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Health Risk Behaviors in Family Caregivers During Patients' Stay in Intensive Care Units: A Pilot Analysis

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Abstract

Background—Studies of family caregivers of the critically ill have mainly focused on the psychological impact of the patients' stay in the intensive care unit and related stress. Despite known associations between stress and physical health, limited attention has been paid to the need to promote and maintain physical health in these caregivers.

Objective—To explore how family caregivers' health risk behaviors are associated with patients' preexisting care needs and the caregivers' depressive symptoms and burden.

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Methods—During the intensive-care-unit stay of critically ill patients (who required mechanical ventilation for ≥4 days), 50 family caregivers were surveyed to determine the caregivers' depressive symptoms, burden, and health risk behaviors. Data were also collected on patients' care needs before admission to the intensive care unit.

Results—One or more health risk behaviors were reported by 94% of family caregivers. More than 90% of caregivers reported depressive symptoms above the score indicating risk for clinical depression. A high level of burden was reported by 36% of caregivers. More health risk behaviors were associated with higher scores of depressive symptoms and burden ($P<.001$ for both). Caregivers' responses did not differ according to patients' preexisting care needs.

Conclusion—Health risk behaviors of family caregivers are associated with greater perceptions of burden and/or depressive symptoms but not with patients' care needs before admission to the intensive care unit.

Hospitalization in an intensive care unit (ICU) provokes intense stress among patients' family caregivers. Psychological strain from caregiving is associated with poor physical health and even early mortality in caregivers of patients with chronic illness.[1–3] However, comparatively little is known about the impact of psychological strain on the health of family caregivers of ICU patients. During ICU hospitalization, family caregivers may pay less attention to their own health needs than to the patient's, a situation that can influence the caregivers' health and ability to provide support.

We analyzed baseline data from a longitudinal descriptive study on stress responses from ICU hospitalization to 2 months after discharge from intensive care in family caregivers of critically ill adults who required mechanical ventilation for 4 days or longer. That study was performed by using an adaptation of the Pittsburgh Mind-Body Center model.[4] The aims of the study were to describe caregivers' health risk behaviors during patients' ICU hospitalization, to determine the effect of patients' care needs before ICU admission on caregivers' health risk behaviors, and to explore associations between caregivers' health risk behaviors, perceived caregiving burden, and depressive symptoms.

Methods

Site and Sample

Dyads of caregiver and patient were recruited during patients' hospitalization in a medical ICU in a tertiary academic medical center located in western Pennsylvania. The study protocol was approved by the institutional review board, and all participants provided informed consent.

Caregiver was defined as the person who provided the most emotional, financial, and physical support to a patient before the patient's ICU admission. No legal relation or cohabitation with the patient was required. Caregivers were eligible if they were a nonprofessional, unpaid caregiver; 21 years or older; had reliable access to a telephone; and were able to read and speak English. Patients were eligible if they were 21 years or older, had resided at home before ICU admission, received mechanical ventilation for 4 or more

consecutive days in a medical ICU, and had not received mechanical ventilation before admission to the ICU.

Procedure and Measures

Patients' characteristics were obtained from medical records. Caregivers completed study instruments during patients' ICU hospitalization via a face-to-face or a telephone interview, depending on the caregivers' preference. The Caregiver Health Behavior instrument[5] (CHB; 11 items, score range, 0–11) was used to obtain self-reported data on health risk behaviors in caregivers. Higher scores indicate more health risk behaviors. A shortened version of the Center for Epidemiologic Studies Depression Scale[6] (shortened CES-D; 10 items, score range, 0–30) was used to measure depressive symptoms. Higher scores indicate more depressive symptoms. The Brief Zarit Burden Interview[7] (Zarit-12; 12 items, score range, 0–48) was used to measure caregivers' perceived burden. Higher scores indicate greater burden. Katz Activities of Daily Living[8] (ADL, 6 items, score range, 0–6) and the Lawton Instrumental Activities of Daily Living tool[9] (IADL, 8 items, score range, 0–8) were used to measure patients' functional status before ICU admission. All instruments have established reliability and validity.[2,3,5–7,10–12]

Data Analyses

Data were analyzed by using IBM SPSS Statistics, version 18.0 (IBM Corp). A χ^2 test was used to analyze caregivers' health risk behaviors according to patients' preexisting care needs. The Mann-Whitney *U* test was used to compare CHB scores according to patients' preexisting care needs, and the absolute value of *r* was used to report effect sizes.[13] The Kruskal-Wallis test was used to compare CHB scores according to the number of impairments indicated by patients' scores on the ADL and IADL before ICU admission. Spearman rank correlation was used to examine correlations among the scores on the CHB, Zarit-12, and shortened CES-D. In addition to determining statistical significance (set at α = 0.05, 2-tailed), trends in differences were explored.

Results

Among 68 dyads approached, 52 (76%) consented. A total of 50 caregivers and 47 patients provided baseline data (see Table); 3 patients refused consent. Among the caregivers, 94% (n = 47) reported 1 or more health risk behaviors. The behaviors reported most often were inadequate rest (n = 35, 70%), exercise (n = 38, 76%), and skipping meals (n = 31, 62%). Almost half (n = 20, 40%) reported inability to slow down or rest when sick. Caregivers reported difficulty taking medications (n = 11, 22%) and scheduling (n = 14, 28%) and/or keeping (n = 11, 22%) doctor appointments. Of the 11 caregivers who were current smokers, 6 reported smoking more than usual.

Caregivers of patients with care needs before ICU admission showed a trend of more health risk behaviors (mean, 4.2; SD, 2.6) than did caregivers of patients with no care needs (mean, 3.4; SD 2.2; Mann Whitney *U* test, $z = -1.13$, $P = .26$, $r = 0.16$). CHB scores tended to be higher when patients had more impairment before ICU admission (see Figure). Health risk behaviors that showed such trends were slowing down when sick (47% vs 32%), scheduling

(42% vs 21%) and/or keeping (32% vs 14%) doctor appointments, smoking more (16% vs 7%), and problems refilling prescription medications (21% vs 4%).

Higher CHB scores were significantly correlated with higher shortened CES-D scores (Spearman $\rho = 0.51$, $P < .01$) and Zarit-12 (Spearman $\rho = 0.50$, $P<.01$). Post hoc comparison according to a history of emotional problems (40% of caregivers) showed trends of higher scores in all measures (CES-D, Zarit-12, and CHB). However, differences were not statistically significant.

Discussion

This pilot analysis is one of the first reports to highlight the importance of paying more attention to physical health in the family caregivers of ICU patients. In our sample, most caregivers reported difficulty maintaining basic health behaviors while their loved one stayed in the ICU. Health risk behaviors in the caregivers were greater than the number reported by caregivers of community-dwelling elders with disabilities.[14] In our sample, caregivers had more health risk behaviors when they experienced greater burden and/or depressive symptoms. Our findings support those from a previous qualitative study[15] in which reported physical strain and exhaustion were due to sudden changes in daily routine in family caregivers of ICU patients.

Our findings also revealed several trends that merit attention. First, more health risk behaviors were reported by caregivers when patients had care needs before ICU admission than when patients had no care needs beforehand. Second, those caregivers who reported previous emotional problems tended to report more health risk behaviors, greater depressive symptoms, or greater burden. However, because of the small sample size, our results were not adequately powered, and cautious interpretation is required.

> One or more health risk behaviors were reported in 94% of caregivers, such as inadequate rest and exercise.

Our study limitations include cross-sectional data that limited ability to identify causal mechanisms. Because the most common reason for refusing enrollment was “too much stress,” our findings most likely are underestimates of the caregivers’ stress. Patients’ preexisting care needs were estimated by caregivers’ recall, a step that may not have been completely accurate. Finally, the shortened CES-D is a screening measure, not a diagnostic measure.

Our findings have clinical and research implications. The results strongly support the need for research studies to further examine the impact of caregivers’ characteristics and patients’ care needs before ICU admission on the caregivers’ health risk behaviors. For critical care clinicians, being aware of potential health risk behaviors in caregivers who must deal with stress during ICU hospitalization is important. Future research should explore contributions of caregivers’ characteristics and needs before the patients’ critical illness, as well as longitudinal changes in stress after ICU hospitalization.

The findings will aid in determining caregivers’ risk for poor health outcomes and will facilitate development of targeted interventions.

Conclusion

Health risk behaviors were highly prevalent in critically ill patients' family caregivers during the patients' ICU hospitalization. Caregivers reported more health risk behaviors when they reported more depressive symptoms and greater burden. Our pilot findings support the need for a larger longitudinal study to further examine factors associated with increased health risk behaviors in family caregivers and suggest timing for targeted interventions.

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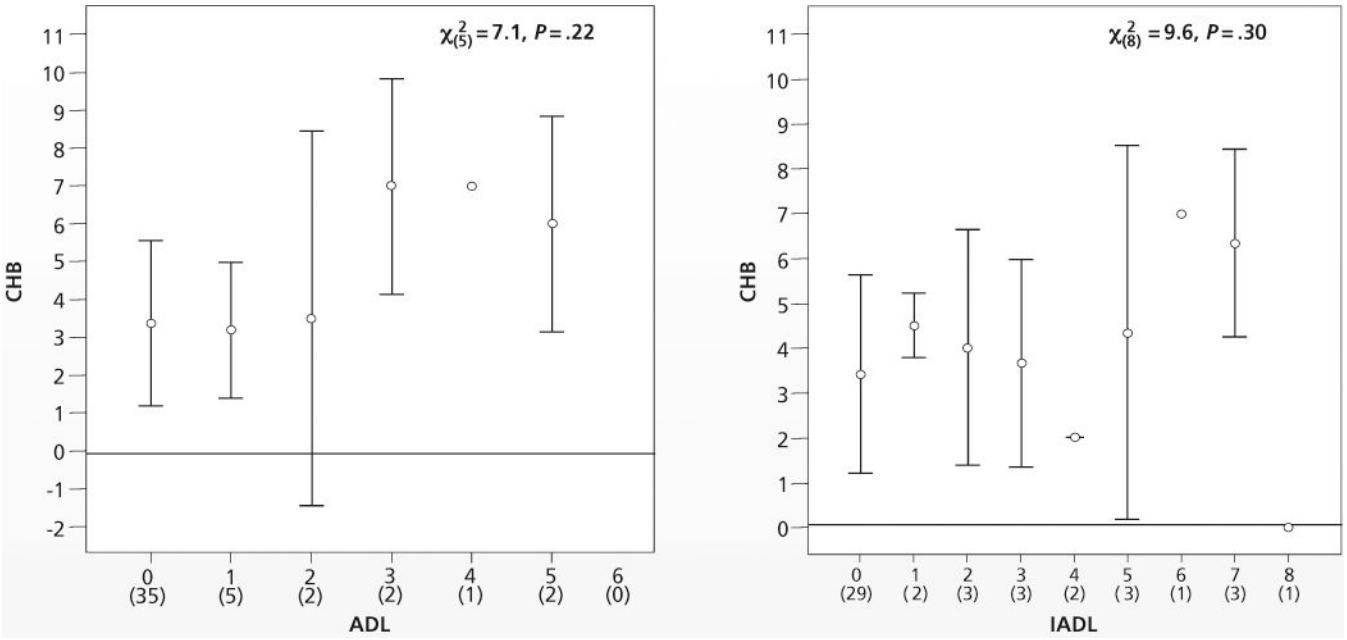

Figure.

Mean scores on the Caregiver Health Behavior instrument (CHB) in caregivers by total number of impairment(s) in patients' activities of daily living (ADL, 6 items) and instrumental activities of daily living (IADL, 8 items) before admission to the intensive care unit. The number in parentheses under each bar indicates the number of patients who reported each number of impairments. Total possible score was 0 to 6 for ADL, and 0 to 8 for IADL; a higher score indicated greater level of functional impairment. Caregivers of patients with more impairment in ADL or IADL tended to have more health risk behaviors than did caregivers of patients with less impairment, but the difference was not statistically significant (Kruskal-Wallis test).

Table

Sample characteristics

Characteristics	Value[a]
Caregivers (n = 50)[b]	
Age, mean (SD), range, y	52.3 (11.8), 24–75
Female	37 (74)
White	46 (92)
Relationship to patient	
Spouse or significant other	29 (58)
Adult child	12 (24)
Parent	8 (16)
Sibling	1 (2)
Lived with patient before ICU admission, yes	35 (70)
Education, mean (SD), range, y	14.5 (3.3), 8–24
Annual household income ≥ $50000	24 (48)
Difficulty in paying for needs	
Not at all difficult	28 (56)
Somewhat or extremely difficult	22 (44)
Religious background or preference, yes	41 (82)
Currently married	40 (80)
Employed full or part time, yes	27 (54)
Health insurance, yes	45 (90)
Self-reported general health	
Excellent/very good	20 (40)
Good	26 (52)
Fair/poor	4 (8)
History of emotional problems	20 (40)
Score on shortened CES-D (possible range 0–30), mean (SD), range	16.4 (7.1), 1–30
Score ≥8[c]	45 (90.0)
Score on Zarit-12 (possible range 0–48), mean (SD), range	14.3 (7.4), 0–32
Score ≥ 17[d]	18 (36)
Caregiver Health Behavior Score (possible range 0–11), mean (SD), range	3.8 (2.3), 0–9

Characteristics	Value[a]
Patients (n = 47)[e]	
Age, mean (SD), range, y	55.5 (16.7), 21–85
Male	31 (66)
White	44 (94)
Pre-ICU ADL score[f] (possible range 0–6), mean (SD), range	0.62 (1.31), 0–5
Pre-ICU IADL[f] (possible range 0–8), mean (SD), range	1.60 (2.45), 0–8
Preexisting care needs[5]	
Without need	28 (60)
With need	19 (40)
Primary diagnosis	
Respiratory	26 (55)
Sepsis, multisystem failure	9 (19)
Gastrointestinal	8 (17)
Cardiovascular	3 (6)
Other	1 (2)
Charlson comorbidity score, mean (SD), range,	4.1 (3.3), 0–14
APACHE II score, mean (SD), range	21.6 (8.0), 9–38
Days of mechanical ventilation before enrollment, mean (SD), range	12.2 (8.7), 4–48

Abbreviations: ICU, intensive care unit; ADL, activities of daily living; IADL, instrumental activities of daily living; APACHE, Acute Physiology and Chronic Health Evaluation; CES-D, Center for Epidemiologic Studies-Depression; Zarit-12, Brief Zarit Burden Interview.

[a] Values are number (percentage) of participants, unless otherwise indicated in left column. Because of rounding, not all percentages total 100.

[b] Of 68 caregiver and patient dyads approached between November 2008 and July 2010, 52 (76%) consented to participate and 50 of those who consented (96%) completed the baseline survey.

[c] Scores indicate a clinically significant risk for depression.

[d] Scores indicate substantial burden.

[e] Three patients refused to participate. In these instances, only caregivers participated in the study.

[f] Collected from caregivers' recall based on patient's status 2 weeks before ICU admission.

[g] Preexisting care needs was estimated on the basis of ADL and IADL scores: without need (no impairment in ADL or IADL), with needs (≥1 impairment in ADL and/or IADL).