

## **EXPLORING THE CAREGIVER BURDEN INVENTORY (CBI): FURTHER EVIDENCE FOR A MULTIDIMENSIONAL VIEW OF BURDEN\***

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### **ABSTRACT**

The purpose of this study was to examine the multidimensional nature of caregiver burden by specifically analyzing the patterns of association between five dimensions of burden as measured by the Caregiver Burden Inventory [1] and selected demographic, health, functioning, and well-being indicators. Subscales measuring each dimension were internally consistent and relatively independent in a sample of 160 caregivers. Time dependence burden was most influenced by patient impairment and caregiving involvement, whereas emotional burden was largely a function of caregiving satisfaction. Most of the variance in developmental burden was explained by depression and caregiving satisfaction. Contrary to expectations, physical health measures explained little variance in physical burden, of which most was explained by depression. Less than 10 percent of the variance in social burden was explained by depression and caregiver days sick. The findings lend support to a multidimensional view of burden and with minor modifications, the CBI appears to be a promising instrument with which to measure the construct.

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Although the caregiving literature has been replete with explorations into the relationship between burden and its correlates [2], burden will most certainly continue to be a key variable in future investigations especially in intervention studies or those that assess the effectiveness of programs like respite, home health, and adult day care. It is imperative that we continue to refine both our conceptualization and measures of burden because the quality of our research depends on it.

This article reports on the extent to which differential relationships exist between distinct dimensions of burden as measured by the Caregiver Burden Inventory (CBI) [1] and selected demographic, health, functioning and well-being indicators common to many caregiving studies. The emergence of such differential relationships would support a multidimensional view of burden and help to reveal the sources that are unique to each type of burden. Furthermore, the CBI's utility as a multidimensional measure of burden is appraised.

Beginning with the work of Zarit and his colleagues [3], a variety of burden measures have been developed (see [4] for a review). With the possible exception of the work of Lawton et al. [5], who developed three confirmed dimensions of caregiving appraisal with domains representing caregiver satisfaction and impact, as well as burden, most measures have consisted of a single global score or were only bidimensional, usually in terms of objective burden (actual stressors faced) and subjective burden (the emotional response) [6]. Several years ago George and Gwyther suggested that burden is a multidimensional construct and that a global score may not provide a complete or accurate assessment of burden [7].

Consistent with a multidimensional view of burden, Novak and Guest developed the Caregiver Burden Inventory (CBI) that measures five dimensions of burden—time dependence, developmental, physical, social, and emotional burden [1]. Briefly, time dependence burden emanates from the time demands and restrictions that caregiving can impose on caregivers whereas developmental burden “describes the caregivers’ feelings of being ‘off-time’ in their development with respect to their peers” [1, p. 800]. Physical burden, as one would expect, refers to the strain associated with demands on caregivers’ physical health, strength, and energy. Social burden, on the other hand refers to “caregivers’ feelings of role conflict” [1, p. 800]. Finally, Novak and Guest defined emotional burden as “caregivers’ negative feelings toward their care receivers, which may result from the patient’s unpredictable and often bizarre behavior” [1, p. 800].

If burden is indeed multidimensional, the CBI is one such measure that warrants closer examination. Like many other burden scales, it is not exceedingly long (24 items) and is easily administered either in a personal interview or in a self-administered format. Most importantly, as was previously stated, its major strength is the fact that five dimensions of burden are measured which appears to provide a more comprehensive depiction of the burden concept. Especially noteworthy is that one of these dimensions represents a developmental aspect of burden, which is a unique feature of the scale compared to others that currently

exist. With the emergence of terms like "caregiving careers," measures that recognize the potential long-term disruption in caregivers' lives are clearly needed. The multidimensional aspect of the CBI also potentially could be useful in clinical settings as well as in research because it may assist clinicians in focusing their interventions on more specific aspects of burden which otherwise might be neglected.

There have been numerous studies investigating the relationship between caregiver burden and indicators of health, functioning, and well-being. For example, high overall caregiver burden has been reported to be related to greater depression and lower morale among caregivers [3, 8, 9], decreased patient functioning [8-12], and even poorer relationship quality between the caregiver and the care recipient [5, 8, 13, 14].

In most cases, these relationships were assessed with burden conceptualized and measured as a unidimensional and globally derived score. A single summary score, however, may be deceiving in that two caregivers with identical scores may in fact have very different sources or types of burden [1, 7]. As a consequence, one caregiver may be overwhelmed with the physical demands of caregiving, whereas another caregiver may not be so physically drained but be emotionally stressed or feel socially isolated because of his or her situation. Therefore, it is likely that each dimension of burden may correlate with different outcomes. For instance, the level of physical burden may be a source of health-related problems, but may still be independent of the quality of the relationship between the caregiver and the care recipient. Relationship quality, on the other hand, may be more directly linked to emotional burden. Although, similar arguments can be made pertaining to each individual dimension of burden, this has yet to be investigated empirically. Moreover, if each dimension of burden is attributed to different sources, there should be a reasonable degree of independence among them.

Because there often is variability among different subsets of caregivers, perhaps with different demands, needs and resources [15, 16], they could conceivably experience each dimension of burden differently depending on whether they are older or younger, male or female, or perhaps due to their relationship to the care recipient or how long they have been providing care. Several studies have found many of these factors to account for some of the variability in caregiving-related strain (e.g., [15, 17-20]).

## METHODS

### Recruitment of Respondents

The sample consisted of 160 caregivers. Fifty-two caregivers came from client lists of three adult day care centers in northern Utah, and 108 were obtained from mailing lists of caregiver support groups sponsored by the Utah Alzheimer's Association. Whenever possible, the respondents were first identified as primary

caregivers by either the support group leaders or the day care staff who were familiar with the caregivers and their situations because of their regular contact with them. We further confirmed their primary caregiver status with a series of preliminary questions at the beginning of the questionnaire or interview. All of the caregivers in this study met the criteria of considering themselves to be the primary caregiver and/or performing more of the caregiving tasks than anyone else [21].

*T*-tests revealed that respondents from the support group mailing lists were older ( $M = 64.7$ ,  $SD = 11.5$  vs.  $M = 57.8$ ,  $SD = 15.4$ ,  $p < .01$ ) and tended to engage in less outside employment ( $M = 5.8$  hrs/wk,  $SD = 14.9$  vs.  $M = 17.1$  hrs/wk,  $SD = 2.6$ ,  $p < .001$ ) than those who were obtained from the day care rolls. Chi-square analyses also indicated that those respondents who were recruited from support group mailing lists were more likely to be the care recipients' spouses (59% vs. 37%,  $p < .05$ ). No other key demographic differences were observed between caregivers who were recruited from the two types of sampling sources. Furthermore and also important, no statistically significant differences were observed with respect to sampling source for each of the CBI subscales.

### Respondent Characteristics

Eighty-two percent ( $n = 131$ ) of the 160 primary caregivers were women with an average age of 62.5 years ( $SD = 13.3$ ). Eighty-six percent ( $n = 137$ ) were married with 52 percent ( $n = 83$ ) being spouses of the care recipient; thirty-seven percent were either daughters ( $n = 51$ ) or daughters-in-law ( $n = 8$ ). Most of the respondents were high school graduates ( $n = 148$ , 93%), with a median annual household income between \$20,000 and \$29,999. Sixty-nine percent of the caregivers ( $n = 104$ ) were not currently engaged in paid employment. They had been providing care to the care recipients for an average of 4.6 years ( $SD = 3.7$ ).

The care recipients were similarly divided between men (51%,  $n = 81$ ) and women (49%,  $n = 79$ ) and their average age was 78.0 years ( $SD = 9.9$ ). Cognitive impairment accounted for 73 percent of the diagnoses: sixty-seven (49%) were probable Alzheimer's disease, twenty-two (16%) were other dementias and eleven (8%) suffered a stroke. Eleven (8%) patients were diagnosed with primarily a physical impairment, whereas the remaining patients either had a mixture of physical and cognitive impairments, or the diagnosis was unknown or unreported by the caregiver.

### Measures

The Multidimensional Caregiver Burden Inventory (CBI) [1] is a 24-item Likert-format scale (0-4) that measures five dimensions of caregiver burden: time dependence, developmental, physical, social, and emotional burden. Each subscale ranges from 0 (low) to 20 (high). All but the physical burden subscale consist of five items. As Novak and Guest has suggested, the physical burden score,

which is based on four items, is weighted by a factor of 1.25 to make its range equivalent to the other subscales [1].

In addition to selected demographic data and the CBI, other measures included the Memory and Behavior Problems Checklist [22] which measures patient functioning, the CES-D [23] to assess caregiver depression, a checklist of caregiver tasks [24] and the caregiver satisfaction subscale from Lawton et al. [5]. Indicators of caregiver health status were also included. These consisted of perceived health (1 = poor; 4 = excellent) and the number of days sick in the past three months.

The MBPCL is a 29-item scale that includes the frequency of various behaviors sometimes associated with dementia, as well as physical and instrumental activities of daily living and therefore, can be used on populations with both cognitive and physical impairments [22]. Responses are recorded in a Likert format (0-4). This scale is widely used as a measure of patient functioning with established validity and reliability [25, 26].

Depression was measured using the Center for Epidemiological Studies Depression scale (CES-D) [23]. This is a twenty-item Likert format scale in which scores range from 20 (low) to 80 (high).

The Caregiving Tasks Scale [24] was included to assess thirty-six kinds of assistance that are potentially provided by caregivers to the care recipient. Many of the items deal with activities of daily living as well as aspects of decision making and supervision. Each item is answered on a 3-point Likert scale that indicates frequency. Total scores can range from 0-to-72.

Satisfaction with caregiving was measured by the Caregiving Satisfaction subscale of the Caregiving Appraisal Instrument developed by Lawton et al. [5]. This scale consists of nine-Likert-type items that solicit frequencies of experiencing positive aspects of caregiving, ranging from 9 (low) to 45 (high). It is critically important in studies of caregiving to include assessments of possible positive dimensions of providing care.

## RESULTS

### Subscale Characteristics

The reliability coefficients for each of the subscales were as follows: Time dependence (.85), development (.87), physical (.86), social (.69), and emotional (.81). Special attention must be addressed to social burden, however. The items pertaining to job-related and marital problems ("*I do not do as good a job at work as I used to*" and "*I've had problems with my marriage*") were dropped from the social burden subscale in this study. Most of the caregivers did not work outside the home and indicated that this item did not apply to them. Furthermore, the item pertaining to marital problems was not relevant to those caregivers who were unmarried, whereas nearly two-thirds of the remaining respondents chose "never" as a response to that question. Together, these two items substantially constricted

the variance for this subscale. If we allowed these items to remain in the subscale, the reliability coefficient was reduced to .58. The social burden score for the revised subscale was weighted by a factor of 1.67, however, so that the mean scores could still theoretically range from 0-to-20.

The highest mean scores were reported for both time dependence ( $M = 13.6$ ,  $SD = 4.4$ ) and developmental burden ( $M = 11.2$ ,  $SD = 5.0$ ). On the other hand, the social ( $M = 5.9$ ,  $SD = 5.1$ ) and emotional ( $M = 5.1$ ,  $SD = 3.9$ ) strains associated with caregiving were reported at the lowest intensity. The level of physical burden reported by the sample was somewhat higher ( $M = 8.6$ ,  $SD = 5.5$ ).

Table 1 presents the intercorrelations among the CBI subscales. Eight out of the ten coefficients were either lower than or comparable to those reported by Novak and Guest [1], including the relationship between developmental and physical burden (.61). This was the strongest correlation generated, followed by that between developmental and emotional burden (.54). With the exception of these two instances, the remaining pairs of subscales shared 18 percent of the variance or less.

### Bivariate Relationships with Criterion Variables

According to the data in Table 2, each dimension of burden appeared to be independent of caregiver age, gender, or how long one had been caregiving for his or her loved one. Spouse caregivers, however, were more likely to report higher levels of time dependence, developmental, and physical burden.

Time dependence burden generated the strongest correlations with the level of patient impairment (MBPCL) and caregiving tasks, whereas higher levels of developmental burden were associated with greater depression, lower caregiving satisfaction, higher levels of patient's impairment, and a greater number of days where caregivers were too ill to carry out caregiving activities.

Physical burden, as expected, was significantly associated with caregiver health measures—perceived health and days sick. Those caregivers who perceived themselves as less healthy and had more days in which they were unable to

Table 1. Intercorrelations among CBI Subscales

	Time Dependence	Develop- mental	Physical	Social
Developmental	.40**			
Physical	.22*	.61**		
Social	.09	.29**	.37**	
Emotional	.10	.54**	.43**	.25*

\* $p < .01$

\*\* $p < .001$

Table 2. Correlates of Dimensions of Burden with Demographic, Health, Functioning, and Well-Being Indicators

Criterion Variables	Dimensions of Burden				
	Time Dependence	Developmental	Physical	Social	Emotional
Caregiver age	.19	.05	.11	-.20	-.05
Male caregiver <sup>a</sup>	.14	.03	-.12	.06	-.12
Spouse caregiver <sup>a</sup>	.26*	.29**	.22*	-.18	.10
How long providing care	.06	-.04	.06	.01	-.05
Caregiver perceived health	-.15	-.13	-.45**	-.20	-.06
Caregiver days sick	.17	.25*	.33**	.22*	.19
Memory and behavior problems of patient	.57**	.40**	.28*	.12	.21
Caregiving tasks	.74**	.25	.19	.02	.17
Caregiving satisfaction	.07	-.48**	-.33**	-.21	-.59**
Caregiver depression	.28*	.58**	.63**	.31**	.29**

<sup>a</sup>Dummy coded (1 = male and spouse, respectively).

\* $p < .01$

\*\* $p < .001$

carry out their usual activities were more physically burdened. Increased physical burden also was associated with greater patient impairment and poorer caregiving satisfaction.

Although depression was related to each of the CBI subscales, its strongest correlation was with physical burden, which is consistent with the notion that depression and physical health are often inversely related [27]. The correlation between depression and perceived health status in this study, for instance, was  $-.48$  ( $p < .001$ ) which suggests that those caregivers who were more depressed also tended to report poorer health status. Finally, social burden correlated with only two of the criterion variables: depression and caregiver days sick, whereas greater emotional burden was associated with lower caregiver satisfaction and greater depression.

### Multivariate Analyses

Because bivariate analyses provide limited information, regressions were performed for each burden dimension in order to further clarify any possible differential relationships between the subscales and the criterion variables. These techniques enabled us to determine which of these factors had the most important

impact on each CBI subscale controlling for shared effects. Equations using forward inclusion were generated with each dimension of burden being regressed on those indicators which already revealed significant bivariate correlations (see Table 3). The order of inclusion was determined by the magnitude of the correlations between the dependent and independent variables rather than a predetermined hierarchical ordering.

Whether or not one was a spouse of their care recipient contributed a statistically significant proportion of the variance to time dependence burden (6%) and developmental burden (8%) but dropped from importance in predicting physical burden. Even when controlling for other factors, therefore, spouses more than other caregivers experienced greater levels of time dependence and developmental burden. Furthermore, as expected, time dependence burden was a function of level of the care recipient's impairment and the amount of "hands on" caregiving activities provided by the caregiver. These two factors accounted for almost 37 percent of the variance, whereas depression dropped from significance.

Although the amount of memory and behavioral problems experienced by the care recipient accounted for some influence in developmental burden (approximately 8%), most of the variance was explained by depression and caregiving satisfaction (34%). Caregiver days sick did not attain statistical significance once the above factors were accounted for.

Contrary to expectations, physical health measures explained little variance in physical burden. Perceived health status explained 4 percent of the variance

Table 3. Regression Beta Weights for Demographic, Health and Well-Being Indicators across CBI Subscales

Criterion Variables	CBI Subscales				
	Time Dependence	Develop-mental	Physical	Social	Emotional
Spouse caregiver <sup>a</sup>	.13*	.14*	N.S.	—	—
Caregiver perceived health	—	—	-.25***	—	—
Caregiver days sick	—	N.S.	N.S.	.16*	—
Memory and behavior problems of patient	.28**	.16**	N.S.	—	—
Caregiving tasks	.44***	—	—	—	—
Depression	N.S.	.38***	.40***	.23**	.16*
Caregiving satisfaction	—	-.33***	-.22***	—	-.53***
<i>R</i> <sup>2</sup>	.426	.446	.367	.096	.344

<sup>a</sup>Dummy coded (1 = spouse).

\**p* < .01

\*\**p* < .001



whereas days sick was not significant once the multivariate controls were applied. Interestingly, 28 percent of the variance in physical burden was explained by depression. Those caregivers who were more physically burdened tended to be more depressed. Caregiving satisfaction accounted for less than 5 percent of the variability in physical burden and the level of patient functioning was insignificant as a predictor.

We noted earlier that only two indicators (depression and caregiver days sick) were correlated with the social burden subscale. Both of these variables remained significant predictors once included in the same equation. Together, however, they accounted for less than 10 percent of the variance in social burden.

Confirming what was suggested by the bivariate analyses, emotional burden was largely a function of decreased caregiving satisfaction, accounting for 32 percent of the variance. Although depression also made a statistically significant contribution, it only accounted for slightly more than 2 percent of the variance in emotional burden.

## DISCUSSION

Unique patterns of association were found between the criterion variables and three of the dimensions of burden (time dependence, emotional, and developmental burden). The beta weights that attained statistical significance for these subscales were in the expected direction and consistent with the multidimensional nature of the CBI.

Time dependence burden was strongly associated with those issues pertaining to how much attention the caregiver paid to the care recipient, particularly in terms of patient functioning and the sheer number of caregiving tasks that were being performed. Likewise, emotional burden was particularly high among those who did not derive much satisfaction from their caregiving experiences.

Most of the variance in developmental burden was explained by depression and caregiving satisfaction. Caregivers who feel deprived of doing things they wanted and expected to be doing at this point in their lives were more likely prone to depression and less likely to derive many positive or satisfying aspects from caregiving. This becomes more apparent as the functional capacity of the care recipient diminishes.

One unexpected finding was that the traditional indicators of physical health had little or no impact on the caregivers' physical burden. Most of the variability in physical burden was explained by depression. One potential explanation could be that although there may be no clear direct connection between a caregiver's perception of his or her health and the extent to which they feel physically strained, the burden they experience could be influenced by their perception of the context of their caregiving situation [7]. Once caregivers' situations become so onerous that they seriously impact their mood and morale, they are potentially more sensitive to the physical demands of caregiving and hence more aware of the

burden to which they are subjected. This might be true for other dimensions of burden as well. Four of the five dimensions of burden had some portion of their variability explained by depression. Furthermore, the caregiving literature at large is replete with instances where burden and depression were substantially correlated.

It must also be acknowledged, however, that another possible explanation for the minimal amount of shared variance between physical health indicators and the physical dimension of burden is the need for better health measures than what was used in this study. Indicators not included in this study that more directly measure daily functioning and energy or fatigue levels could be more closely related to this dimension of burden.

Social burden was perhaps the most difficult dimension to explain in this investigation. Only depression and days sick explained a statistically significant proportion of the variance, accounting for less than 10 percent. This could indicate, however, that as the items comprising this subscale suggest, caregivers tend to feel more depressed when they feel unappreciated by other family members and resentful of others who do not help them in their caregiving activities. This source of strain is potentially exacerbated when they are unable to carry out many of the caregiving responsibilities themselves due to their own health problems.

Recall, however, that two items that pertained to job and marital problems had to be dropped in order to improve the internal consistency of this subscale. Therefore, those domains of social burden regarding the conflict between caregiving and roles pertaining to work and marriage were virtually untapped in this study. Samples with greater numbers of both working and married caregivers may yield different results and hence deserve additional study.

At the same time, it should be recognized that samples with significant proportions of caregivers who are either not married or not working may present measurement problems for the social burden subscale of the CBI. Potential solutions to these problems could come from wording changes in the items that pertain to outside employment and marriage. The employment item could be changed to reflect a wider range of roles rather than merely job-related problems, such as "*I do not get along as well as I used to with others (such as coworkers, classmates, business partners, fellow volunteers etc.)*." Alternative wordings such as this would be applicable to a variety of situations yet still be consistent with the conceptualization of social burden as that which results from role conflicts [1].

Problems associated with the marital difficulties item appear to be two-fold. Although changing the wording to reflect significant relationships other than marriage may render the item more relevant to unmarried caregivers, most of the difficulty with this item stemmed from the large proportion of married caregivers who endorsed "never" as a response. Although this needs to be investigated further, the caregivers in this study may have been more reluctant to admit to any existing marital problems in an overall sense. They may be more likely, however, to acknowledge marital difficulties if the item was worded so that it was more

directly imbedded in the caregiving context itself. The item could read as follows: "*Caring for my loved one has created problems in my marriage (or other significant relationship).*" Those who use the CBI in the future need to be cognizant of these potential problems with the social burden subscale and be willing to investigate potential solutions such as those suggested above.

Each of the five dimensions of burden that were measured were not particularly sensitive to how long one has been a caregiver, nor to his or her age or gender. Recently, it has been suggested that the length of time one has been a caregiver may not be related to the burden because a variety of factors could change independent of the caregiving context, such as health, employment, or marital status [11]. The fact that caregiver gender was not related to any aspect of burden is inconsistent with some studies that reported women caregivers being more burdened than men (e.g., [17, 19-20]). Although more research is needed, gender effects possibly could diminish or disappear once burden is examined multidimensionally or when burden levels become very high. Finally, whereas adult children tend to be younger caregivers than spouses of care recipients, age itself does not appear to be as important in explaining burden as relationship.

Whether or not a caregiver was a spouse of the care recipient was the only predictive sociodemographic variable, having a statistically significant influence on levels of both time dependence and developmental burden. In both cases, spouse caregivers more than others were likely to experience these forms of strain. The complete reason for these findings is unclear. Spouses reported doing more caregiving tasks in this study, however, as indicated by a modest correlation with Archbold's and Stewart's [24] Caregiving Task Scale ( $r = .27$ ). This may at least partially explain a greater sense of time dependence burden for these caregivers, especially when considering that the extent of caregiving activities accounted for a substantial portion of the explained variance in that subscale.

In terms of the relationship with developmental burden, spouses could be more susceptible to feeling "off time" as a result of their caregiving situation. The expectations that they had for this particular point in their life most likely involved their husband or wife. For instance, plans of looking forward to spending retirement years together were replaced by a lifestyle devoted to caring for one who is functionally deteriorating and in need of a growing amount of attention. Adult children caregivers, however, may not experience the same sense of finality and disruption of future plans when caring for an impaired parent.

## CONCLUSION

The findings of this study lend support to the conceptualization of burden as a multidimensional construct. For the most part, the dimensions of burden that were measured by the CBI were differentially associated with many of the criterion variables used in this study. This was especially noted for time dependence, emotional, and developmental burden. Although further examination of the

physical and social dimensions of burden are warranted, the CBI appears to be a promising instrument to include in investigations where caregiver burden is a variable of interest. Each of the subscales were internally consistent and relatively independent measures of five dimensions of burden. Also, the CBI has the added benefit of including an assessment of developmental burden that has been excluded from other instruments and conceptual frameworks. The recognition of developmental burden is particularly important in that policy makers, researchers, clinicians, and service providers need to be aware of the long-term consequences of caregiving when it disrupts the life course development of caregivers. Future interventions to assist caregivers and research studies examining their outcomes are encouraged to address issues of developmental burden within a multi-dimensional perspective.

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