

Appraisals, Burnout and Outcomes in Informal Caregiving

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Objectives This study draws from the resource depletion and conservation theories to develop a process model of informal caregiving. The model includes the burnout as a key mediator of the relationship between benefit/threat appraisals and critical outcomes including perceived physical health, depression and life satisfaction.

Methods A self-report questionnaire was utilized to collect relevant data from 137 informal caregivers of older adults. The proposed model and hypotheses were evaluated with the Structural Equation Modeling method using the software EQS.

Results The relatively high reported levels of emotional exhaustion and reduced personal accomplishment established the relevance of the burnout construct for informal caregivers. In addition, the test of the proposed model provides support for the hypothesis that burnout is an important mediator in the appraisal process model of informal caregiving. However, while burnout effectively mediates the influence of threat appraisals, its role in mediating the effect of benefit appraisals is mixed.

Conclusion The proposed model and results highlight the significance and potential for utilizing a process approach for understanding the link between appraisals and outcomes for informal caregivers. More importantly, the proposed model suggests that attention must be paid toward burnout tendencies to reveal fruitful intervention directions for researchers and practitioners to enhance the positive outcomes of informal caregivers, and maintain their psychological and physical well-being. [*Asian Nursing Research* 2010;4(1):32–44]

Key Words caregivers, mediation

INTRODUCTION

Substantial and accumulating evidence consistently indicates that informal caregivers—family members or relatives—provide the vast majority of support and direct care to frail elders. In the process of caregiving, informal caregivers report paradoxical experience. While informal caregiving could generate

high role satisfaction, sense of accomplishment and emotional fulfillment in taking care of a loved family member (Lopez, Lopez-Arrieta, & Crespo, 2005), caregivers often face health risks, emotional strain, and mental health problems (Roth, Perkins, Wadley, Temple, & Haley, 2009; Takai et al., 2009). Informal caregivers report higher depression rates, lower overall life satisfaction, and poorer physical health



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status than age- or gender-based population norms and noncaregiving control groups (Borg & Hallberg, 2006; Pinquart & Sorensen, 2003; Roth et al.).

Most studies to date have examined the informal caregiving phenomenon within the stress theory (Haley, LaMonde, Han, Burton, & Schonwetter, 2003; Leblanc, Driscoll, & Pearlin, 2004) usually by empirically testing the direct link between positive and negative caregiving appraisals and caregiving outcomes (Knight, Devereux, & Godfrey, 1997; Yates, Tennstedt, & Chang, 1999). While these studies have collectively provided some useful insights, the results were largely mixed. More specifically, past studies have largely ignored caregiver burnout and its role within the stress model despite its relevance. Family caregiving to older adults requires day-to-day care through personal contact and interactions. Often, these interactions can require a great amount of emotion, physical energy, and time of the caregivers. When caregiving continues over a long period, caregivers could experience burnout, which results in psychological morbidity, depression, and increased frequency of illnesses (Almberg, Grafstrom, & Winbald, 1997; Truzzi et al., 2008).

Previous studies (Almberg et al., 1997; Glass, McKnight, & Valdimarsdottir, 1993; Novak & Chappel, 1994) and theoretical suggestion (Muldary, 1983) support the mediating role of burnout construct in the relationship between appraisal and caregiver outcomes. According to Muldary, caregivers who appraise the situation more negatively would perceive caregiving tasks to be more demanding and effortful. In contrast, the caregivers who appraise the situation more positively are likely to feel enhanced performance motivation, and caregiving tasks are perceived as less effortful and burdensome. Novak and Chappell examined the relationship between appraisal and burnout; they found that appraisal significantly predicted burnout experience of nursing assistants ($N=245$) caring for cognitively impaired elderly in nursing homes. Burnout is a physically debilitating condition, which could detrimentally influence the perceived physical health, depression, and life satisfaction of informal caregivers. Almberg et al. reported significant direct effect of burnout on poor physical health

($r=.47, p<.001$) among informal caregivers ($N=52$) of older adults with dementia. Truzzi et al. (2008) reported direct relationship between burnout and depression among caregivers.

In this study, we develop a model of caregiving processes (Figure 1) that includes the burnout construct as a key mediator of the relationship between caregiver appraisals and outcomes (Almberg et al., 1997; Ekberg, Griffith, & Foxall, 1986; Muldary, 1983). This study aimed to, (a) establish the relevance of burnout construct in the family caregiving context and (b) conceptually develop and empirically test the key mediating role of burnout construct in the relationship between appraisals and caregiver outcomes.

METHODS

Sample

Informal caregivers included in this study were individuals providing care for frail elderly adults (≥ 60 years of age) in the community. Multiple sources, such as adult day care, home health care, senior centers, caregiver support groups and the Alzheimer's Center of University Hospital were contacted to select the subjects from a heterogeneous group. The sample consisted of 137 informal caregivers who satisfied the following eligibility criteria: (a) provided care to an elderly family member who needs assistance or supervision for either Activities of Daily Living (ADL) or Instrumental Activities of Daily Living, (b) identified him/herself as a primary caregiver of the elder, (c) was not paid for the care, (d) provided care to the elderly on a regular basis (over 5 hours per week) and (e) over a period of time (> 1 month). The length of caregiving selected as a minimum cutoff point, 5 hours per week for one month, was selected based on the customary practice in caregiving research (Picot, Zauszniewski, Debanne, & Holston, 1999).

Field procedures

Information on caregiving appraisals, burnout tendencies, outcomes and other related issues was

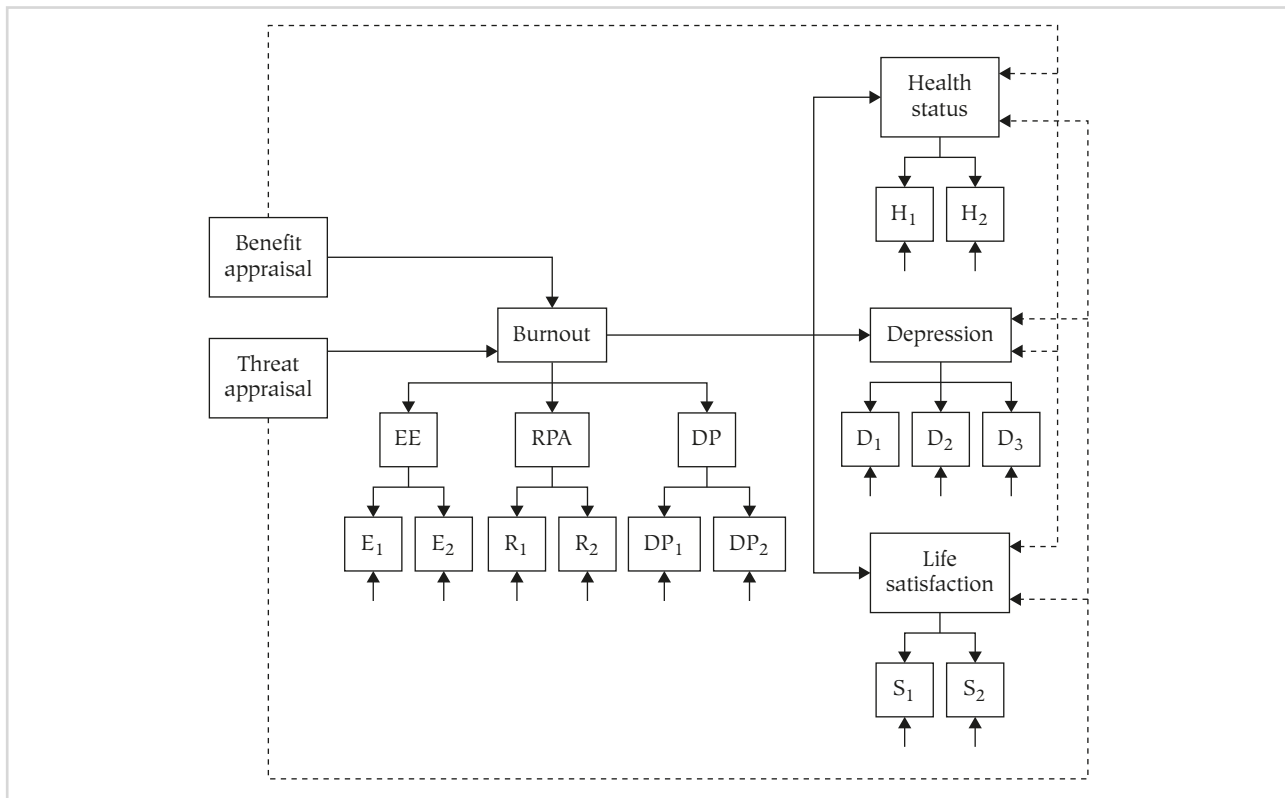


Figure 1. Initial Theoretical Model. EE = emotional exhaustion; RPA = reduced personal accomplishment; DP = depersonalization; E₁ = indicators of EE; R₁ = indicators of RPA; H₁ = indicators of physical health; D₁ = indicators of depression; S₁ = indicators of life satisfaction.

collected with a self-report questionnaire. A written informed consent was obtained from the subjects after explaining the purpose of study, confidentiality of the information, and voluntary participation in the project. Approximately 88% of the surveys were administered in a face-to-face self-rated interview and the remaining data was collected via a mail survey administered by the Alzheimer Center at a university attached hospital. A mail survey was selected because the research team decided that including the questionnaires in the mailing packet is more suitable. The mail survey produced a 70% response rate. In both cases, the participants responded to an identical set of questions assembled in a survey packet except physical indicators. Possible differences between the responses from face-to-face interviews and those from mailed questionnaires were examined by comparing significant mean differences in the study variables utilizing pairwise

scatterplots and Kolmogorov Smirnow 2 sample tests. Overall, it was concluded that caregivers from the two groups came from the same population, and they were therefore combined for the final analysis.

Measures

Caregiving Appraisal was measured by the Appraisal of Caregiving Scale (ACS; Oberst, Thomas, Gass, & Ward, 1989). Appraisal was defined as the evaluation of a potentially stressful person-environment encounter in terms of its personal meaning or significance to the individual's well-being. The scale has been content validated, and the construct validity of the scale has been established by examining hypothesized correlations of the ACS subscales to family hardness, economic status, and caregiver health (Oberst, 1991). For this study, 6 benefit and 12 threat appraisal items were utilized from the preceding scale. Items

were selected based on factor loadings of above .40 on the hypothesized factor in a common factor analyses. A 5-point Likert-type response scale ranging from 1 (*very false*) to 5 (*very true*) was used. Higher scores represented greater intensity of appraisals. The estimated Cronbach's alphas were .75 for benefit appraisal and .89 for threat appraisal.

Burnout tendencies were operationalized by the Maslach Burnout Inventory (MBI; Maslach & Jackson, 1986). The MBI measures burnout as three separate components: emotional exhaustion (EE), depersonalization (DP), and reduced personal accomplishment (RPA). A high score on the preceding burnout dimensions indicate increased burnout tendencies (Maslach & Jackson). The responses were obtained on a 7-point Likert scale that measured the frequency of feelings and anchored from 0 (*never*) to 6 (*everyday*). Convergent and discriminant validity has been established by examining the relationship of burnout subscales to personal experience, job experience, personal outcomes and Crowne-Marlowe Social Desirability scores (Maslach & Jackson). For this study, six items for EE, four items for RPA, four items for DP were selected based on factor loadings and consistency with hypothesized dimensions. The estimated Cronbach's alphas for each dimension were .90 for EE, .58 for DP, and .68 for RPA. We recognize that the reliability estimates for DP and RPA are less than desirable. However, the corresponding items had significant loadings on hypothesized factors and marginal cross-loadings (<.2). This suggests that while more adaptation work is necessary, the measures are reasonable for an initial test of the proposed model.

Perceived physical health was measured by two indicators, HEALTHP and PHZ. HEALTHP is a response from the question "How would you say your health has been in the past month" on a 4-point Likert scale (from 0 [*very bad*] to 4 [*excellent*]) and was completed by all subjects. PHZ is a composite variable based on two or three questions. Subjects recruited from the University Attached Hospital were asked three questions related to their health, "I am bothered more by aches and pains", "I seem to get sick more often", and "my physical health is worse now

than it was before" (4 point-Likert scale, 1 [*strongly agree*] to 4 [*strongly disagree*]). Subjects recruited from other places answered two items, "Would you say your health is better, about the same as, or worse than most people your age", and "How much do you think your health stands in the way of your doing the things you want to do" (3-point Likert scale). The averages of either three items or two items were computed and standardized to yield a PHZ composite for all subjects.

The overall level of depression was measured by a 20-item Center for Epidemiological Studies Depression Index (CES-D; Radloff, 1977). Item responses were obtained on a frequency scale ranging from *rarely* (0) to *most of the time* (3). Past studies have documented the concurrent validity of the scale for distinguishing normal and depressed people from psychotic patients (Shafer, 2006; Wada et al., 2007). Internal consistency of the scale reported by Radloff was .85, and Cronbach's alpha of the scale was .77 in the study.

Life satisfaction was measured by a 13-item Life Satisfaction Index Z (LS-Z; Wood, Wylie, & Shaefor, 1969), which is an agree-disagree response format. The total score ranges from 0 to 13, and higher scores are associated with higher overall life satisfaction. The validity correlation coefficient between LS-Z and the Life Satisfaction Rating (LSR; Neugarten, Havighurst, & Tobin, 1961) was reported as .57 and the internal consistency coefficient as .79 (Wood et al.). For this study, only 6 items that relate to the caregivers' current life satisfaction were included in the analysis, based on the factor loadings that were above .40 on the hypothesized factor in a common factor analyses. The internal consistency measure of reliability was .74. Additional questions were asked to gather demographic and caregiving related data, including a caregiver's age, gender, relationship to the care recipient, and the care recipient's ADL deficits.

Data analysis methods

The proposed model for the mediating role of burnout (Figure 1) was evaluated with the Structural Equation Modeling (SEM) method using the software EQS (Multivariate Software, Inc., Encino, CA,

USA; Bentler & Dudgeon, 1996). This SEM approach has several advantages. First, the hypothesized model can be directly evaluated for its “fit” to data based on a χ^2 statistic, relative fit indices (e.g., nonnormed-fit-index [NNFI], comparative-fit-index [CFI]), and other absolute indicators including the Root Mean Square Error of Approximation (Marsh, Balla, & Hau, 1996). Second, it allows a simultaneous estimation of the hypothesized relationships between the antecedents and consequences of burnout tendencies, which is essential to establishing the mediating role of burnout (cf. Baron & Kenny, 1986). Third, the SEM approach allows for ‘restricted’ models that include systematic constraints on relationships among constructs. A restricted model of particular interest in the present study is the “direct effects” model where the positive and negative appraisals are posited as “direct” antecedents of caregiver outcomes and the paths going into burnout tendencies are omitted by restricting to zero. By comparing the restricted model with the one proposed in this study, it is possible to quantitatively assess the incremental contribution of the proposed model. This comparison is based on a χ^2 difference statistic derived by subtracting the χ^2 values for the competing models and testing for significance with the corresponding difference in degrees of freedom. Finally, the estimated coefficients reflect relationships among theoretical constructs and are adjusted for measurement error. Such coefficients are more appropriate both for theoretical inferences and pragmatic assessment of the relative significance of different factors (e.g., burnout dimensions) possibly for intervention efforts.

RESULTS

Descriptive statistics

Background characteristics of the selected caregivers are shown in Table 1. Mean age of caregivers was 65 years old ($SD=11.6$). Caregivers were predominantly female (78%) and Caucasian (91%). Ninety two percents of caregivers had more than a high school diploma and their median total household income was in the US\$20,000 to \$29,999 range.

The majority of caregivers (82%) lived with the care recipients. Fifty five percent of caregivers were taking care of their spouses while 39% were providing care to their parents. The care recipient’s mean age was 78 years old ($SD=8.3$). In all, 56% of the care recipients were female and 70% suffered from Alzheimer’s or related disease.

Table 2 summarizes the descriptive statistics for the constructs under study. Apparently, informal caregivers experience moderate levels of EE and RPA, and low levels of DP. Table 3 depicts the correlations among the study constructs. Notably, the burnout dimensions correlate significantly among themselves as well as with appraisals. Threat appraisal correlate strongly with burnout dimensions. Benefit appraisals also correlate significantly with DP and RPA. Burnout tendencies correlated negatively with life satisfaction and positively with depression. Taken together, this suggests that the burnout and other measures included in this study are a reasonable foundation for studying the relevance and significance of burnout tendencies within the caregiving context.

Overall fit of the hypothesized model

Initially, we estimated the hypothesized model by including both the mediated paths and the direct effects of appraisals on outcomes. Although this model produced reasonable goodness of fit statistics, some of the parameter estimates were out of range (e.g., standardized coefficients > 1) and had large standard errors (e.g., $SE > .20$). In order to stabilize the model, we trimmed the model by omitting four direct paths of appraisals on outcomes that failed to achieve significance (Figure 2). This trimmed model (Table 4) produced reasonable parameter estimates with acceptable standard errors. The trimmed model produced an overall χ^2 statistic of 177.18 ($df=138$) yielding a (χ^2/df) ratio of 1.28, which is within the range of “good” fitting models suggested by Wheaton, Muthen, Alwin, and Summers (1977). In addition, the various measures of relative fit, including GFI, NNFI and CFI indices exceed .90 without any exceptions. Moreover, in terms of absolute fit indices, the difference between reproduced and observed covariances is rather

Table 1
Demographic and Background Characteristics of Caregivers (N = 137)

Characteristic	n or M (range)	% or SD ^a
Age	64.72 (37–90)	11.63
Gender		
Female	107	78.1
Male	30	21.9
Ethnic background		
Caucasian	124	90.5
African American	13	9.5
Relationship to the care recipient		
Wife	52	38.0
Husband	23	16.8
Daughter/son	53	38.6
Others	9	6.6
Education		
Less than high school	10	7.3
High school grad	42	30.6
Some college & associate degree	52	38.0
Bachelor degree and above	32	23.4
Missing	1	0.7
Income		
<\$19,999	35	25.6
\$20,000–\$29,999	28	20.4
\$30,000–\$39,999	24	17.5
≥\$40,000	36	26.3
Do not know	1	0.7
Refused	10	7.3
Missing	3	2.2
Religion		
Catholic	55	40.1
Protestant	57	41.6
Others	20	14.6
None	5	3.6
Living arrangements		
Lives with care recipient	112	81.8
Lives separate from care recipient	25	18.2

^aPercentages do not add up to 100% due to rounding.

small as evidenced by the root mean square residual of .063, and the root mean square of approximation of .046 with 90% confidence bands (.022, .064) that do not exceed the target upper bound of .10 in

both models. Finally, the proposed model is able to explain significant amount of variance in the dependent variables, ranging from 32% for perceived health to 57% for depression (Table 5). In sum, the proposed

Table 2

Descriptive and Measurement Statistics for the Study Constructs

Dimensions (no. of items)	Operational measures	M (SD)	Range	Cronbach's alpha
Appraisals (18)	Appraisal of Caregiving			
Benefit (6)	Scale (Oberst et al., 1989)	20.12 (4.57)	9–30	.75
Threat (12)		39.25 (10.24)	12–59	.89
Life satisfaction (6)	Life Satisfaction Index Z (Wood et al., 1969)	6.13 (3.40)	0–12	.74
Depression (20)	CES-D (Radloff, 1977)	12.63 (6.52)	0–37	.77
Physical health (2)	Self Rating Measure	0 (1)	–2.46–1.27	
Burnout (14)	MBI (Maslach & Jackson, 1986)			
EE (6)		2.93 (1.49)	0–6	.90
DP (4)		.80 (.99)	0–6	.58
RPA (4)		2.67 (1.50)	0–6	.68

Note. CES-D=Center for Epidemiological Studies Depression Index; MBI=Maslach Burnout Inventory; EE=emotional exhaustion; DP=depersonalization; RPA=reduced personal accomplishment.

Table 3

Correlation Matrix for Study Constructs

	DEP	LS	PH	EE	RPA	DP	BA	TA
DEP								
LS	–.60***							
PH	–.38***	.23**						
EE	.55***	–.42***	–.37***					
RPA	.28***	–.32***	–.28***	.23**				
DP	.34***	–.30***	–.18*	.43***	.23**			
BA	–.21**	.36***	.06	–.15	–.43***	–.26**		
TA	.54***	–.50***	–.29***	.59***	.35***	.33***	–.16*	

Note. DEP=depression; LS=life satisfaction; PH=physical health; EE=burnout-emotional exhaustion; RPA=burnout-reduced personal accomplishment; DP=burnout-depersonalization; BA=benefit appraisal; TA=threat appraisal. * $p < .05$; ** $p < .01$; *** $p < .001$.

model in Figure 2 is an acceptable and reasonable portrayal of the data and serves as a sound basis for interpreting the specific hypothesized pathways.

In order to further test the hypothesis of partial mediation of burnout construct between appraisals and outcomes, we estimated a constrained model in

which all mediation effects were omitted. Specifically, the paths between burnout factors and outcomes, and between appraisals and the burnout construct were constrained to zero while all direct paths from appraisals to outcomes were free to be estimated. The constrained model (Table 4) produced

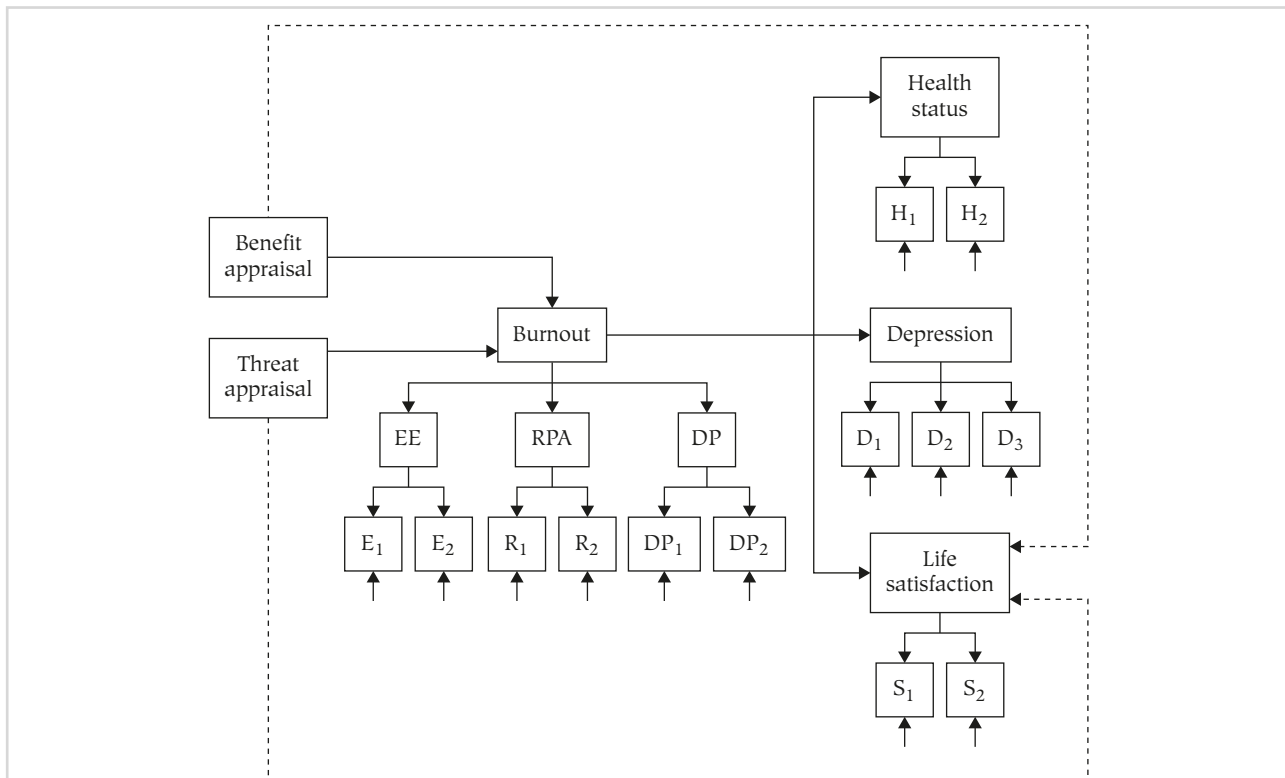


Figure 2. Theoretical Model. EE = emotional exhaustion; RPA = reduced personal accomplishment; DP = depersonalization; E_1 = indicators of EE; R_1 = indicators of RPA; H_1 = indicators of physical health; D_1 = indicators of depression; S_1 = indicators of life satisfaction.

a χ^2 statistic of 229 ($df=139$). Compared to the hypothesized model, this represents a χ^2 difference of 51.82 (229–177.18) for 2 degrees of freedom difference (139–137), which is significant at $p < .001$. This suggests that the imposed constraints are inconsistent with the data, indicating that the constrained model yields a significantly poorer fit. Consistent with this, the constrained model yields lower values of relative fit indices (e.g., NFI = .91) and significantly poorer values of absolute fit indicators (e.g., standardized root mean squared residual = .20; see Table 4). Taken together, we appear to have sufficient evidence to conclude that the partial mediation hypothesis is supported, and omission of mediate pathways results in significantly poorer fit to the data.

Structural coefficients and test of hypotheses

The estimated maximum likelihood path coefficients and associated statistics are summarized in

Table 5. Both benefit and threat appraisals have a significant influence on the burnout tendencies with estimated coefficients of $-.23$ and $.73$, respectively. Burnout tendencies negatively and significantly influence perceived health ($\beta = -.56, p < .01$) and has a positive effect on depression ($\beta = .76, p < .01$). However, burnout tendencies did not have significant negative effects on life satisfaction at the customary 95% confidence level ($\beta = -.31, p < .10$). After controlling for the mediated effect of burnout, threat appraisal is marginally related to depression and physical health as none of these effects is significant at the .05 level. However, threat appraisals have a borderline significant effect on life satisfaction ($\beta = -.29, p < .05$). Although nonsignificant effects are observed for physical health and depression, benefit appraisal is significantly associated with the life satisfaction ($\beta = .28, p < .05$). In sum, the lack of significant direct effects from the threat and benefit

Table 4*Goodness of Fit Statistics for the Hypothesized and Constrained Models*

Goodness of fit statistic	Hypothesized model	Constrained model
χ^2	177.18	229
<i>df</i>	138	139
<i>p</i>	.014	.001
AIC	-98.82	-48
CAIC	-639.78	-592.89
Relative fit statistics		
NFI	.93	.91
NNFI	.98	.95
CFI	.98	.96
Absolute fit statistics		
AOSR	.045	.07
Standardized RMR	.063	.20
RMSEA	.046	.07
90% CI of RMSEA	(.022, .064)	(.053, .085)

Note. AIC = Akaike information criterion; CAIC = consistent version of the AIC; NFI = normed fit index; NNFI = nonnormed fit index; CFI = comparative fit index; AOSR = average of the standardized residuals on the off diagonals; RMR = root mean squared residual; CI = confidence interval; RMSEA = root mean squared error of approximation.

appraisals in five of the six arrows generally confirm our expectations that burnout is an important mediation construct in the appraisal model of informal caregivers.

Analysis of competing model

Table 5 also provides the estimated coefficients for the competing model—the “direct effects” model—that constrained all mediation effects involving burnout tendencies to zero. These results indicate the existence of several significant direct effects of appraisals on caregiver outcomes. Threat appraisal has a significant negative effect on physical health and life satisfaction and a positive effect on depression. Likewise, benefit appraisal has significant positive influence on life satisfaction and a negative effect on depression. However, the influence of benefit appraisal on perceived health is nonsignificant. Taken together, the benefit and threat appraisals yield the

following R^2 for caregiver outcomes: 14% for physical health, 38% for depression, and 47% for life satisfaction. The levels of explained variance in physical health and depression are substantially lower in magnitude compared to those obtained with the proposed model with burnout construct as a mediator (cf. 32% for physical health and 57% for depression). Moreover, the relationship between threat appraisal on outcomes in the “direct effects” model reduce to non-significance when burnout tendencies are included as a mediator, except for the borderline effect on life satisfaction. The influence of benefit appraisal on outcomes is reduced in magnitude but remains significant with burnout tendencies. These indicate that the influence of threat appraisal is completely mediated by burnout tendencies, while the influence of benefit appraisal is partially mediated by burnout tendencies. In sum, the model without burnout seems to be mis-specified and underestimates the complexity of the relationships between appraisals and outcomes of caregiving experience, especially for physical health and depression.

DISCUSSION

This research provides new perspectives on the influence of caregiving appraisals revealing evidence of its mediated, dysfunctional and functional effects. While previous studies have explored the burnout phenomenon among informal caregivers (Almberg et al., 1997; Takai et al., 2001; van den Heuvel, de Witte, Schure, Sanderman, & Jong, 2001), our research takes the initial step to provide a clear discussion of the conceptual rationale and relevance of the burnout tendencies for understanding caregiving processes and outcomes. The burnout construct captures cumulative effects of positive (benefit) and negative (threat) appraisals of caregiving and is more responsive to the threat appraisal than to the benefit appraisal. Drawing parallels between caregiving and the helping professions where burnout tendencies have found relevance, our research examined the magnitude and variability of burnout tendencies in our sample of caregivers. Comparatively, informal caregivers

Table 5

Estimated Coefficients for the Hypothesized Partial Mediation Model Including Burnout and the Constrained "Direct Effects" Model

Independent variables	Dependent variables	Hypothesized partial mediation model			Constrained "direct effects" model		
		Standardized coefficient	<i>t</i>	<i>R</i> ²	Standardized coefficient	<i>t</i>	<i>R</i> ²
BA→	Burnout	-.23	-2.52**	.66			
TA→	Burnout	.73	6.62***				
Burnout→	Health	-.56	-3.97***	.32			.14
BA→	Health	.27 ^a	1.00		.02	.20	
TA→	Health	-.15 ^a	-1.17		-.37	-3.10**	
Burnout→	Depression	.76	5.86***	.57			.38
BA→	Depression	-.09 ^a	-.04		-.16	-1.72*	
TA→	Depression	.05 ^a	.43		.57	5.65***	
Burnout→	LS	-.31	-1.58	.50			.47
BA→	LS	.28	2.79**		.36	3.68***	
TA→	LS	-.29	-1.67*		-.52	-5.40***	

Note. BA=benefit appraisal; TA=threat appraisal; LS=life satisfaction. ^aThis nonsignificant coefficient was trimmed from the "final" model to improve the stability of the model. All other coefficients are from this "final" model. **p* < .05; ***p* < .01; ****p* < .001.

appear to evidence higher levels of emotional exhaustion and reduced personal accomplishment related to professional caregivers including social workers, medical workers (physicians and nurses), and mental health workers (Almberg et al.; Takai et al.). The finding indicates that family caregivers are not impervious to feelings of burnout, and its magnitude relative to other professions reveals that its presence and potential impact cannot be ignored. For this reason, burnout is an important construct for researchers and practitioners who aim to deepen their understanding of informal caregivers.

Our study hypothesized an extended appraisal model that includes burnout tendencies as a key mediator of the influence of benefit and threat appraisals on important caregiver outcomes. This model stands in contrast to current thinking in the caregiving literature that posits no intervening variables between caregiver appraisals and outcomes. We refer to this contemporary thinking as the "direct effects" model and use it as a competing model for

evaluating the potential and promise of the extended appraisal model. Conceptually, we draw from resource depletion and conservation theory to propose the mediation by burnout tendencies. We contend that threat appraisals are not dysfunctional. Rather, such appraisals become dysfunctional when an individual finds it difficult to cope with the appraised threats resulting in resource depletion. This view allows for the possibility that a particular threat does not have to be appraised as significant to result in significant dysfunctional outcomes. Rather, minor or irritating threat appraisals can cumulatively deplete the resources at the disposal of the caregiver. Likewise, benefit appraisals may not be consistently functional. Instead, benefit appraisals are functional to the extent they enhance the resource capacity of the caregiver and mitigate burnout tendencies. Relying on theoretical mechanism of resource depletion and conservation where caregivers attempt to conserve available resources opens new areas for theorizing about the caregiving processes and outcomes.

We regard our study as an initial step that future researchers may utilize to build more elaborate explanations for the complexity of the caregiving phenomenon.

Empirically, the proposed mediation hypothesis is a better representation of underlying processes if three conditions are jointly satisfied: (a) the direct effect without inclusion of the key mediator is significant; (b) the direct effect upon inclusion of the key mediator becomes relatively small or non-significant; and (c) the influence pathways through the key mediator are statistically and substantively significant. Our results show that the extended appraisal model meets these conditions for threat appraisals regarding to caregiving outcomes examined. For caregivers' physical health, the extended appraisal model is superior to the direct effects model because (a) the direct effect of threat appraisals on health without including burnout is significant ($\beta = -.37, p < .01$); (b) this direct effect reduces to non-significance when burnout is included ($\beta = -.15, p > .05$); and (3) threat appraisal has a significant influence on burnout ($\beta = .73, p < .01$) which in turn has a significant effect on physical health of caregivers ($\beta = -.56, p < .01$). In this sense, burnout tendencies fully mediate the effect of threat appraisals on physical health. Likewise, a similar pattern of effects is obtained for caregiver's depression so that burnout tendencies fully mediate the effect of threat appraisals on caregiver depression as well. However, the mediation effect is less evident for caregivers' life satisfaction. The direct effect of threat appraisals on life satisfaction declines from $-.52 (p < .01)$ without the inclusion of burnout tendencies to $-.29 (p < .05)$ in the extended appraisal, although it remains borderline significant.

With regard to the benefit appraisal, our results are mixed. For the conventional direct effects model, benefit appraisal yielded significant effects on caregivers' depression and life satisfaction, but its effect on physical health was non-significant (see Table 5). For caregivers' depression, (a) the direct effect without burnout tendencies is $-.16 (p < .05)$; (b) this effect reduces to nonsignificance at $-.09 (p > .05)$ in the extended appraisal model; and (c) benefit appraisals

significantly mitigate burnout tendencies ($\beta = -.23, p < .05$) which in turn influence depression ($\beta = .76, p < .01$). As such, burnout fully mediates the effect of benefit appraisals on caregiver depression. However, for the caregivers' life satisfaction, only partial mediation is achieved as the direct effect reduces from $.36 (p < .01)$ in the direct effect model to $.28 (p < .05)$ in the extended appraisal model.

Taken together, our study provides compelling support for the hypotheses that burnout is a key mediator of the influence of caregiving appraisals on caregiver outcomes although this mediation can range from fully mediated effect (i.e., physical health and depression) to partially mediated effect (i.e., life satisfaction). The direct effect model lacks this range of insight and, consequently, provides an incomplete and overly simplified view of caregiving phenomena. Thus, we appear to have enough evidence to suggest that future researchers risk misspecification and obfuscation of underlying phenomenon if they disregard the extended caregiving appraisal model.

The results reported here are subject to several limitations. First, our cross-sectional study cannot purport to establish causality among the constructs of study. Instead, the results can only be taken to imply that the caregiver data is consistent with the hypothesized partial mediation model. Longitudinal designs are needed to provide strong evidence for causal relationships. Second, since the study utilized nonprobability sampling procedures, we anticipated selection bias and limited generalizability of results. However, we attempted to include caregivers from various sources and a reasonable sample size to reduce systematic over- or under-representation of the population. As such, the demographic characteristics of the caregivers in the study resemble those of a national sample (Stone, Cafferata, & Sangl, 1987). Nevertheless, the results obtained must be interpreted with caution. Finally, this is one of the first systematic studies of burnout tendencies in the family caregiving context. As an initial study, future replications and extensions are warranted before fully accepting the extended appraisal model and the partial mediation role of burnout tendencies.

CONCLUSION AND IMPLICATIONS

Informal caregiving fills an important gap in enhancing the psychological well-being and physical health of the elderly suffering from disability and limited functioning. This study continues the focus on the psychological well-being and physical health of caregivers themselves with the firm belief that caregivers can only be effective if they are healthy and well adjusted to caregiving tasks. Recognizing that caregiving involves benefits and threats, our study places burnout tendencies at the core of caregiving processes where caregivers' resources are the net result of depletion due to threats and enhancement due to benefits. By providing a direct assessment of resource balance in the construct of burnout tendencies, this study urges future researchers and practitioners to maintain a focus on the magnitude and influence of burnout among caregivers to ensure their effectiveness. More importantly, the appraisal process model proposed here suggests that attention must be paid toward burnout tendencies not simply toward the assessment of caregiving appraisals. This entails the search for effective coping mechanisms that impede the emergence of burnout tendencies and help insulate the caregiver from threat appraisals. Such search is likely to reveal fruitful intervention directions for researchers and practitioners to enhance the positive outcomes of informal caregivers, and maintain their psychological and physical well-being.

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