers? *Journal of Gerontology*, *47*, 165–172.

Radloff, L. S. (1977). The CES-D Scale: A self-report depression scale for research in the general population. *Applied Psychological Measurement*, *1*, 385–401.

Royall, D. R., Chiodo, L. K., & Polk, M. J. (2000). Correlates of disability among elderly retirees with sub-clinical cognitive impairment. *Journal of Gerontology*, *55*, 541–546.

Schofield, M. J., & Mishra, G. D. (2003). Validity of self-report screening scale for elder abuse: Women's Health Australia Study. *Gerontologist*, *43*, 110–120.

Schulz, R., O'Brien, A. T., Bookwala, J., & Fleissner, K. (1995). Psychiatric and physical morbidity effects of Alzheimer's disease caregiving: Prevalence, correlates, and causes. *Gerontologist*, *35*, 771–791.

Schulz, R., Visintainer, P., & Williamson, G. M. (1990). Psychiatric and physical morbidity effects of caregiving. *Journal of Gerontology*, *45*, 181–191.

Select Committee on Aging, U. S. House of Representatives (1987). *Exploding the myths: Caregiving in America*. Washington, DC, US: Government Printing Office.

Steinmetz, S. K. (1988). *Duty bound: Elder abuse and family care*. Newbury Park, CA: Sage.

Strassberg, Z. (1995). Social information processing in compliance situations by mothers of behavior-problem boys. *Child Development*, *66*, 376–389.

Straus, M. (1979). Measuring intrafamily conflict and violence: The Conflict Tactics (CT) scales. *Journal of Marriage and the Family*, *41*, 75–88.

Wiederman, M. W., & Morgan, C. D. (1995). The Neurobehavioral Cognitive Status Exam (NCSE) with geriatric inpatients. *Clinical Gerontologist*, *15*, 35–47.

Williamson, G. M., & Schulz, R. (1990). Relationship orientation, quality of prior relationship, and distress among caregivers of Alzheimer's patients. *Psychology and Aging*, *5*, 502–509.

Williamson, G. M., Shaffer, D. R., & Schulz, R. (1998). Activity restriction and prior relationship history as contributors to mental health outcomes among middle-aged and older spousal caregivers. *Health Psychology*, *17*, 152–162.

Williamson, G. M., Shaffer, D. R., & the Family Relations in Late Life Project, (2001). Relationship quality and potentially harmful behaviors by spousal caregivers: How we were then, how we are now. *Psychology and Aging*, 16, 217–226.

Willis, S. L., Jay, G. M., Diehl, M., & Marsiske, M. (1992). Longitudinal change and prediction of everyday task competence in the elderly. *Research on Aging*, *14*, 68–91.

Wolf, R. S. (1996). Understanding elder abuse and neglect. *Aging*, *367*, 4–13.

Wolf, R. S. (1997). Elder abuse and neglect: Causes and consequences. *Journal of Geriatric Psychiatry*, *30*, 153–174.

Yu, L. C., Johnson, U. S., Kaltreider, K. L., Craighead, D. L., & Edward, W. (1993). The relationship between depression, functional status, and cognitive status among institutionalized elderly women. *Behavior, Health, and Aging*, *3*, 23–32.