Article

The effectiveness of dyadic interventions for people with dementia and their caregivers

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Abstract
The need for dyadic intervention is enhanced with increasing numbers of older adults with early-stage dementia. The purpose of this paper is to review the effects of dyadic interventions on caregivers (CGs) and care recipients (CRs) at the early stage of dementia. Four databases, AgeLine, Medline, EBSCO, and PyscINFO were searched and relevant literature from 2000 onwards was reviewed. The twelve studies identified used a variety of intervention approaches including support group, counseling, cognitive stimulation, skill training, and notebook-keeping. This review suggests that intervention programs for early-stage dementia caregiving dyads were feasible and well accepted by participants. The reviewed studies provided rich evidence of the significance of mutual understanding and communication to partners' well-being and relationship quality within the caregiving process. The findings suggest that these intervention approaches improved cognitive function of the CRs, social relations, and the relationship between the primary CG and the CR, although evidence of long-term effectiveness is lacking.

Keyword
dyadic intervention, older adults, early-stage dementia, family caregivers

Introduction

The caregiving relationship includes two members: a primary caregiver (CG) and a care recipient (CR) (Lyons, Zarit, Sayer, & Whitlatch, 2002). The changes that occur as dementia progresses may influence both individual factors and factors shared between the CGs and CRs such as their relationship, reciprocal interaction, and level of interdependence.

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Thompson and Walker (1982) recognized the need for dyadic research when there are extended interactions, patterned mutual action, and the effect of shared situations on both parties in caregiving. To better understand the caregiving situation, because CGs and CRs share the same context, caregiving research must investigate the dynamics of dyadic interaction and their effects on both parties.

Unfortunately, most intervention research on dementia caregiving has focused on the CG's perception of the caregiving context (Adams & McClendon, 2006; Braun, et al., 2009; Cotrell & Schulz, 1993; Gatz, Bengtson, & Blum, 1990; Lyons et al., 2002) and ability to cope with symptoms of dementia (e.g. day-to-day care, behavior problems, burden, or family conflict) as dementia progresses (Hepburn, Tornatore, Center, & Ostwald, 2001; Whitlatch, Judge, Zarit, & Femia, 2006). On the other hand, although people with early-stage dementia suffer from distress (i.e. anxiety, depression, feeling a burden to family) and often withdraw from their usual activities and interests due to the illness, less attention has been paid to intervention directly with the people with early-stage dementia (Adams & McClendon, 2006). Available studies primarily report on support groups intended to help CRs cope with their feelings and learn about available resources (Adams & McClendon, 2006; Whitlatch et al., 2006; Yale, 1995) or pharmacological intervention that may assist in rehabilitation or delay the progress of dementia (Clare, Wilson, Carter, Roth, & Hodges, 2004; Leifer, 2003; Morris & Price, 2001). Furthermore, according to Braun et al. (2009) and Whitlatch et al. (2006), very few studies include the perspectives of both CGs and CRs. Assumptions about the high level of multiple risks of family CGs, such as stress and burden (Chang & Horrocks, 2006), and existing stereotypes about cognitive function in people with dementia at the early stage (Kitwood, 1990; Woods, 2001) may lead to interventions targeting only one family member, or mostly targeting CGs.

The social contextual model highlights the need for collaborative efforts to solve problems with others because each individual may directly and indirectly influence the other in a dyadic relationship (DeLongis & O'Brien, 1990; Hammen, 1999; Holahan, Moos, & Bonnin, 1999; Townsend, Miller, & Guo, 2001). Individuals understand and solve their daily problems (i.e. stressors) along a continuum from a very individually focused interpretation of the stressors to a mutual or shared understanding of stressors and their impacts on the participants (Berg, Meegan, & Deviney, 1998). It is critical to know the views of the other person on certain problems and to communicate with each other about the problems in order to develop appropriate coping strategies to deal with stressors while maintaining the dyadic relationship. The social contextual model provides the notion that it is important to include both CG and CRs in psychosocial intervention in order to minimize the potential risk (i.e. decline in the relationship quality and individual physical and psychological well-being, Townsend et al., 2001) resulting from miscommunication or misunderstanding between dyad.

Recently, an increasing number of studies have suggested that people with dementia are able to report on their situations and experience in the early stages and to maintain their sense of self into the later stages of the illness (Adams, 2006; Menne & Whitlatch, 2007; Whitlatch, Feinberg, & Tucke, 2005). In addition, individuals with dementia desire to express their needs and their views on the caregiving process (Hirschman, Joyce, James, Xie, & Karlawish, 2005; Horton-Deutsch, O'Haver Day, Haight, & Babin-Nelson, 2007). Thus, considering the dyadic nature of caregiving, interventions targeting both family CGs and CRs with early-stage dementia could be beneficial to promote their mutual understanding and facilitate informed care planning.

The purpose of this paper is to review the effects of dyadic interventions on CGs and CRs at the early stage of dementia. As people in the United States become increasingly aware of dementia, and as earlier detection becomes common, there will be a need for services or interventions for people with early-stage dementia and their CGs to adjust to the progress of dementia, to resolve issues of concern, and to promote quality of life for both partners (Adams & McClendon, 2006; Roberts & Silverio, 2009). This review is restricted to studies involving CRs with early-stage dementia living in the home environment.

Method

Initial literature search

AgeLine, Medline, EBSCO, and PsycINFO electronic databases were used to search for studies using the terms *intervention, training, program,* or *therapy* in combination with the terms *dementia, Alzheimer's, couple, dyads,* or *outcome*. The titles and abstracts of each identified study were scanned for relevance and the reference lists from relevant articles were searched. Each study in English was reviewed based on the following criteria:

(1) The study must have been published in a peer-reviewed journal. In order to capture the most relevant studies, we restricted our search to studies published in 2001 or later.
(2) The intervention should be for both parties in dyads of people with dementia and their CGs.
(3) CRs in the selected studies must have been diagnosed with Alzheimer's disease or a related dementia and must have been living at home or in a non-institutional environment.
(4) The study must have outcome measures and must have reported at least one of the following for the CGs: burden, depression, some other measure of psychological well-being (e.g. life satisfaction, morale, self-esteem, or happiness), knowledge and/or coping abilities.
(5) Care receiver outcomes should be measured and reported (i.e. depression, some other measure of psychological well-being (e.g. life satisfaction, morale, self-esteem, or happiness), knowledge and/or coping abilities, and cognitive function)).

Very few dyadic intervention studies with early-stage dementia CRs and CGs were found after making an initial search restricted to experimental and quasi-experimental studies. Thus, we determined that this review should include pilot studies as well as evaluations of feasibility and acceptability of ongoing studies. Qualitative studies or case studies were also included. However, studies were excluded that simply described ongoing dyadic interventions for CGs and CRs without any evaluation of interventions. Our search with these inclusion and exclusion criteria yielded twelve studies focusing on dyadic interventions for dementia-related disorders.

Criteria for rating quality of studies

The characteristics of the research design, participants, outcome measures, statistical analyses, and results reported in the twelve identified studies were reviewed to evaluate methodological quality. The American Psychological Association (APA) developed guidelines, as modified by Chambless and Hollon (1998) and Hollon (1996), to rate the quality of intervention outcome studies. These APA criteria were refined in the intervention review studies of Papp, Walsh, and Snyder (2009) and Gingerich and Eisengart (2000), which we have adapted in the evaluation of studies in this review. Additionally, Zarit and Leitsch (2001) suggested a systematic approach for the design and evaluation of community-based intervention programs for CGs and CRs with Alzheimer's disease which added further relevant dimensions for consideration. In the present review, all criteria were combined and used to evaluate the studies. Studies were scored by giving one point for presence of the following study criteria:

(1) Identify reasonable goals for CGs and CRs in the context of a progressive, degenerative condition (Zarit & Leitsch, 2001).
(2) Describe inclusion/exclusion criteria (Papp et al., 2009).
(3) Describe withdrawals/dropouts (Papp et al., 2009).
(4) Use a randomized group design or acceptable single-case design. (Gingerich & Eisengart., 2000).
(5) Compare the experimental treatment with a standard reference treatment, a placebo, or (less desirable) no treatment (Gingerich & Eisengart, 2000).
(6) Use treatment manuals and procedures to monitor treatment adherence (Gingerich & Eisengart, 2000).
(7) Use outcome measures with demonstrated reliability and validity (Gingerich & Eisengart, 2000; Papp et al., 2009).
(8) Use a follow-up assessment (Papp et al., 2009).

Results

Twelve studies were included in the review. Table 1 shows (a) sample size and characteristics, including the measure used to detect cognitive impairment in the CR, (b) the research design, (c) the theoretical frameworks, modalities and components of intervention, (d) intervention duration, (e) outcome measures, and (f) rating of the effectiveness of the intervention, as well as (g) rating of study methodological quality, excluding qualitative and case studies.

Study participation and study design

Sample sizes varied from two dyads to 142 dyads. CGs were predominately female. Six out of 12 studies identified the race of CGs and CRs, and the majority of participants were white. The majority of CGs in 12 studies were spouses. Five studies comprised only spousal units (Auclair, Epstein, & Mittelman, 2009; Quayhagen et al., 2000; Quayhagen & Quayhagen, 2001; Schmitter-Edgecombe, Haward, Pavawalla, Howell, & Rueda, 2008; Sorenson, Waldorff, & Waldemar, 2008). The rest of the studies included both spouse CGs and adult-children CGs.

Dyads were mostly recruited by referral through community social service organizations or the local chapter of the Alzheimer's Association. All CRs were people with early-stage dementia or mild-moderate dementia. Standardized measures were used to assess the cognitive function of the CR with dementia, in addition to formal diagnosis of Alzheimer's disease or other dementia at the time of referral. The Mini-Mental Status Examination (MMSE; Folstein, Folstein, & McHugh, 1975) was used in eight studies, but

Table 1. Studies of dyadic interventions for care recipients with early-stage dementia and family caregivers

						Intervention effectiveness				Study quality
						CR		CG		
Source	Study sample *N*, age, race, cognitive function measure	Design	Type/theory/component of intervention	Duration	Outcome measures	SE	LE	SE	LE	(maximum score = 8)
1. Quayhagen et al., 2000	103 dyads (spouses) CG A: 71.83 CR A: 74.51 93% White 100 + on the Mattis Dementia Rating Scale	Randomized control trial, pre/post (3 months), immediate program evaluation	Cognitive stimulation (remediation program); dyadic counseling (systems and a cognitive behavioral approach, problem-solving skills); dual supportive seminar (information exchange, support, discussion, problem solving); early-stage day care (social day care model, respite care, and education/training for CGs, a stimulating and supportive social environment for CRs)	1 ½ hours/day, 8 weeks (except early-stage day care, 4 hours/week for CR, 2 sessions for CGs)	CG: Marital Needs Satisfaction Scale Brief Symptom Inventory Geriatric Center Morale Scale Health Assessment Scale Memory and Behavior Problems Checklist Coping Strategies Inventory–Revised Social Support Questionnaire Program evaluation CR: Logical Memory I,II Visual Reproduction I, II Dementia Rating Scale Number of words recalled in 1 minute, 1-minute recall of names within the animal category Geriatric Coping Schedule	○	N/A	○	N/A	5: no specific goals for CGs and CRs, no described withdrawals/dropouts, no follow-up

(continued)

Table 1. Continued

						Intervention effectiveness				Study quality
						CR		CG		
Source	Study sample *N*, age, race, cognitive function measure	Design	Type/theory/component of intervention	Duration	Outcome measures	SE	LE	SE	LE	(maximum score = 8)
2. Quayhagen & Quayhagen, 2001	First study: 56 spousal dyads CG A: 67.75 CR A: 73.18 91% Caucasian Second study: 30 spousal dyads CG A: 72.47 CR A: 74.97 (same as first study) 100 + on Dementia Rating Scale	Randomized control trial, pre/post (3 months)	Cognitive stimulation	1 hour/day, 5 days, 12 weeks (first study) 1 hour/day, 5 days, 8 weeks (second study)	CG: Marital Needs Satisfaction Scale CR: Logical Memory I,II Visual Reproduction I, II Dementia Rating Scale Number of words recalled in 1 minutes, 1-minute recall of names within the animal category Geriatric Coping Schedule	○	N/A	○	N/A	5: no specific goals for CGs and CRs, no described withdrawals/ dropouts, no follow-up
3. Zarit et al. (2004)	23 dyads + 1 CRs CG A: 64.6 CR A: 70.1 25 + on Mini-Mental Stage Examination	One-group (preliminary study) immediate program evaluation	Memory Club (support group) dyadic session and separated session for CG and CR (information, discussion, solving problems through dyads)	10 sessions, every other week	CG and CR: Rating of features of the Memory Club program Program evaluation	○	N/A	○	N/A	5: no control group, no standardized outcome measures, no follow-up
4. Logsdon et al., 2006	39 dyads CG A: 75 CR A: 70 87% White 18 + on Mini-Mental Stage Examination	Randomized control trial, pre/post (2-month) (preliminary study)	Support group (dyadic session and separated session for CG and CR) (education, coping, discussion)	90 minutes/week, 9 weeks	CG and CR: Quality of Life-Alzheimer's disease Geriatric Depression Scale Family Assessment Measure	○	N/A	○	N/A	5: no control group, no described withdrawals/ dropouts, measures, no follow-up
5. Whitlatch et al., 2006	31 dyads CG A: 61.7 CR A: 78.9 64% White	One group (preliminary study)	One-on-one and dyadic Counseling (Information, discussion, emotional	60–100 minutes/ weekly, biweekly, 3 months	CG: Treatment satisfaction, counselor's effectiveness and enthusiasm	○	N/A	○	N/A	5: no control group, no outcome measures, no follow-up

(continued)

Table 1. Continued

Source	Study sample *N*, age, race, cognitive function measure	Design	Type/theory/component of intervention	Duration	Outcome measures	Intervention effectiveness				Study quality
						CR		CG		
						SE	LE	SE	LE	(maximum score = 8)
	17 + Mini-Mental Stage Examination		significance, exploring relationship issues)		CR: Treatment satisfaction Counselor: goal achievement, dyad's level of engagement and acceptance in the session, their own performance					
6. Schmitter-Edgecombe et al., 2008	4 dyads (spouses) and 1 CR CG A: 76 CR A: 76 0.5 on Clinical Dementia Rating Scale 24 + Mini-Mental Stage Examination	One group pre/post (2 weeks) (pilot study)	Group memory notebook intervention (modeling, psychological education, completion of activities)	2 sessions (1.5 hours)/week, 7 weeks	CG and CR: North American Adult Reading Test Repeatable Battery For the Assessment of Neuro-psychological Status, Ribermead Behavioral Memory Test Multifactorial Memory Questionnaire Alzheimer's disease activities of daily living international scale Daily checklist Memory Functioning Questionnaire Depression, Anxiety, and Stress Scale Coping Self-Efficacy Scale	○	N/A	○	N/A	6: no control group, no follow-up
7. Sorensen et al., 2008	10 dyads 22 + Mini-Mental Stage Examination	Randomly selected, qualitative study One group (pre/post 1 to 3 months) (qualitative study)	Counseling, education (for groups of CRs and of CGs), (tailored counseling and telephone counseling, information, support	6 months–17 + sessions	CG and CR: To describe their experience (activities in everyday life, recent changes in everyday life activities, social	○	N/A	○	N/A	N/A

(continued)

Table 1. Continued

						Intervention effectiveness				Study quality
						CR		CG		
Source	Study sample *N*, age, race, cognitive function measure	Design	Type/theory/component of intervention	Duration	Outcome measures	SE	LE	SE	LE	(maximum score = 8)
			group, log book of CGs and CRs)		relations with spouse, family and friends)					
8. Auclair et al., 2009	42 dyads	Randomized control trial (qualitative study)	Counseling (psychodynamic, Gestalt therapies, Transactional Analysis)	6 sessions in 2 months		○	N/A	○	N/A	N/A
9. Roberts & Silverio, 2009	37 dyads CG A: 66.7 CR A: 74.4 100% White	One group pre/post (baseline, immediate, 3 months)	Education and support program (dyadic and interactive activities, support in coping with stress)	2 hours/session, 4 sessions	CG and CR: An 11-item self-report questionnaire about satisfaction, a 22-item true/false measure about AD, coping self-efficacy Psychosocial Adjustment to Illness Scale, Margaret Blenkner Research Center Caregiver Strain Instrument AD-related behaviors and attitudes	○	○	○	○	7: no control
10. Judge et al., 2009 (acceptability/feasibility results)	52 dyads CG A: 66.4 CR A: 78.9 90.4% White 7 + Mini-Mental Stage Examination	One group random assignment	Skills training (strength-based intervention) Educational skill and Cognitive rehabilitation skill training	90 minutes/6 sessions (scheduling sessions around dyad's preferences)	CG and CR: Evaluation of each session and overall program	○	N/A	○	N/A	4: no specific goals for CG and CR, no control, no standardized outcome measures, no follow-up
11. Yarry et al., 2010	2 dyads Mini-Mental Stage Examination 28	Qualitative study	Skill training (strength-based intervention) Tailored intervention skills (i.e., Keep It			○	N/A	○	N/A	n/a

(continued)

Table 1. Continued

Source	Study sample *N*, age, race, cognitive function measure	Design	Type/theory/component of intervention	Duration	Outcome measures	Intervention effectiveness				Study quality
						CR		CG		
						SE	LE	SE	LE	(maximum score = 8)
	Mini-Mental Stage Examination 12		Short and Simple (KISS), re-evaluation of expectations)							
12. Logsdon et al., 2010	142 dyads A: 74.9 97% White 18 + Mini-Mental Stage Examination	Randomized control trial, pre/post	Support group (dyadic session and separated session for CG and CR) (education, coping, discussion)	90 minutes/week, 9 weeks	CG and CR: Quality of Life-Alzheimer's disease Medical Outcome Scale short form (SF-36) Geriatric Depression Scale Family Assessment Measure Perceived Stress Scale Self –Efficacy Scale Revised Memory and Behavior Problem Checklist	○	N/A	○	N/A	7: no follow-up

A: age; CG: caregiver; CR: care recipient; LE:long-term effects (follow-up); SE: short-term effects (immediate/post treatment).

the baseline score (minimum score from 17 to 25) varied among studies. Two studies used the Dementia Rating Scale (DRS; Mattis, 1988). Two studies (Auclair et al., 2009; Roberts & Silverio, 2010) relied on self-report that the CR had received formal diagnosis of early-stage dementia and confirmed the status through interview.

Five studies were randomly controlled trials utilizing a waiting list (Auclair et al., 2009; Logsdon et al., 2010; Logsdon, McCurry, & Teri, 2006; Quayhagen et al., 2000) or a waiting list and placebo control condition (Quayhagen & Quayhagen, 2001).

The remaining studies used a single group design or case study. Most studies identified the person who provided intervention (i.e. a social worker, licensed clinician, neuropsychologist, or trained counselor) with the exception of one case study (Yarry, Judge, & Orsulic-Jeras, 2010). Only two studies tested the immediate effects of intervention, at two weeks following intervention (Schmitter-Edgecombe et al., 2008) and at four weeks following intervention (Roberts & Silverio, 2009). Five studies (Logsdon et al., 2010; Logsdon et al., 2006; Quayhagen et al., 2000; Quayhagen & Quayhagen, 2001; Sorensen et al., 2008) included a pre/post-intervention assessment from one to four months after intervention was ended. Only one study (Roberts & Silverio, 2009) included baseline, immediate, and follow-up assessments. Two studies examined the acceptability/feasibility of intervention, so these studies did not assess participants at baseline or follow-up (Judge, Yarry, & Orsulic-Jeras, 2009; Whitlatch et al., 2006). One study (Yarry et al., 2010) was a qualitative study, which did not use quantitative measurement.

Types of intervention

There was diversity in the types of dyadic intervention (e.g. cognitive stimulation, counseling, supportive seminar, day care, support group, or skills training), and duration ranged from four sessions to 17 sessions within six months.

Support group. Although intervention components varied, one of the prevalent types of intervention among reviewed studies was support groups. Dual supportive seminar groups in the study of Quayhagen et al. (2000) comprised each session (excluding the first, introductory session). CGs and CRs met separately for the first hour and together for the final half hour to discuss topics such as coping with memory problems, strategies for daily living, self-esteem, social and family relationships, health maintenance, and legal and financial concerns. Each session focused on enhancing communication between the CG and CR.

In the study by Zarit, Femia, Watson, Rice-Oeschger, & Kakos (2004), the Memory Club program simultaneously included both CGs and CRs in each session to discuss the emotional, interpersonal, dyadic consequences of diagnosis, and coping strategies. The intervention focused on information about disease, improving communication, maintaining relationship quality, and learning to make plans for the future.

The Early-Stage Memory Loss Seminar program (Logsdon et al., 2010; Logsdon et al., 2006) also had two-part sessions (CGs and CRs met together or separately). Discussion topics were similar to those in the Quayhagen et al. (2000) study (i.e. coping strategies for daily living, self-esteem, social and family relationships, and future health, legal and financial planning).

The Taking Control of Alzheimer's Disease program (Robert & Silverio, 2009), with the joint participation of both CGs and CRs, included learning about disease, discussing lifestyle changes to promote health, and planning for the future in the context of such things as driving, finance, and legal issues. The intervention focused on empowering both CGs and CRs to become actively involved in coping, seeking out support, and education.

Counseling. Four reviewed studies evaluated counseling interventions. In the first of these, incorporating a systems and a cognitive behavioral approach, dyadic counseling included identification of problems and conflicts in interaction, anger management, and communication enhancement (Quayhagen et al., 2000). The intervention focused on increasing communication and problem-solving skills. A study by Whitlatch et al.(2006) described the Early Diagnosis Dyadic Intervention (EDDI), comprising one-on-one and dyadic counseling. In EDDI, dyads discussed care preferences and the values of each dyad member, effective communication techniques, discrepancies in care preferences and expectations, knowledge about available services and emotional significance, and relationship issues following the diagnosis. The EDDI focused on helping each CG and CR express his or her preferences and concerns about the caregiving situation and about maintaining relationship quality.

Sorenson et al. (2008) described the Danish Alzheimer's Intervention Study, consisting of CG or CR targeted sessions and dyadic sessions. The components of the intervention were counseling (with couples, with CGs, with CRs, with dyads, and with family networks); separate education courses for CGs and CRs; outreach telephone counseling; and log books kept by CGs and CRs. The final counseling intervention study described couples counseling (Auclair et al., 2009) individualized to the needs of each dyad following the onset of Alzheimer's disease. The dyads also were able to request brief telephone counseling until the last follow-up assessment (at four months). Couples counseling focused on relationship quality and the ability to embrace change.

Cognitive simulation. Two studies by the same investigator utilized the same cognitive stimulation intervention (remediation program) (Quayhagen et al., 2000; Quayhagen & Quayhagen, 2001). In the cognitive stimulation intervention, CGs as agents helped cognitively stimulate CRs through activities focused on memory provoking, conversational fluency, and problem-solving activities with a specific cognitive focus, under supervision/ instruction of the research team. This intervention focused on cognitive improvement and effective dyadic interaction.

Skills training. Two reviewed studies used a strengths-based skills training program. The Acquiring New Skills While Enhancing Remaining Strengths (ANSWERS) intervention (Judge, Yarry, & Orsulic-Jeras, 2009) provided information and interactive skills training along with education about dementia, effective communication, memory management, staying active, and recognizing emotions and behaviors. At the end of each session, an action plan was developed (how/when to use the skills), and skills practised and any barriers from the beginning of the session were discussed. A strengths-based inventory was used to identify CGs' and CRs' strengths in cognitive ability, physical health, social activities, personality, life roles, leisure activities, history, and culture. The intervention focused on CGs and CRs coping with dementia through specific skills training. A qualitative study by Yarry et al. (2010) also reported on the protocol from this intervention with two caregiving dyads.

Multi-dyad memory notebook. Schmitter-Edgecombe et al. (2008) used a group memory notebook intervention, which incorporated behavioral learning principles, cognitive retraining techniques, and educational strategies. The intervention used learning activities packets and taught the dyads to use the memory notebook, involving modeling, psychoeducation, and completing activities directed by the therapist. The intervention focused on better management of the cognitive, emotional, and functional changes following diagnosis.

Effectiveness of interventions

The reviewed studies employed various standardized outcome measures: psychological well-being, coping, knowledge about dementia, relationship quality, and cognitive function. Three out of five pilot/preliminary studies (Judge et al., 2009; Whitlatch et al., 2006; Zarit et al., 2004) and three qualitative studies (Auclair et al., 2009; Sorenson et al., 2008; Yarry et al., 2010) did not use standardized outcome measures.

Studies focused on pilot/preliminary results. Logsdon et al.'s (2006) study with 39 dyads reported that dyads in treatment ($n = 25$) showed less decline in quality of life than did dyads in a waiting-list control group ($n = 14$) at two months post treatment. CRs reported decreased family conflicts and CGs reported the same level of conflicts, whereas dyads in a waiting-list group reported increased conflicts. CGs in both conditions showed increased depression and CRs in both conditions showed decreased depression. Overall, approximately 90% of dyads were satisfied with the intervention and would recommend the groups to others. Also, social and emotional support and decreased isolation were identified by dyads as helpful, and CGs reported future planning to be helpful.

Whitlatch et al. (2006) conducted a feasibility and acceptability test of the Early Diagnosis Dyadic Intervention with 31 dyads. Although there were some differences in rating the program, participants were satisfied with the program overall. CGs commented positively on counselors, describing them as highly knowledgeable and having a warm and caring style. Counselors, moreover, reported overall satisfaction with meeting session goals and the dyads' acceptance of the intervention process.

In Schmitter-Edgecombe et al.'s (2008) pilot study of the multi-dyad memory notebook intervention with four dyads and one CR, CGs reported positive psychological benefits (i.e., fewer symptoms of depression) and CRs reported greater confidence in their ability to obtain support post treatment. CRs also showed improved memory scores.

Judge et al. (2009) conducted acceptability and feasibility tests of a strengths-based skills training program (ANSWERS: Acquiring New Skills While Enhancing Remaining Strengths) with 52 dyads. Dyads rated the program as extremely useful in terms of learning techniques for managing and coping with the symptoms of dementia and said they would recommend the program. Interventionists also viewed this training program as very well tolerated and feasible for dyads.

Studies focused on short-term effects (immediate assessment or pre-post design). Quayhagen et al. (2000) allocated 103 dyads into four treatment groups that received cognitive stimulation ($n = 21$), dyadic counseling ($n = 29$), dual-support seminar ($n = 22$), or early-stage day care ($n = 16$), and a waiting-list control group ($n = 15$). CRs in the cognitive stimulation group showed more improvement in cognitive outcomes such as delayed memory and verbal fluency than did other groups at three months post-intervention. CGs in the cognitive stimulation group demonstrated a significant decrease in symptoms of depression. CGs in the early-stage day care group showed decreased symptoms of hostility. CGs in the dual-support seminar group reported increased morale and decreased use of negative coping strategies. Analysis of qualitative evaluation data highlighted enhancement of communication and interaction (e.g. improvement in the ability of the CG and CR to talk more freely and/or to interact more effectively with each other).

Quayhagen and Quayhagen (2001) conducted two experimental studies using cognitive stimulation interventions. The first study included a treatment group ($n = 20$), an attention-placebo control group ($n = 19$), and a waiting-list control group ($n = 17$); the second study included a treatment group ($n = 18$) and a waiting-list group ($n = 12$). The first study showed cognitive improvement in immediate memory and verbal fluency. Despite a lack of statistical significance, there was a tendency toward improvement in delayed memory and problem-solving skills. Quality of marital interaction was unchanged in the treatment group, but there was decline in the control group. Treatment group CRs in the second study showed improvement in problem-solving skills and verbal fluency relative to waiting-list control CRs.

In Zarit et al.'s (2004) study with 23 dyads and one CR, caregiving dyads were very positive about the Memory Club group. CGs rated highly the performance of group leaders, the information provided, the opportunity to be with other people in a similar situation, and the time spent with their CRs in the group. CRs also rated highly the leader performance and information provided. In qualitative evaluation of the Memory Club, CGs highlighted the opportunities for learning and sharing their experiences and feeling with people in a similar situation.

In Sorenson et al.'s (2008) qualitative evaluation of intervention with 11 dyads, CRs reported increased stimulation from being with peers, improvement in self-esteem, and improved ability to find new ways of managing everyday life and social relations. CGs reported better coping with the symptoms of dementia and better management of everyday life and social relations, one to three months after the intervention. Dyads were satisfied with the counseling, education, and support programs and were willing to continue participating in such programs.

With 42 dyads, the qualitative study of Auclair et al. (2009) showed that their approach for couples counseling was suitable for both members and was beneficial in helping dyads cope with the diagnosis and any relational strains through expressing each partner's thoughts or feelings. Both members of the dyads reported that they were able to face the future together more positively and realistically.

In a qualitative study, Yarry et al. (2010) reported on the application of a strength-based intervention for dyads in two cases. Independence, engagement, and CG stress were identified as global issues, and selected skills were modified and adapted based on the dyad's specific strengths and needs (e.g. level of cognitive functioning or physical health). Each case showed that tailored intervention was effective in addressing dyads' specific needs.

Logsdon et al.'s (2010) early-stage memory loss support group intervention was conducted for 142 dyads. Findings indicated that dyads who participated in the intervention had two positive outcomes, better quality of life (QOL) and decreased depressive symptoms at post-treatment assessment compared with a wait-list group. Improved QOL was associated with improved mental health, family communication, and self-efficacy. With a larger N, the study was able to examine moderators of the outcomes, finding that the effects of the intervention on quality of life were far greater for the participants who were experiencing more distress at baseline.

Studies focused on both short-term and long-term effects (pre/post/follow-up design). Roberts and Silverio (2009), in their evaluation study of 36 dyads in the Taking Control of Alzheimer's Disease program (an education and support program), found no immediate treatment effects on Alzheimer's disease knowledge, coping, or psychological adjustment to the disease. However, at the three-month follow-up, dyads reported having a more positive attitude toward Alzheimer's disease; active engagement in the support group; improved financial, legal, or advanced medical planning skills; and increased ability to cope with changes in such things as driving or diet and nutrition.

Study quality

Three qualitative studies (Auclair et al., 2009; Sorensen et al., 2008; Yarry et al., 2010) were excluded from this part of the review because the eight criteria for evaluating study design were not applicable to them. The average study quality was 5.45 on the eight-point criteria. The highest scored studies were Logsdon et al. (2010) and Roberts and Silverio (2009) with seven points and the lowest scored study was Judge et al. (2009) study. The most common score was five points. Most studies lost points for not specifying goals for the CG and CR, not incorporating a control condition into the study design, and having no follow-up after post intervention tests.

Discussion

The purpose of this paper was to provide a critical review of the evidence of feasibility, tolerability, and effectiveness of interventions for CG and CR dyads experiencing early-stage dementia and of the studies evaluating these interventions. The review of 12 studies published between 2000 and 2011, all including caregiving dyads, suggests that intervention programs for early-stage dementia caregiving dyads were feasible and well accepted by participants. All reviewed studies were conducted by trained interventionists and adhered to specifically developed protocols. A combination of quantitative and qualitative findings showed that both CGs and CRs benefitted from these dyadic interventions, particularly in terms of improved cognitive function for CRs and improved social relations for CGs. In one notable case, the CRs experienced reduced depression after intervention, but the CGs depression increased (Logsdon et al., 2006), but several of the other studies reported improved psychological well-being for both partners in the treatments. Most of the studies presented evidence that partners experienced improved dyadic relationships or overall quality of life, and increased their knowledge about the disease and coping skills. Most of the participants were satisfied with the interventions.

This review has raised several conceptual issues about dyadic intervention. The review supports a social contextual model, which emphasizes the interactive influence between partners in social roles such as the CG and CR (Berg et al., 1998; Townsend et al., 2001). The quantitative and qualitative evaluations of dyadic interventions in the reviewed studies provided a variety of evidence that a focus on the caregiving dyad as the unit of attention can enhance mutual understanding and communication, and relationship quality, as well as the individual partners' well-being during the caregiving process. However, the existing dyadic intervention studies tend to focus on one primary CG and the CR with dementia, and overlook the significant roles of the entire family and social system, of friends and third parties including family physicians, nurses, and other health care providers on the caregiving process (Kahana & Young, 1990). As Kahana and Young (1990) suggest, studies expanding the caregiving paradigm to the triadic framework may be useful to understand the caregiving systems and interrelationships.

The target and nature of dyadic interventions should also be discussed. The current study focused on dyadic interventions including emotional support, education, skills training and counseling. However, dyadic interventions for CGs and CRs could be more broadly conceptualized. The literature suggests some of these broader conceptualizations which might lead to innovative approaches to working with caregiving dyads, such as the couplehood approach (Hellström, Nolan, & Lundh, 2007), or enrichment interventions (Cartwright, Archbold, Steward & Limandri, 1994). In the couplehood approach, enhancing strategies for sustaining couplehood and maintaining involvement by focusing on care recipients' strengths could improve the caregiving experience for couples. Also, enrichment interventions might provide opportunities CGs and CRs to experience the positive meaning of caregiving, and enhance well-being of both CG and care recipient.

Several methodological issues about these reviewed studies may be noted. First, and very important, most studies did not identify specific goals for CRs. Some studies described a broad goal of intervention (e.g. improving the well-being of dyads), and some studies identified goals for each session. Adding separate, reasonable goals for CGs and CRs may be more useful in assessing the effects of an intervention for CGs and CRs. For example, considering the deteriorating nature of dementia, not only improving cognitive function but also maintaining cognitive ability for CRs could be intervention goals, whereas reducing level of depression or anxiety of CGs could be goals for CGs.

Second, sample sizes were small, from two dyads to 142 dyads. Six studies used standardized outcome measures (Logsdon et al., 2010; Logsdon et al., 2006; Quayhagen et al., 2000; Quayhagen & Quayhagen 2001; Roberts & Silverio, 2009; Schmitter-Edgecombe et al., 2008), but four of these studies had sample sizes of under 50 cases, with the exception of Quayhagen et al. (2000) and Quayhagen and Quayhagen (2001). The small studies may be unable to achieve statistical power, and results may be misinterpreted or fail to produce reliable or precise estimates (resulting, for example, in false positive results or overestimation) (Hackshaw, 2008). Moreover, pilot, preliminary, and case studies had small sample sizes, ranging from two dyads to 31 dyads. Such samples may be unable to accurately detect the effectiveness of interventions. In addition, none of the studies focused on racial/ethnic minorities, and few studies included non-whites (i.e. Judge et al., 2009, 9.6%; Logsdon et al., 2010, 3%; Logsdon et al., 2006, 13%; Quayhagen et al., 2000, 7%; Quayhagen & Quayhagen, 2001, 9%; Whitlatch et al., 2006, 36%). (These percentages indicate the percentages of non-whites).

Third, only five reviewed studies were randomly controlled trials (Auclair et al., 2009; Logsdon et al., 2010; Logsdon et al., 2006; Quayhagen et al., 2000; Quayhagen & Quayhagen, 2001); the rest were quasi-experimental (Judge et al., 2009; Roberts & Silverio, 2009; Schmitter-Edgecombe et al., 2008; Sorenson et al., 2008; Whitlatch et al., 2006; Zarit et al., 2004) or non-experimental studies (Yarry et al., 2010). However, given that empirical intervention studies for dementia caregiving dyads are just beginning to be performed, pilot, preliminary, or acceptability/feasibility studies are necessary as part of the developmental trajectory of the dyadic intervention approach with this population. Thus, the types of studies found make sense considering the relatively early stage for conducting outcomes research on dyadic interventions.

Fourth, only the five randomly controlled trials mentioned above and one quasi-experimental study (Roberts & Silverio, 2009) used well-developed outcome measures and provided information about the reliability and validity of the measures. The measures used in the studies were broad and various, so it is difficult to make comparisons among dyadic intervention studies. In addition, pilot and feasibility studies used individual items and open-ended questions to evaluate interventions. Nonetheless, all of these studies asked similar participant satisfaction questions, but differed regarding the levels of specificity response categories. For example, Zarit et al. (2004) asked CGs and CRs to rate 10 items (on a five-point Likert scale) not only about their experience in the intervention program but also about their partners' feeling and memory problems, whereas other studies asked only about CGs and CRs experiences, respectively. Thus, it was difficult to compare cross-studies.

Fifth, only one of the experimental or quasi-experimental studies (Roberts & Silverio, 2009) conducted an immediate evaluation after treatment ended, whereas other studies conducted delayed post-treatment evaluation between two weeks and three months post-intervention. Without immediate evaluation, it is difficult to examine the effects of interventions, because recent events or changes in the caregiving dyad's lives may cause over- or underestimation of the effects of the intervention. Perhaps more important, of 12 reviewed studies, only one (Roberts & Silverio, 2009) included follow-up measurement, so we have little evidence of the long-term effects of these dyadic interventions to date. Furthermore, the period of follow-up in the one study with follow-up measures was less than one year, which may influence confidence in the long-term effects of intervention (Papp et al., 2009; Selwood, Thorgrimsen, & Orrel, 2005).

Conclusion

Despite the conceptual and methodological issues noted, this review of 12 studies reporting on interventions for CGs and CRs with early-stage dementia showed that dyadic interventions have the potential to benefit CGs (e.g. by decreasing depression and anxiety, increasing knowledge and coping skills, and improving the relationship with CRs) and CRs with early-stage dementia (e.g. by improving the relationship with CG and cognitive function, and increasing knowledge and coping skills). Nevertheless, there should be more empirical evaluations of dyadic intervention for CGs and CRs with early-stage dementia. The findings of the review also suggest that future studies should be designed with the specific goals of CG s and CRs in mind, should be of sufficient size to create statistical power, and should include randomly controlled trials, immediate evaluation, and longer follow-up intervals.

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Conflicts of interest statement

None declared.

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