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Changes over Time in Caregiving Demand and Difficulty in Spousal Caregivers of Coronary Artery Bypass Graft Surgery Patients

Bernice C. Yates, RN, PhD¹, Esther O. Parks, RN, PhD², Amanda Hug, BSN, RN¹, Kevin A. Kupzyk, PhD¹, and Sandy K. Skradski, MA³

¹College of Nursing, University of Nebraska Medical Center, Omaha, NE

²College of Nursing and Public Health, Daegu University, Daegu, South Korea

³Nebraska Methodist Hospital, Outpatient Cardiopulmonary Rehabilitation, Omaha, NE

Abstract

Patients who undergo coronary artery bypass graft (CABG) surgery are often dependent on spouses or family members for care during their recovery. The purpose of this study was to examine changes over time in spousal caregivers of coronary artery bypass graft (CABG) patients in caregiving demand and caregiving difficulty and to identify the key demands and difficulties at each time point. Spouses ($n=34$) of CABG patients comprised the sample. Caregiving demand and caregiving difficulty were measured using the Caregiving Burden Scale at three time points (baseline [early hospital discharge] and 3 and 6 months later) and analyzed using repeated measures analysis of variance. Mean scores of each item were used to identify the top four caregiving demands and difficulties at each time point. There was a significant decrease over time in caregiving demands ($F[1.696] = 13.62, p < .001$) and caregiving difficulties ($F[1.613] = 4.52, p = .02$). The most demanding and/or difficult caregiving activities at all time points were providing social support, managing behavior problems, taking on additional household tasks, and monitoring symptoms. Early in recovery, providing transportation was a top ranked demand and difficulty. Later in recovery (3 and 6 months), managing finances became a top ranked demand and difficulty. In conclusion, caregiving demands and difficulties declined significantly over six months for the caregivers in this study. These results indicate that caregiving demands and difficulties change over time and ongoing assessments of spouses and family members are needed to help them manage the caregiving situation.

Keywords

Caregiver; caregiving demands; caregiving difficulties; caregiving trajectory

Cardiovascular disease is currently the number one cause of death in the United States and coronary artery bypass graft (CABG) surgery is a common procedure to treat coronary artery disease. Over 395,000 Americans undergo CABG surgery per year (Mozaffarian et al., 2016) which contributes to the more than 34 million unpaid caregivers in the U.S. who are providing care to someone age 18 and older (<http://www.cdc.gov/aging/caregiving/facts.htm>). Patients who undergo CABG surgery are often dependent on spouses or family members for care and assistance during postoperative recovery and cardiac rehabilitation. Frequently reported demands and difficulties include responsibility for care (e.g., managing symptoms, changing eating habits), worry over the mate developing problems or overextending, and uncertainty about the patient's future health status (Ågren, Evangelista, & Strömberg, 2010; Halm, Treat-Jacobson, Lindquist, & Savik, 2007). However, few investigators have examined demands and difficulties of caregivers of CABG patients beyond a single time point (Aggarwal, Liao, Christian, & Mosca, 2009; Halm, 2016; Halm et al., 2007). Thus, the purpose of this study was: 1) to examine changes over time in caregiving demand and caregiving difficulty over three time points (before and after cardiac rehabilitation, and 3 months later) in spousal caregivers of CABG patients, and 2) to identify the key caregiving demands and difficulties at each time point.

Method

This descriptive repeated-measures study was a secondary analysis of existing data collected as part of a randomized controlled trial (RCT). In the parent RCT, patients and spouses in the experimental group participated in cardiac rehabilitation (CR) together and spouses were asked to make the same healthy eating and physical activity changes as patients (Yates et al., 2015). Data were collected at three time points: pre-CR (baseline, early hospital discharge) and post-CR (3 month), and three months later (6 month time point). Because there were no significant differences between the intervention and control groups in caregiving demands and difficulty, the participants were combined into one group for this secondary analysis.

A convenience sample from a mid-western academic medical center and a community hospital was recruited. All patients had undergone CABG surgery. Eligible spouses were 19 years of age (age of majority in Nebraska), married or lived with CABG patient 1 year, and had no history of severe psychiatric disease. Although two of the couples were cohabitating, the term spouse was used to describe these individuals. The sample size for this study was determined by budgetary constraints as the study was considered a feasibility study with results being used to guide further research.

Measures

The Caregiving Burden Scale (CBS) was used to measure both caregiving demand and difficulty (Oberst, Thomas, Gass, & Ward, 1989) at the three time points. The Demand scale measures the perceived time spent performing caregiving activities. The Difficulty scale measures the bothersomeness of the tasks and activities. There are 15 items on each scale and the caregiver responded twice to each item. Both were measured on a five point Likert scale ranging from 1= "none" to 5= "a great deal." Scale scores can range from 15 to 75 with higher scores indicating greater demand and difficulty. In caregivers of cancer patients,

Carey and colleagues (1989) reported internal consistency reliabilities of $\alpha = 0.83$ for caregiving demand and $\alpha = 0.89$ for caregiving difficulty. In the current study, the internal consistency reliabilities of the Demand scale were .88, .93, and .93 at baseline, 3, and 6 months, respectively. The reliabilities for the Difficulties scale were .92, .90, and .83, respectively. Although the two scales of the CBS have been combined to form a single burden score, this may mask the true nature of the caregiving situation. That is, the caregiver may not spend much time in caregiving tasks but may perceive them as difficult. On the other hand, the caregiver may spend a large amount of time engaged in caregiving tasks but not perceive them as difficult (Aggarwal et al., 2009; Halm et al., 2007). Thus, the scales were analyzed separately in this study.

Data Analysis

Changes over time in caregiving demand and difficulty were examined using repeated measures analysis of variance models. Huynh-Feldt tests of significance are reported to account for any deviations from sphericity. The level of significance was set at $p < 0.05$ (two-tailed tests). Post-hoc pairwise comparisons were examined using Tukey's test. Mean scores of each item were used to identify the top four caregiving demands and difficulties at each time point.

Results

Caregivers ($n=34$) were, on average, 59 years of age ($SD=11.6$, Range=29-76), and were mainly Caucasian ($n=32$, 94%) females ($n=32$, 94%), who were employed ($n=20$, 59%) with 14 years of education ($SD=2.3$, Range=12-16). There was a significant decrease over time in both caregiving demand and caregiving difficulty (see Table 1). Post-hoc tests revealed significant decreases in caregiving demands between baseline and 3 months ($p=.004$), baseline and 6 months ($p=.001$), and 3 and 6 months ($p=.014$). The significant decline in caregiving difficulty was between baseline and 6 months ($p=.012$). Spouses reported higher mean scores in caregiving demands than caregiving difficulties at each time point. Although scores declined over time, the most demanding and/or difficult caregiving activities at all three time points were providing social support, managing behavior problems, taking on added household tasks, and monitoring symptoms. Early in recovery providing transportation was a top ranked demand and difficulty. Later in recovery (3 and 6 months), managing finances was a top ranked demand and difficulty.

Discussion

Caregiving demands and difficulties for the spousal caregivers in this study declined significantly over the first six months post-CABG. These findings were supported by Stolarik et al. (2000) who also found a significant decline ($p=.008$) in caregiving demands from week 1 to week 6 in spouses of CABG patients and a decline in caregiving difficulties (although not statistically significant). In contrast, Halm et al. (2007) found that caregiving demand and difficulty scores were similar across 3, 6, and 12 months in a cross-sectional study using three different cohorts of spousal caregivers of CABG patients. Unlike other chronic illness situations (i.e., dementia, cancer) where the patient may not improve and often is on a downward trajectory, CABG patients typically require a lesser amount of caregiving after the first 6-8 weeks (Stolarik et al., 2000).

Future research is needed to offset the limitations of this study. Study limitations were the small sample size and the minimal racial/ethnic and gender diversity of the sample. The next step in this research area would be to replicate this study with a larger and more diverse sample and to determine the type of education and guidance needed at various points in the caregiving trajectory. Halm (2016) recently examined the needs and concerns of caregivers three months after CABG surgery and found that they received little guidance about their role or what to expect. She asked caregivers what advice they would give to future CABG caregivers and it involved addressing clinical issues while in the hospital, creating a system to track progress and symptoms, being supportive and understanding, and learning about financial and other issues to run the household (Halm, 2016). This advice resonates with the findings in this study. In light of the top ranked demands and difficulties found in this study, caregivers can be instructed to mobilize their social support network to obtain assistance with household chores (laundry, cooking, yard work, home repairs, etc.), provide emotional support for the family and obtain support themselves, manage behavior problems in the patient such as moodiness, irritability, or confusion, and monitor the patients' symptoms. They can be informed that early in recovery, providing transportation may be challenging and later in recovery, managing finances may take on more importance. In conclusion, caregiving demands and difficulties changed over time in this study and continuing assessments of how spouses and family members are experiencing the caregiving situation are needed to assist the family with managing these changes.

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Highlights

- Caregiving demands and difficulties declined significantly over six months for the caregivers in this study
- Key demanding and/or difficult caregiving activities at all time points were providing social support, managing behavior problems, taking on additional household tasks, and monitoring symptoms.
- Early in recovery, providing transportation was a top ranked demand and difficulty; later in recovery, managing finances became a top ranked demand and difficulty.
- Regular assessments of spouses and family members are needed to help them manage the caregiving situation.

Table 1
Mean Changes Over Time in Caregiving Demand and Difficulty in Caregivers of Cardiac Surgery Patients (N=34)

Variables 15-item scale	Baseline M (SD)	3 months M (SD)	6 months M (SD)	F statistic (df)	p value	Effect Size
Caregiving Demand (total possible score=15-75)	29.7 (10.9)	25.1 (10.1)	22.4 (9.8)	13.62 (1.696)	<.001	.29
Caregiving Difficulty (total possible score=15-75)	22.7 (8.6)	20.7 (6.3)	19.2 (5.1)	4.52 (1.613)	0.02	.12
Single items	Rank order ^a	Rank order ^a	Rank order ^a	-	-	-
Caregiving demands	#1 Provide transportation #2 Added household tasks #3 Emotional support #4 Watch symptoms	#1 Emotional support #2 Added household tasks #3 Manage finances #3 Watch symptoms	#1 Emotional support #2 Watch symptoms #3 Added household tasks #3 Manage behavior problems	-	-	-
Caregiving difficulties	#1 Added household tasks #2 Provide transportation #3 Added tasks outside home #3 Manage behavior problems	#1 Manage behavior problems #2 Added household tasks #3 Emotional support#4 Manage finances	#1 Manage behavior problems #2 Emotional support #3 Added household tasks #4 Manage finances	-	-	-

^aRank order of top four mean scores; if there was a tie in mean scores, the items were assigned the same number.