

Strengthening the Late-Life Care Process: Effects of Two Forms of a Care-Receiver Efficacy Intervention

Enid O. Cox, DSW,¹ Kathy E. Green, PhD,² Katharine Hobart, PhD,¹
Li-Ju Jang, PhD³ and Honglan Seo, PhD⁴

Purpose: The primary goal of the Care-Receiver Efficacy Intervention (CREI) was to increase the capacity of cognitively able elderly care receivers to effectively manage their own care and optimize relationships with caregivers. To accomplish this, two forms of the CREI were created: an individual and a small-group form. The purpose of this study was to evaluate outcomes of these two CREI forms when compared to a case management approach. **Design and Methods:** Utilizing a quasi-experimental design, between January 2002 and August 2004 we collected data from 177 elders at three time points: pretest, 2 months following the last session, and 12 months following the last session. The Care-Receiver Efficacy Scale and the Philadelphia Geriatric Center Morale Scale-Revised were the outcome measures. **Results:** We found significant effects favoring the CREI for relationship with caregivers, self-care strategies, loneliness, and quality of life. Effects were strongest for the small-group form of the CREI. Overall, the care receivers in both forms of the CREI showed improved self-performance, with small-group

CREI participants showing remarkable improvement related to quality of life. **Implications:** The results of this research suggest that care receiver intervention can be effective in improving the care process.

Key Words: *Self-efficacy, Care-receiver, Caregiver, Caregiving relationships*

Elder care has become an issue of critical dimensions in the United States and around the world, as more individuals live longer lives that often include varying degrees of disability requiring personal care. Research, policy, and intervention programs targeting caregivers have proliferated during the past three decades. Caregiver intervention programs have included educational programs, social support groups, and a number of other psychosocial interventions. Researchers have represented the caregiver/care-receiver relationship as an important component of the caregiving process (Ingersoll-Dayton & Raschick, 2004; Lyons, Zarit, Sayer, & Whitlatch, 2002; Whitlatch, Schur, Noelker, Ejaz, & Looman, 2001), as well as central to the perceptions of caregivers and care receivers (Pillemer & Sutor, 2006; Tetz et al., 2006; Thompson, 2004).

Scholars have given far less attention to the care-receiving role faced by older individuals or to the policy and intervention strategies suggested by the nature of this role. The challenges of being a care receiver and the attitudes, knowledge, and skills that facilitate strong and effective participation of care receivers in their care

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Address correspondence to Dr. Enid Cox, Graduate School of Social Work, University of Denver, Denver, CO 80208. E-mail: ecox@du.edu

¹Graduate School of Social Work, University of Denver, CO.

²College of Education, University of Denver, CO.

³Department of Medical Sociology and Social Work, Chung Shan Medical University, Taichung, Taiwan.

⁴Department of Social Work, Inje University, Seoul, Republic of Korea.

Table 1. Topic and Objective of Each Session

Topic	Objective
1. Introducing the program and the roles of the care receiver	To help participants explore their roles as caregivers and care receivers within the United States (exploring expectations, values, etc.).
2. Learning to use health and social services	To encourage participants to familiarize themselves with appropriate health and social service resources and to explore self-advocacy.
3. Caring for yourself	To explore what "being in charge of your own health care" means to each participant.
4-5. Adjusting to being a care receiver	To encourage the exploration, evaluation, and potential for change in attitudes and beliefs about being a care receiver.
6. Being a good communicator	To introduce care receivers to the concept of purposeful communication and related knowledge and skills.
7. Building your social support network	To help participants think about their current social support networks and their role in maintenance and expansion of support networks.
8. Looking at the past and planning for the future	To assist participants in identifying their strengths and defining quality of life.
9-10. Joint meeting with care receivers and caregivers	To help caregivers better understand the perspective of the care receivers and their potential role in the care process.

process have not been a primary focus of gerontological research, even though there is an increasing consensus that care receiving plays a major role in late-life tasks. There is a growing recognition in the health care field regarding the patient role of care receiver as being of critical import to mental health and physical health (Berman & Iris, 1998; Kempen et al., 2003; Li, Fisher, Harmer, & McAuley, 2005; Maddux, Brawley, & Boykin, 1995). Care receiver interventions are a key next step with respect to the consumer-directed care movement fostered by the Robert Wood Johnson Foundation (Polivka & Salmon, 2001).

The primary goal of the Care-Receiver Efficacy Intervention (CREI), the effects of which we report herein, was to increase the capacity of elderly care receivers to effectively manage their own care, including optimizing their relationships with caregivers. More specifically, this intervention was designed to reduce the sense of powerlessness and increase the sense of efficacy of care receivers as partners in their care process by increasing their knowledge and skills to cope with and overcome challenges associated with the care-receiving process, thereby decreasing caregiver stress. Two different forms of the CREI were created to accomplish this goal: a small-group and an individual approach.

Many elderly care receivers cannot, or are unwilling to, participate in small-group interventions due to isolation, lack of transportation, or physical conditions. Geographic location of residence (such as a senior housing facility) can be a key factor in developing group interventions. Consequently, the availability of both a small-group and an individual intervention was deemed important to meeting the needs of elderly care receivers.

The purpose of this study was to evaluate the effectiveness of the CREI. To accomplish this, we compared the two forms of the CREI to a case management approach.

Background and Description of the CREI

The CREI was based on studies regarding the ways in which elders of diverse ethnic backgrounds experi-

ence and define their role in the care process, as well as the perceptions of caregivers (Cox, 1999; Cox & Dooley, 1996; Cox, Parsons, & Kimboko, 1998). These studies, combined with extant literature regarding caregiver challenges, led to focusing this intervention on the following themes: (a) psychosocial coping with increased dependency; (b) participating in self-care education and activities; (c) communicating with personal and professional caregivers; (d) finding, assessing, and managing the use of formal health and social services; (e) sustaining and developing late-life social support networks; (f) caring for and working with one's caregiver; (g) maintaining quality of life; and (h) making end-of-life decisions.

Project staff prepared structured educational material for the CREI for each session. Gerontological social workers, trained by project staff with regard to the empowerment-oriented intervention approach and specifically the CREI intervention process, provided the intervention, pretest, and post-test data collection. Both the small-group and individual interventions consisted of 10 biweekly sessions of 1.5 to 2 hr in length related to the themes listed in the preceding paragraph and 2 review sessions with caregivers present. A typical session included (a) assessment of issues by the individual/small group and values clarification processes; (b) sharing of strategies from research on individuals in similar situations and from the participant's perspective; (c) sharing of related educational material, such as mediation and conflict management skills, communication skills, how to access and manage formal agency care, and advanced directives; (d) engaging in mutual support and self-help activities; and (e) taking part in social action strategies if indicated by issues that arose. Table 1 describes the 10 session topics and objectives.

To summarize, the CREI was designed to initiate care receiver involvement in increasing knowledge and skills related to the role of care receiving and in assisting others through sharing in the group or allowing their ideas and knowledge to be added to the materials utilized by the project. (For more informa-

tion on the intervention, see CREI final products at <http://portfolio.du.edu/ecox>.)

Comparison Group Intervention

Members of the comparison group received a standard case management intervention modeled after the services of case management agencies that receive state contracts to provide this service for home- and community-based service recipients. This service included (a) a comprehensive needs assessment, using Colorado's standardized multidimensional long-term care assessment tool; (b) referral and assistance, with access to all appropriate long-term-care services; (c) monthly follow-up to determine changes in needs; and (d) ongoing telephone assistance at the request of the participant.

Methods

Research Design

In order to determine the effectiveness of the CREI in its two forms, we created three groups: two treatment groups, representing the small-group and individual intervention; and a comparison group, consisting of persons receiving the case management intervention. Eligibility for the small-group or individual CREI depended upon the person's ability to access and participate in a group model. We assigned all small-group-eligible intervention participants to the small-group treatment. We assigned all individual-eligible intervention participants randomly to either the CREI individual treatment or the case management/comparison intervention.

For all three groups, we collected data at three time points: Time 1 (pretest), Time 2 (2 months following the last session), and Time 3 (12 months following the last session). We collected pretest data between January 2002 and July 2003; we collected final data by August 2004.

Participants

Elders who were selected for this project met the following criteria: (a) were 55 years old or older, (b) required a minimum of 6 hr of personal care per week, and (c) were cognitively able to participate in the intervention as determined by the mini-mental status screen from the Diagnostic Interview Schedule (Folstein, Folstein, & McHugh, 1975) and the decision of a clinical social worker (a few applicants did not respond well to the mini-mental status screen but were determined by gerontological social workers to be able to make decisions for themselves and discuss care-receiving concerns). The participants included primarily individuals with disability related to one or more of the following conditions: stroke, heart disease, osteoporosis, mild dementia, cancer, and severe arthritis. All participants required assistance with one or more activities of daily living (e.g., dressing, bathing, feeding). Recruitment was accomplished with the assistance of agencies throughout the Denver metropolitan area,

seniors' groups, and churches. In the case of agency referral, agency staff contacted potential participants to determine their willingness to participate in the program. Clients then contacted the project's research staff. Elders received no payment other than the opportunity to participate in an intervention.

A total of 177 participants from the Denver, Colorado, metro area were recruited. One individual younger than age 55 was selected for participation due to a severe disability, need for care, and initial confusion about her age.

The mean age of participants in Time 1 data was 78.42 years ($SD=9.78$), with ages ranging from 51 to 96. Most of the participants were female (76.3%), Caucasian (78.5%), and widowed (51.4%). The modal residential location was an independent retirement community (40.7%), with 27.1% in assisted living, 24.9% in their own home, 5.6% in a relative's home, and 1.7% in a skilled nursing facility. The self-reported health status of most participants was fair or good (39.5% in each category), with 13.0% in poor and 7.3% in excellent health. The modal annual income category was \$4,860 to \$11,064 (42.9%), with income categories ranging from \$0 to \$4,860 (6.8%) to more than \$45,000 (2.3%). Table 2 provides information on demographic characteristics of the sample by treatment group.

Instruments

We administered two measures via one-to-one interviews. The Care-Receiver Efficacy Scale (CRES; Cox, Green, Seo, Inaba, & Alyla Quillan, 2006) was created specifically for this project and therefore was anticipated to be the most sensitive to the study's theme of efficacy. The other was a published measure, the Philadelphia Geriatric Center Morale Scale-Revised (PGCMS; Lawton, 1975). In total, we used 8 subscale and 1 total measure scores.

CRES.—The CRES (Cox et al., 2006) consists of 48 items comprising five subscales, with a 5-point response scale (strongly disagree to strongly agree). The five subscale names, number of items, and the internal consistency ranges over the three data collection time points in this study were as follows: Self-Care Strategies (15 items, .89–.91), Relational Coping With Caregivers (10 items, .82–.84), Perceptions of Dependence (5 items, .67–.69), Performance-Related Quality of Life (10 items, .86–.88), and Accepting Help (8 items, .64–.71). Higher scores indicate higher self-efficacy on all subscales except Perceptions of Dependence, where higher scores indicate stronger perceptions of dependence. The CREI was designed to directly affect self-care strategies and relationships with caregivers. (See Cox et al., for complete item text by subscale.) We anticipated that all CREI subscales except Perceptions of Dependence would be significantly affected by both the small-group and individual CREI.

PGCMS.—The PGCMS (Lawton, 1975) consists of 17 items. Higher scores indicate higher levels of morale. This scale assesses three factors related to aging. The

Table 2. Sample Demographics by Treatment Group

Variable	Individual Intervention	Group Intervention	Case Management	Total
<i>n</i>	49	71	57	177
Age (years)				
<i>M</i>	78.14	79.81	76.84	78.42
<i>SD</i>	11.03	8.83	9.76	9.78
Range	51–96	61–94	59–96	51–96
Type of residence				
Own home	42.9	16.9	19.3	24.9
Home of relative	0.0	14.1	0.0	5.6
Assisted living	22.4	22.5	36.8	27.1
Skilled nursing	4.1	0.0	1.8	1.7
Independent retirement community	30.6	46.5	42.1	40.7
Health status				
Excellent	10.2	7.1	5.3	7.4
Good	34.7	42.9	40.4	39.8
Fair	38.8	38.6	42.1	39.8
Poor	16.3	11.4	12.3	13.1
Annual income				
\$0–\$4,860	4.4	12.1	6.8	8.2
\$4,861–\$11,064	48.9	50.0	56.8	51.7
\$11,065–\$17,700	22.2	22.4	22.7	22.4
\$17,701–\$26,544	8.9	8.6	9.1	8.8
\$26,545–\$36,000	4.4	3.4	2.3	3.4
\$36,001–\$44,999	4.4	3.4	0.0	2.7
\$45,000+	6.7	0.0	2.3	2.7
Gender				
Female	67.3	85.9	73.7	76.8
Male	32.7	14.1	26.3	23.2
Marital status				
Married	12.2	15.5	17.5	15.3
Widowed	53.1	56.3	43.9	51.4
Divorced	20.4	22.5	24.6	22.6
Single	14.3	5.6	14.0	10.7
Ethnicity				
Caucasian	75.5	84.5	73.7	78.5
Person of color	24.5	15.5	26.3	21.5

Notes: All data are percentages unless otherwise noted. *SD* = standard deviation.

subscale name, number of items, and the internal consistency reliability ranges over the three measurement points were as follows: Agitation (6 items, .73–.77), Attitude Toward Own Aging (5 items, .55–.68), and Lonely Dissatisfaction (6 items, .68–.72). We also used a total score reflecting global life satisfaction (17 items, .81–.85). We used all four scores (three subscale scores and the total score) in this study. Although the CREI did not directly address morale, we anticipated that the interventions would affect the care receivers' loneliness and global life satisfaction.

Procedure

Project staff gave participants a general description of the project at the first contact, often by telephone. At this time, if the individual wished to participate, the contact site was determined. The first in-person contact typically occurred at the participant's home, but occasionally participants chose the home of relatives,

a senior center, health care facility, or another site. At this point, project staff assigned participants to the appropriate form of intervention. One-to-one interviews, administered to all participants, allowed staff to complete the consent form and the study instruments at each of the three time points. Individuals trained in social work and gerontology conducted the interviews. The project employed Spanish- and Russian-speaking social workers as needed to conduct interviews as well as provide the interventions in linguistically and culturally appropriate ways. During the interviews, all items from the three outcome measures were read to the participants and answers recorded. Interviewers administered the items to 177 care receivers three times between January 2002 and August 2004: Time 1 data were collected between January 2002 and July 2003. Two months after the participants completed baseline administration, Time 2 data were collected. Twelve months after completion of the interventions, Time 3 data were collected.

Table 3. Repeated Measures Analyses of Covariance Summary Table, Means, and Standard Deviations

Measure	MS	F	p	Partial η^2	Individual Intervention, M (SD)	Group Intervention, M (SD)	Case Management, M (SD)
Relational Coping With Caregivers							
Time \times Group	0.33	2.42	.093	.038			
Group	3.45	7.53	.001	.110			
Lonely Dissatisfaction							
Time \times Group	3.12	3.65	.029	.060			
Group	0.47	0.15	.864	.003			
CRES Relational Coping With Caregivers							
Time 1					3.71 (.67)	3.80 (.55)	3.75 (.67)
Time 2—unadjusted					3.91 (.53)	3.95 (.47)	3.59 (.72)
Time 2—adjusted					3.93	3.93	3.59
Time 3—unadjusted					3.82 (.66)	4.10 (.44)	3.66 (.68)
Time 3—adjusted					3.83	4.09	3.66
PGCMS Lonely Dissatisfaction							
Time 1					0.67 (.30)	0.71 (.29)	0.66 (.29)
Time 2—unadjusted					0.66 (.32)	0.71 (.28)	0.72 (.30)
Time 2—adjusted					0.65	0.70	0.73
Time 3—unadjusted					0.76 (.30)	0.76 (.24)	0.69 (.28)
Time 3—adjusted					0.75	0.75	0.69

Notes: CRES = Care-Receiver Efficacy Scale; PGCMS = Philadelphia Geriatric Center Morale Scale-Revised; MS = mean square; SD = standard deviation.

Analyses

We used repeated measures analysis of covariance (ANCOVA) to assess overall treatment group differences using Time 1 measures as covariates. Prior to this analysis, we conducted several preliminary assessments. First, we evaluated group differences on Time 1 measures and on demographic variables to assess group equivalence prior to treatment. Second, we evaluated group differences in attrition from baseline to Time 3 to assess whether there was differential attrition by treatment. Third, we assessed ANCOVA assumptions. In the case of ANCOVA assumption violations, we employed an alternative analysis.

We tested the following planned hypotheses: (a) Combined CREI group means will be significantly higher than the case management group mean at Time 2 and Time 3 (Hypothesis 1); (b) The mean for the small-group CREI will differ significantly from the mean for the individual CREI (Hypothesis 2; there were no *a priori* expectations regarding direction of effect); and (c) There will be a significant interaction between group and time, suggesting a statistically significant increase over time for both CREI versions, but not for the case management group (Hypothesis 3).

Results

Group Differences at Time 1

We found no statistically significant differences ($p < .05$) among the three groups for age, marital status, gender, ethnicity, income, or health status. We found statistically significant differences for type of residence and living status. Case management group participants were more likely to live in assisted living facilities than CREI participants, who were more likely to live in their

own or a relative's home, $\chi^2(8, N = 177) = 31.45, p < .001$. Given significant differences among treatment groups by type of residence, we conducted exploratory analyses with treatment group, time, and type of residence as factors.

We found no statistically significant Time 1 group differences on the PGCMS total score or subscales or on any of the CRES subscales.

Differences in Attrition by Group and by Demographic Variables

Sample sizes for the three groups at Times 1, 2, and 3 were as follows: individual treatment—49, 41, 35; group treatment—71, 62, 51; and case management group—57, 51, 44. We found no statistically significant association between group and attrition. Participants dropped out because of death (15), illness (19), move (10), or no desire to be in the study (3).

There were no statistically significant associations between attrition and type of residence, marital status, gender, ethnicity, or health status. There was a statistically significant association between income level and remaining in the study. Those participants in income categories \$11,064 and above were less likely to remain in the study, whereas those participants in income categories below \$11,064 were more likely to remain in the study, $\chi^2(3, N = 147) = 9.47, p = .024$.

Covariate-Adjusted Group Differences

We used repeated measures ANCOVAs to assess significance of the main effects of time, group, and the interaction between time and group when means were adjusted for baseline (Time 1) differences. ANCOVA

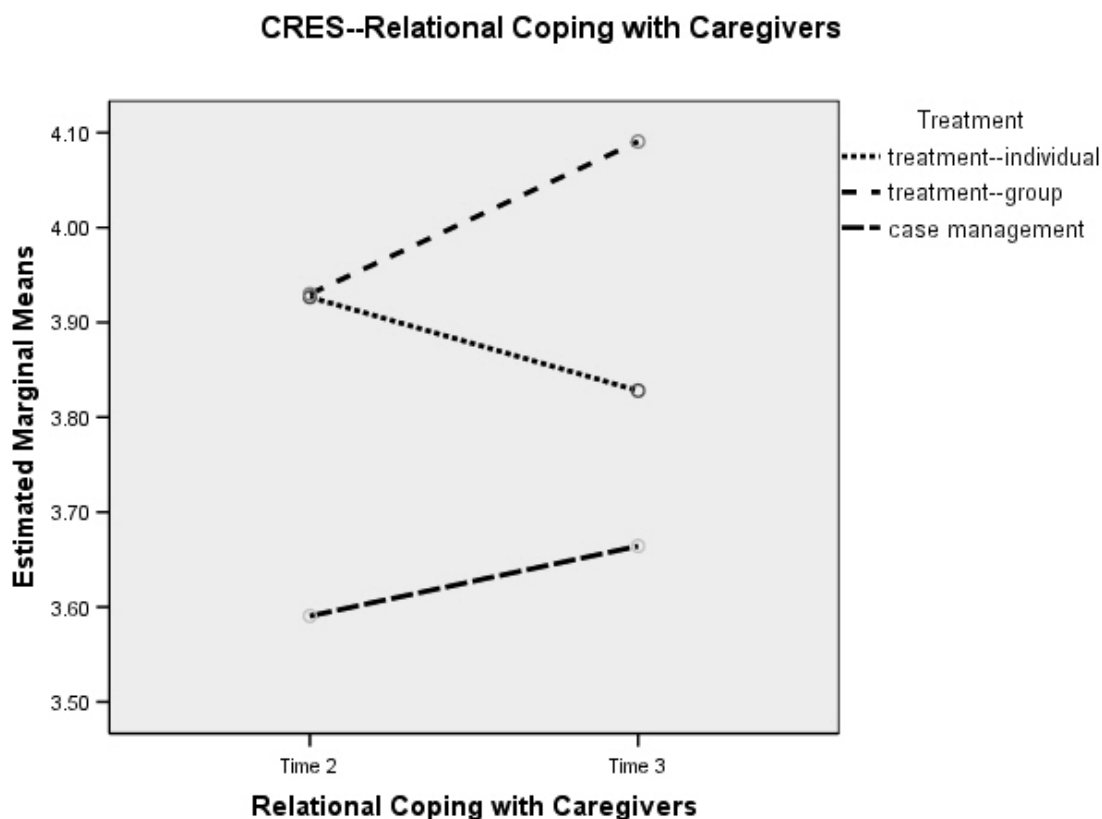


Figure 1. Adjusted Relational Coping With Caregivers means by group by time. CRES = Care-Receiver Efficacy Scale.

assumptions were met, but no statistically significant effects were found for the CRES subscales Perceptions of Dependence or Accepting Help, or for the Agitation and Attitude Toward Own Aging subscales of the PGCMS. Assumptions were met and main or interaction effects statistically significant at $p < .05$ were found for the CRES Relational Coping With Caregivers and the PGCMS Lonely Dissatisfaction subscales. Table 3 provides an abbreviated ANCOVA summary table and also displays the unadjusted and adjusted means and standard deviations by group for Times 1, 2, and 3 for measures yielding statistically significant effects. Figures 1 and 2 present the results by group by time. Covariate-adjusted CREI group means increased, whereas case management means decreased or remained the same. CREI group means exceeded case management group means at Time 3, indicating overall gains for Relational Coping With Caregivers and the PGCMS Lonely Dissatisfaction subscale for the treatment groups but not for the case management group.

Repeated Measures Analyses of Variance

The assumption of homogeneity of regression was violated for the CRES subscales Self-Care Strategies and Performance-Related Quality of Life and for the PGCMS total score. Therefore, we conducted an alternative analysis, a repeated measures analysis of variance (Keppel & Wickens, 2004).

We found a statistically significant Treatment Group \times Time interaction for Self-Care Strategies and

Performance-Related Quality of Life but not for the PGCMS. Table 4 displays the abbreviated analysis of variance summary table and provides the means and standard deviations for group by time. In these analyses, the assumptions of homogeneity of variance and sphericity (Greenhouse-Geisser epsilon $> .80$) were upheld. Figures 3 and 4 present results by group by time. CREI group means increased over time, whereas case management means decreased, indicating overall gains for treatments groups in Self-Care Strategies and Performance-Related Quality of Life with decreases for the case management group.

Hypothesis Test Results

Hypothesis 1.—The complex comparison of combined CREI approaches (small group and individual) to the case management approach yielded statistical significance ($p < .05$) at Times 2 and 3. At Time 2, we found statistically different differences between CREI and case management conditions for Relational Coping With Caregivers and Performance-Related Quality of Life. The combined mean for the treatment groups exceeded the mean for the case management group. At Time 3, for Self-Care Strategies, Relational Coping With Caregivers, and Performance-Related Quality of Life, the combined mean for the treatment groups exceeded the mean for the case management group. Hypothesis 1 was partially supported, with significant advantage to treatment for Relational

PGCMS Subscale--Lonely Dissatisfaction

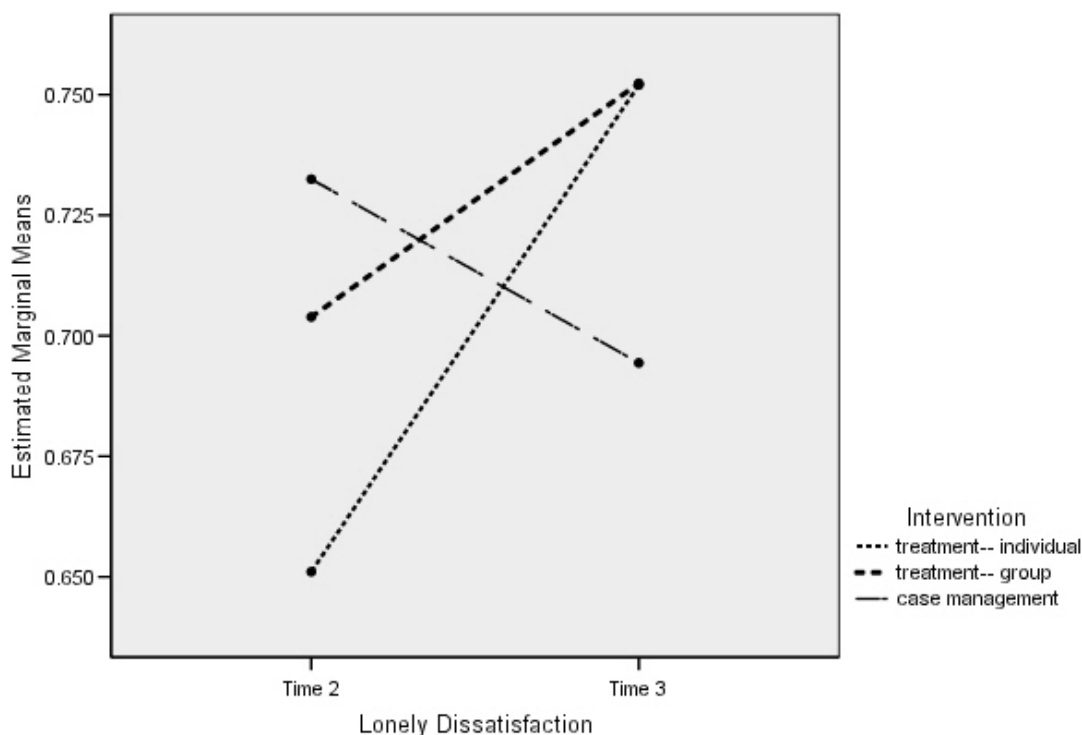


Figure 2. Adjusted Lonely Dissatisfaction means by group by time. PGCMS = Philadelphia Geriatric Center Morale Scale-Revised.

Coping With Caregivers, Self-Care Strategies, and Performance-Related Quality of Life.

Hypothesis 2.—We found a statistically significant difference ($p < .05$) between means for the small-group versus individual CREI at Time 2 for Perceptions of Dependence, with the mean for the small-group CREI participants exceeding the mean for the individual

CREI participants ($M_{\text{group}} = 3.77$, $M_{\text{individual}} = 3.31$), indicating stronger negative views of dependence for the small-group participants. This difference was also significant at Time 3, with the small-group mean again exceeding the mean for the individual CREI ($M_{\text{group}} = 3.80$, $M_{\text{individual}} = 3.29$). At Time 3, we found a statistically significant difference between means for the small-group versus individual CREI for Relational

Table 4. Repeated Measures Analysis of Variance Summary Table, Means, and Standard Deviations

Measure	MS	F	p	Partial η^2	Individual Intervention, M (SD)	Group Intervention, M (SD)	Case Management, M (SD)
Self-Care Strategies							
Time \times Group	0.83	4.84	.001	.072			
Group	0.73	1.03	.362	.016			
Performance-Related Quality of Life							
Time \times Group	0.72	3.25	.013	.049			
Group	3.25	4.00	.022	.060			
CRES Self-Care Strategies							
Time 1					3.98 (.69)	3.68 (.74)	3.96 (.50)
Time 2					4.03 (.51)	3.90 (.59)	3.95 (.57)
Time 3					4.08 (.54)	4.05 (.52)	3.80 (.59)
CRES Performance-Related Quality of Life							
Time 1					3.63 (.70)	3.89 (.68)	3.73 (.65)
Time 2					3.94 (.60)	3.97 (.61)	3.76 (.71)
Time 3					3.93 (.72)	4.14 (.47)	3.60 (.70)

Note: CRES = Care-Receiver Efficacy Scale; MS = mean square; SD = standard deviation.

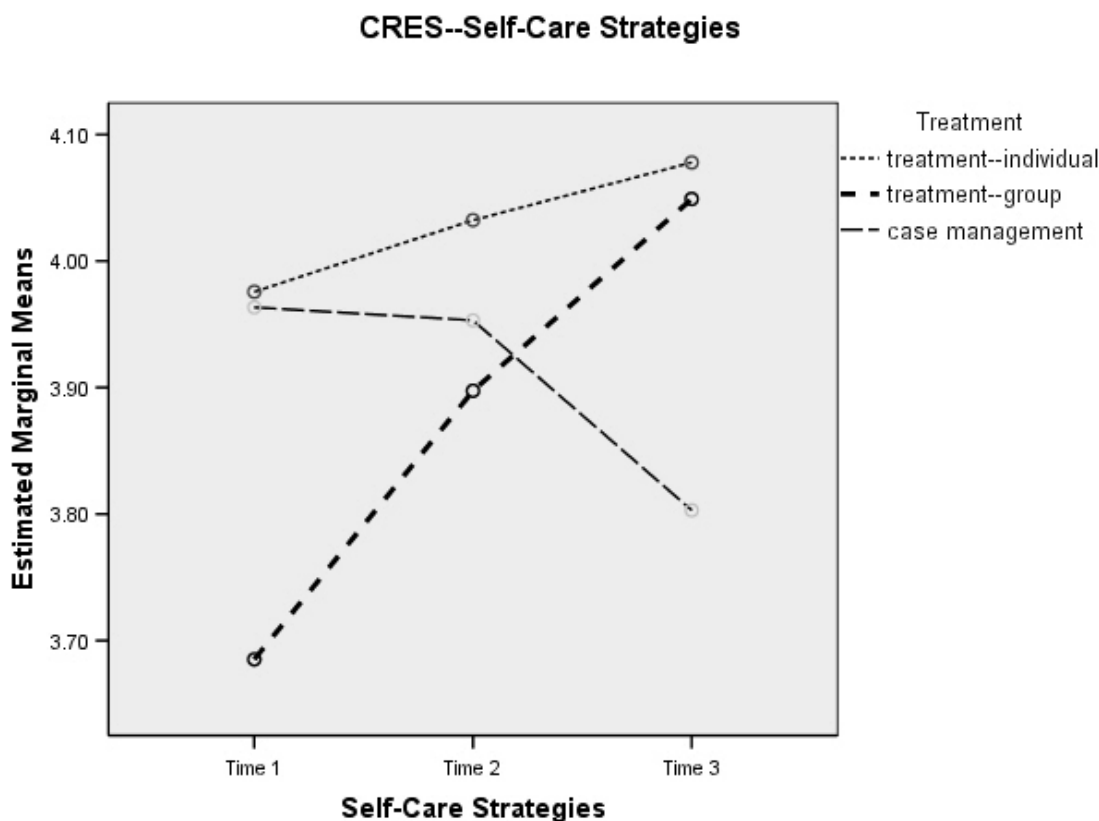


Figure 3. Self-Care Strategies means by group by time. CRES = Care-Receiver Efficacy Scale.

Coping With Caregivers, with the mean for the small-group CREI exceeding the mean for individual CREI ($M_{\text{group}} = 4.10$, $M_{\text{individual}} = 3.82$). Comparisons between the individual and small-group interventions that yielded statistically significant results favored the group form of the CREI except that the small-group participants held more negative views of dependence than the individual CREI participants.

Hypothesis 3.—We found statistically significant ($p < .05$) Treatment Group \times Time interactions for Lonely Dissatisfaction, Self-Care Strategies, and Performance-Related Quality of Life, yielding support for Hypothesis 3 for those measures. Follow-up simple effects analyses indicated statistically significant differences of time only for the CRES subscale Performance-Related Quality of Life ($\eta^2 = .06$) for the individual form of the CREI. For the small-group CREI, we found statistically significant differences by time for the CRES subscales Self-Care Strategies, Relational Coping With Caregivers, Performance-Related Quality of Life, and Accepting Help. Means increased from Times 1 to 3 for Self-Care Strategies, $\eta^2 = .14$; for Relational Coping With Caregivers, $\eta^2 = .10$; for Performance-Related Quality of Life, $\eta^2 = .13$; and for Accepting Help ($M_{\text{Time1}} = 3.75$, $M_{\text{Time2}} = 3.88$, $M_{\text{Time3}} = 3.95$; $\eta^2 = .04$). (Means by group by time are in Tables 3 and 4 or are provided above.) We found no statistically significant simple effects of time for the case management group. In all cases of a significant Group \times Time interaction, the pattern of change over time favored the CREI

groups, whereby the means increased relative to stable or decreasing means for the case management group.

Exploratory Analyses

Due to small cell sample sizes resulting from crossing the factors time, treatment group, and type of residence (cell n s ranged from 8 to 24), these analyses are tentative. We gave primary attention to the three-way interaction term to see if treatment effects over time varied by residence type. We found one statistically significant ($p < .05$) three-way interaction for Performance-Related Quality of Life, with η^2 equal to .079. Although we again found gains for the CREI groups and not for the case management group, the pattern of gains differed for individuals receiving care at home, in a facility, or in their retirement community. We found the greatest gains for CREI group participants who received care at home, whereas CREI individual participants' gains were greatest in a retirement community setting. Both CREI forms were equally effective for persons in a care facility.

We conducted one further analysis with gender as an added factor. We found no statistically significant three-way interactions between gender, time, and treatment group.

Summary of Results

We used eight subscale scores and one total score as outcomes in this study. We found no statistically

CRES-Performance-Related Quality of Life

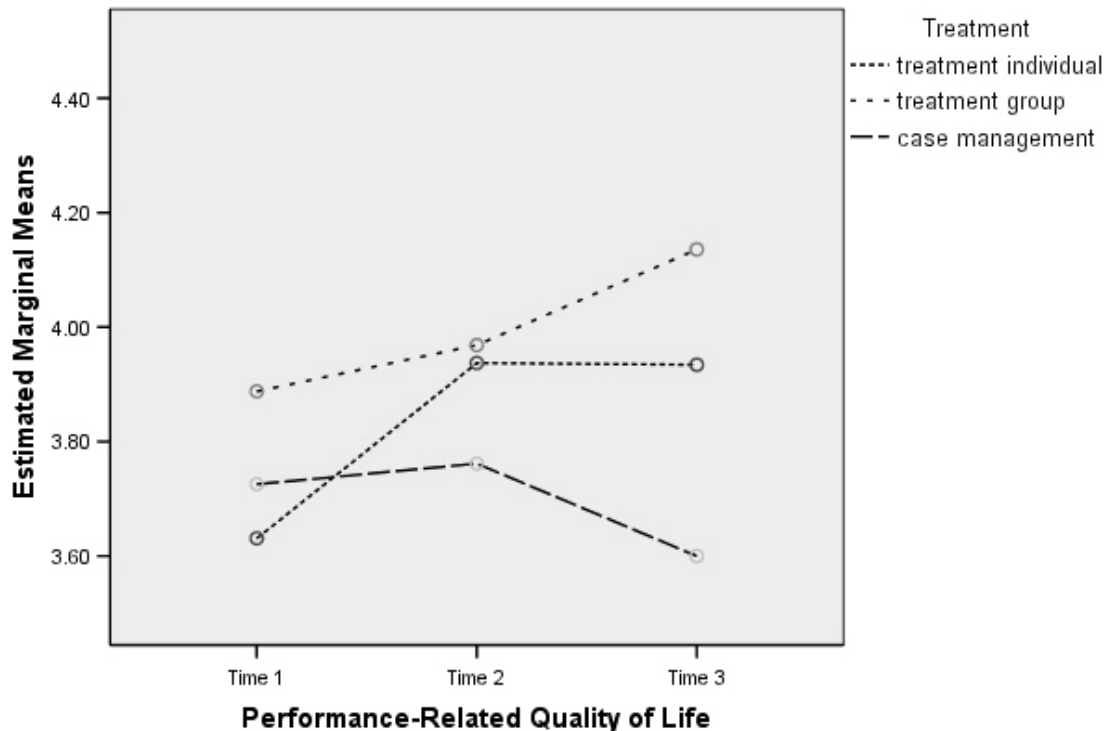


Figure 4. Performance-Related Quality of Life means by group by time. CRES = Care-Receiver Efficacy Scale.

significant effects of the interventions for five of these: the PGCMS Agitation and Attitude Toward Own Aging subscales, the PGCMS total score, and the CRES Perceptions of Dependence and Accepting Help subscales. We found statistically significant effects for the remaining four measures: CRES Relational Coping With Caregivers, Self-Care Strategies, and Performance-Related Quality of Life subscales; and PGCMS Lonely Dissatisfaction subscale. In all cases, differences favored the CREI—small-group and individual forms—with moderate to large effect sizes ($\eta^2 = .05-.11$). The strongest effects of the CREI (both versions) were on Relational Coping With Caregivers and Performance-Related Quality of Life. Exploratory analyses resulted in a significant three-way interaction between type of residence, treatment group, and time with Performance-Related Quality of Life as the dependent variable, suggesting the potential for varying efficacy of CREI form depending upon residential setting.

We found some differences between the two forms of the CREI. In the small-group version, participants (a) were somewhat, but not significantly, more likely to be living in a retirement community than at home; (b) reported significantly stronger perceptions of dependence; but also (c) had significantly more positive scores on Relational Coping With Caregivers than did participants in the individual version.

Differences over time indicated positive change, with a large effect size for both forms of the CREI for Performance-Related Quality of Life. The care receivers in the small-group CREI also demonstrated

significant positive change over time for the other CRES subscales (excluding Perceptions of Dependence); and again, effect sizes were large.

Discussion

The absence of significant effects of treatments on two PGCMS subscales and the CRES subscale Perceptions of Dependence were in line with expectations. Significant effects were anticipated but not found for the PGCMS total score and for the CRES subscale Accepting Help. The reliability of Perceptions of Dependence and Accepting Help were lower than reliabilities for other CRES subscales, which may have contributed to the lack of significant findings with respect to those two measures. Lack of significant findings for those subscales may also simply reflect the difficulty inherent in aging and in losing one's independence to become dependent on others. The PGCMS total score had adequate reliability, but it was generated by adding scores on three subscales. For two of those subscales, we had not expected to find any effects; hence, we should have anticipated failure to find significance with the total score.

We found significant effects for the CRES subscales Relational Coping With Caregivers, Self-Care Strategies, and Performance-Related Quality of Life. With respect to the specific objectives that guided intervention creation, the study demonstrated success with respect to all objectives except lack of effects

on coping with dependence and accepting help. The intervention seemed successful in moving participants toward positive action but not toward any positive attitude toward dependence. That goal may be unrealistic.

Overall, as shown in the figures, both forms of the CREI were effective in enhancing elderly care receivers' self-care strategies, performance related to quality of life, and late-life satisfaction (i.e., resulted in less loneliness). In particular, the small-group CREI was the most effective at improving care receivers' self-efficacy in the areas of relational coping with their caregivers and performance related to quality of life. The significant differences between the outcomes of the small-group CREI and individual CREI were not anticipated but were encouraging in that the group intervention is more economical to provide. The strong effect of group support and sharing of common issues and coping strategies appeared to be an important factor. Twelve months after the intervention ended, scores for the small-group CREI showed a more positive increase than we had expected. We had anticipated that scores would level off or even decline, but scores for the small-group CREI continued to increase.

A number of limitations of this study need to be addressed in future studies. First, the quasi-experimental design used in this study was necessitated because some individuals simply could not attend group meetings. The limitations placed on random assignment resulted in a difference in residence type across groups. Although too small a number of cases was available in this study to provide an adequate test, analyses indicated that residence type may have differentially affected outcomes of the two forms of the CREI. Future study would ideally employ a randomized design, with sufficiently large samples to investigate the effects of factors such as residence type, extent of need for care, length of time care has been needed, and availability of family member support.

A quantitative instrument to assess caregiver perceptions is needed. One overall goal of the CREI is to improve caregiver as well as care receiver experiences. The findings of this study, coupled with the qualitative responses collected from participants and their caregivers, call attention to the potential of care receiver interventions to improve quality of care as well as to alleviate stress of caregivers. More resources and attention should be directed to assisting care receivers with the knowledge, skills, and attitudes necessary to be active partners in their care. Further intervention research is needed to implement, evaluate, and modify the CREI with more culturally diverse care receivers, and to more effectively address care receivers' skills in coping with increasing dependence. Overall, efforts need to be made to increase policy and program

support for interventions targeting care receivers as well as caregivers to enhance effective partnerships as they engage in care process interventions. The CREI group method can be especially effective in senior housing facilities, senior centers, senior health clinics, and other settings that allow easy access to older adults who are experiencing disability and a need for personal care. The CREI individual method can provide outreach to persons unable or unwilling to access group settings.

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