
A Pilot Study of a Yoga and Meditation Intervention for Dementia Caregiver Stress

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Twelve older female dementia patient family caregivers (eight Latinas and four Caucasians) participated in a six-session manualized yoga-meditation program (called *Inner Resources*) designed to help caregivers cope with stress. Pre/post comparisons revealed statistically significant reductions in depression and anxiety and improvements in perceived self-efficacy. Average minutes of weekly yoga-meditation practice were significantly associated with improvements in depression. The majority of caregivers found the intervention useful and reported subjective improvements in physical and emotional functioning. These findings suggest that *Inner Resources* may be a feasible and effective intervention for family caregivers and may improve affect, coping, physical well-being, and stress management. © 2004 Wiley Periodicals, Inc. *J Clin Psychol* 60: 677-687, 2004.

Keywords: caregivers; caregiver burden; dementia caregiving; stress; meditation; yoga; depression; self-efficacy; older adults; Latinas

Although families traditionally have been the major provider of aid and support for their members in times of need, providing care for a family member with dementia is a progressively overwhelming experience for the caregiver. Dementia caregiving has been associated with increased levels of depression, anxiety, and anger; higher use of psychoactive medications; worse physical health and immune function; and increased

An earlier version of this article was presented at the 109th Annual Convention of the American Psychological Association, August 26, 2001, San Francisco. The authors thank Sandra Day, Georgina DeZan, Ana Menéndez, and Nancy Solano for assistance conducting the interviews and intervention.

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mortality rate (Schulz, O'Brien, Bookwala, & Fleissner, 1995; Schulz, Visintainer, & Williamson, 1990).

Interventions for Caregiver Stress

A growing body of data suggests that psychological interventions aimed at providing information and support and improving coping skills are useful in reducing caregivers' psychological distress and improving their well-being. An early metaanalysis by Knight, Lutzky, and Macofsky-Urban (1993) reported strong effects of individual treatment (e.g., psychotherapy) for distressed caregivers. More recently, Bourgeois, Schulz, and Burgio (1996) reported that a variety of interventions appear to be effective, at least for some percentage of caregivers, including support groups, individual and family counseling, respite care, and skills training group-based interventions. Regarding the latter, most studies found positive effects, both short- and longer-term, on a variety of distress measures. A review of dementia caregiver intervention studies published between 1996 and 2001 found that these interventions improved service utilization and psychiatric symptoms (particularly depression) and are highly valued by caregivers (Schulz et al., 2002).

In 2002, Steffen and colleagues called attention to the importance of self-efficacy in explaining the variability in caregivers' ability to cope with the chronic stresses of caregiving. Self-efficacy for controlling distressing thoughts may be particularly important for dementia caregivers, who face frequent and ongoing cognitive and emotional challenges associated with caregiving (Steffen, McKibbin, Zeiss, Gallagher-Thompson, & Bandura, 2002). Because high-self-efficacy beliefs reduce vulnerability to emotional distress and depression (Bandura, 1997), a meditation intervention that teaches individuals to develop a more detached relationship to distressing thoughts may improve caregivers' sense of self-efficacy for controlling distressing caregiving-related thoughts and reduce their depressed mood.

Benefits of Yoga and Meditation

Yoga and meditation have potential as caregiver interventions because their use has been associated with a variety of health and mental health benefits. Kabat-Zinn's mindfulness meditation program, which includes both yoga and meditation, has been shown to be helpful in reducing chronic pain (Kabat-Zinn, Lipworth, & Burney, 1985). Some studies have reported reductions in stress and other psychological symptoms (Astin, 1997; Greene & Hiebert, 1988; Kabat-Zinn et al., 1992; Miller, Fletcher & Kabat-Zinn, 1995) and in the risk of relapse and recurrence of major depression (Teasdale et al., 2000) after yoga and meditation interventions.

There are a number of promising indications of the efficacy of meditation for health and mental health problems in older adults. Luskin and colleagues (1998) conducted a review of the empirical literature on the efficacy of alternative medicine treatments for cardiovascular disease in older adults. Although the reviewers found only a handful of randomized, controlled trials, the results indicated that mind-body practices such as meditation were efficacious for treatment of cardiovascular disease either as stand-alone treatments or as complementary care.

A study of a group meditation intervention for community-dwelling older adults found significantly decreased memory complaints after the meditation class (Clark, 1995). Another study demonstrated the effectiveness of two different meditation-based programs for improving performance on tests of cognitive tasks, cognitive flexibility, systolic blood pressure, and ratings of behavioral flexibility in a group of 73 nursing home

residents (Alexander, Langer, Newman, Chandler, & Davies, 1989). Lantz, Buchalter, and McBee (1997) described a meditation-based intervention for reducing elderly nursing home residents' disruptive behavior and promoting residents' strengths and abilities. Although these authors did not conduct a treatment outcome study, they concluded that the intervention is easy to offer and is useful to both residents and professional caregivers.

There are also a few promising indications of the effectiveness of meditation for health and mental health problems in ethnic minority adults. A study of outcomes of yoga-meditation among Spanish-speaking patients in an inner-city community health center found significant decreases in medical and psychological symptoms and increases in self-esteem (Roth & Creaser, 1997). Thus, there are preliminary indications that yoga and meditation may benefit older ethnic minority adults.

Although evidence is accumulating that meditation interventions can improve psychological and physiological functioning in many individuals, little is known as to whether they would be effective with individuals who are undergoing the severe chronic stress implicated in family caregiving of dementia patients. The aim of this project was to explore whether such individuals would respond positively to an intervention of this type. Specifically, the authors wanted to pilot test the effectiveness of *Inner Resources* (Waelde, 1999), a psychotherapeutic yoga and meditation intervention, for reducing depression, anxiety, and subjective caregiver burden and improving self-efficacy for controlling distressing caregiving-related thoughts. Because previous research on yoga-meditation with Spanish-speaking older adults produced promising results (Roth & Creaser, 1997), we expected similar improvements for Caucasian and Latina caregivers.

The *Inner Resources* protocol includes meditation, gentle stretching (hatha yoga), breathing techniques, guided imagery, and mantra repetition. In contrast to mindfulness meditation (Kabat-Zinn et al., 1992), *Inner Resources* meditation is a concentrative form of meditation in which practitioners learn to focus attention on a single point, such as the flow of the breath, an image, or the silent repetition of words (mantra repetition). Participants are encouraged to use the techniques, such as breath awareness and mantra repetition, during periods of formal sitting meditation as well as throughout the day. A special emphasis is placed on the meditative practice of *surrender* as an affect management technique to address the depression and anxiety associated with the stresses of caregiving. Surrender entails observing one's thoughts and feelings as they arise and then consciously letting go of these thoughts and feelings by using breathing and relaxation. The technique of surrender is used during periods of formal meditation as well as during stressful moments in daily life. In order to address the specific needs of caregivers, the *Inner Resources* protocol includes in vivo practice and discussion of ways to apply these techniques to the stressors and affects associated with caregiving in each session. Caregivers also have the opportunity to offer each other suggestions and support.

Method

Participants

Subjects were recruited from the community through advertisements in local papers and notices placed in community settings. Recruitment sites included diagnostic centers for dementia, local Alzheimer's Association chapters, adult day care programs caregiver resource centers, and local senior centers. Eight of the subjects had participated in a study of caregiving 2 years before the current study. To be included in this study, participants were Caucasian or Latina female family caregivers and at least 21 years of age. The caregiver provided a minimum of 4 hours per day of hands-on care to the family member

(e.g., bathing, dressing, feeding, financial management). The care recipient scored at 23 or below on the Mini-Mental Status Examination (Folstein, Folstein, & McHugh, 1975), or he/she had a diagnosis of some type of dementia as determined by appropriate medical examination.

Eight Latina and seven Caucasian women who were the primary caregivers of demented family members were invited to participate. One Caucasian caregiver declined to be enrolled because her care recipient was too ill. Eight Latina and six Caucasian women were enrolled, of whom two Caucasians dropped out during the course of treatment because of scheduling problems. Thus 12 of 14 completed the program, with an attrition rate of 14%. This attrition rate is comparable to the overall attrition rate of 15% in a large multisite intervention study for family caregivers (Gitlin et al., 2003).

The caregivers' age ranged from 39 to 69, with an average age of 56. The caregivers averaged 13 years of education, with a range of 6 to 16 years. Four caregivers (33.3%) were employed full time and one (8.3%) was employed part time. One caregiver (8.3%) was retired and two were unemployed (16.7%). Four were full-time homemakers (33.3%). Half ($n = 6$) of the caregivers had an income of less than \$40,000. Only one caregiver reported an income in excess of \$70,000. All but one caregiver was living with the care recipient at the time of the study. Six (50%) caregivers were spouses of the care recipient and six were daughters.

Procedure

Dependent measures were obtained 1 week before the intervention and at 1 month post treatment in individual interviews with caregivers. One group of bilingual bicultural graduate students administered the measures to the Latina caregivers in Spanish; another group provided translation in the therapy sessions with the Latina group. Although all of the Spanish-speaking caregivers could speak English, the interviews and therapy sessions were conducted in Spanish because it was their preferred language.

After screening into the study, caregivers were administered a series of psychosocial measures described later. These measures were administered again at 1 month after the intervention. All of the measures (except the Weekly Practice Log) were administered in face-to-face interviews in the caregiver's home in her preferred language. Eight of the caregivers had been given the same set of measures approximately 2 years earlier as part of a study of the relationship between chronic stress and physical health problems. Thus, two baseline assessments (2 years and 1 week before the intervention) were available for 8 of the 12 participants.

The *Inner Resources* program consisted of six weekly sessions: five 90-minute sessions and one 3-hour session conducted as session 5. The sessions included instruction and group practice in meditation, hatha yoga, breathing techniques, guided imagery, and mantra repetition. Each session began with a 20- to 30-minute meditation practice period, with the exception of sessions 2 and 3, which began with a hatha yoga practice period. This practice period was followed by a 20- to 30-minute discussion of ways to apply these practices to stressful caregiving situations. In vivo practice of these techniques was used to address the caregivers' distress as it was experienced during the sessions. Caregivers were encouraged to discuss their experiences in using these techniques during stressful moments and to offer each other support and suggestions. Caregivers also discussed ways to establish daily yoga-meditation practice at home. During the last 30 to 50 minutes of each session, new yoga or meditation techniques were taught and practiced.

Caregivers were asked to practice these techniques for at least 30 minutes per day for 6 days per week and were provided with two audiocassettes recorded for the study and a

manual for home practice. The audiocassettes contained guided yoga and meditation practices. The home practice manual contained additional information about the practices. Participants completed a Weekly Practice Log during each session to record their minutes per week of practice of each of the yoga–meditation techniques. Caregivers who missed a session were contacted by one of the therapists to cover material that was missed during the session.

Measures

Depression. Depression was assessed by using the Center for Epidemiological Studies–Depression Scale (CES-D) (Radloff, 1977). This 20-item self-report scale has been widely used to assess a variety of depressive symptoms, including affective, somatic, and interpersonal signs of depression. This measure has established validity and reliability for persons of various ages, including older adults (Hertzog, Van Alstine, Usala, & Hultsch, 1990; Radloff & Teri, 1986; Gatz & Hurwicz, 1990). The CES-D has also been used in studies of older Mexican Americans (Gonzalez, Haan, & Hinton, 2001).

Self-Efficacy. The Self-Efficacy for Controlling Upsetting Thoughts about Caregiving subscale of the Revised Scale for Caregiving Self-Efficacy (SEC; Steffen, McKibbin, Zeiss, Gallagher-Thompson, & Bandura, 2002) was used to assess caregiving-specific self-efficacy. This measure asks about controlling negative thoughts about caregiving. Scores are expressed as average percentages across items in each domain from 0% to 100% confidence. The Revised Scale for Caregiving Self-Efficacy has acceptable validity and reliability with caregivers (Steffen et al., 2002). This scale is also sensitive to change; prior research found that higher self-efficacy ratings were correlated with reduction in caregivers' distress (Steffen, Gallagher-Thompson, Willis-Shore, & Zeiss, 1994).

Anxiety. State anxiety was assessed with the State-Trait Anxiety Inventory (STAI; Spielberger, Gorsuch, & Lushene, 1970). The state anxiety portion consists of 20 items that assess current intensity of anxiety. It has been widely used in many outcome studies and has well-established validity and reliability.

Caregiving Burden. The Revised Memory and Behavior Problem Checklist (RMBPC; Teri et al., 1992) comprises 24 items assessing both the frequency with which common problems occur (objective burden) and the caregivers' rating of their reaction in terms of how bothered or upset they were by these problems (negative appraisal or subjective burden). It has been widely used with caregivers (Gitlin et al., 2003).

Treatment Adherence. The Weekly Practice Log is a self-report measure of how long participants engaged in practice of yoga–meditation techniques during the past week. Participants rate how often they practiced and the number of minutes per session. Because of the demanding nature of caregiving responsibilities, target adherence was set at 30 minutes of practice a day for at least 6 days per week, for a total of 180 minutes per week.

Subjective Improvement. The Follow-up Questionnaire, administered only post treatment, asks participants to rate “how things have changed” since the time before the intervention across 11 caregiving problem domains: activity level, physical pain, sleep problems, fatigue, coping with stress, physical illnesses, depression, frustration, anger, energy level, and overall feeling of well-being. For each problem domain, participants rate how much conditions have changed for them since the period before the intervention

with the following categories: "was never a problem," "much worse than before," "worse than before," "no change from before," "somewhat better than before," and "much better than before."

Usefulness of Intervention Components. The Follow-up Questionnaire also asks participants to rate the usefulness of 10 components of the intervention, such as the tapes of the meditation and yoga practice that were provided for home use, meditation and yoga practice without the tapes, and practice of breath awareness and mantra repetition throughout the day, outside formal sitting practice. Participants rated each component with the following categories: "not useful at all," a little bit useful, "moderately useful," "quite a bit useful," and "extremely useful."

Results

One-week preintervention and 1-month posttreatment follow-up comparisons are presented in Table 1. As anticipated, changes were similar for Caucasian and Latina caregivers, so the groups were combined for the analyses. Mean scores at 1 week preintervention indicated that these caregivers were moderately depressed, were mildly anxious, and only about half the time felt confident about their ability to control negative caregiving thoughts.

As anticipated, pre/post comparisons revealed that depression and anxiety were significantly less 1 month after the intervention and perceived self-efficacy improved significantly. Contrary to expectations, no pre/post difference was observed in subjective caregiving burden. In addition, no pre/post difference was noted for objective caregiving burden, though no difference was anticipated because the intervention did not address care recipients' problems. Treatment effect sizes (Cohen's *d*) were calculated by dividing the mean paired difference by the standard deviation paired difference. The treatment effect size for depression was 1.02, exceeding Cohen's (1988) convention of .8 for a large effect size. The treatment effect sizes for anxiety and self-efficacy were .68 and .66, respectively, exceeding the .5 convention for a medium effect size.

Follow-up Questionnaire data were available for 10 participants because the measure was inadvertently omitted from two of the 1-month follow-up interviews. In terms of

Table 1
Measures Obtained Before and One Month After Inner Resources Meditation Intervention
(*N* = 12)

Variable	Preintervention		Postintervention		<i>t</i>	<i>d</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
Depression (CES-D)	23.50	17.78	18.58	17.05	3.64**	1.02
State anxiety (STAI)	24.75	7.16	21.08	7.39	2.36*	.68
Self-efficacy (SEC)	61.38	22.35	74.29	10.68	-2.28*	.66
Number of problems (RMBPC)	14.08	7.23	12.33	3.80	1.07	.30
Reaction to problems (RMBPC)	1.05	.90	.95	.83	.47	.14

Note. CES-D = Center for Epidemiological Studies-Depression Scale; STAI = State-Trait Anxiety Inventory; SEC = Self-Efficacy for Caregiving; RMBPC = Revised Memory and Behavior Problem Checklist.

p* < .05; *p* < .01.

subjective improvement, at 1 month post treatment 70% or more reported feeling “somewhat better” or “much better” than before the study in terms of activity level, physical pain, sleep problems, depression, frustration, energy level, and overall well-being. Additionally, half or more of the respondents reported improvement in the domains of fatigue, coping with stress, physical illnesses, and anger. Participants rated the usefulness of the intervention components highly: At the 1 month follow-up 90% or more rated all of the intervention components (i.e., tapes of the meditation practice, meditation and yoga practice without the tapes, and practice of breath awareness and mantra repetition throughout the day) as “moderately” or more useful except for the taped yoga practice, which was rated useful by 80% of the participants.

Extended Baseline and Treatment Adherence

Although the pre/post comparisons indicated that caregivers were significantly less symptomatic after the intervention, the possibility exists that the improvements were attributable to the passage of time rather than to the intervention. Two types of analyses were conducted to examine whether the improvements were attributable to the intervention: extended baseline comparisons and correlations between treatment adherence and symptom improvements.

Early baseline assessments, conducted an average of 2 years before the intervention, were available for eight of the caregivers. These early baseline assessments were compared to the preintervention assessment conducted 1 week before the intervention to examine whether caregivers were improving as a function of time (see Table 2). The number of caregiving problems was significantly greater at preintervention than it was at the early baseline. This finding could be anticipated, because caregiving problems typically increase as the care recipients’ dementia progresses. There were no significant differences in depression, anxiety, self-efficacy, or reaction to caregiving problems between the baseline assessments. Although the small number of participants offers limited statistical power to test for differences between baseline assessments, an inspection of the means presented in Table 2 indicates that caregivers were more depressed and anxious and had less self-efficacy and more severe reactions to caregiving problems at preintervention than they had 2 years earlier. Thus, there is no indication that caregivers were improving as a function of time.

Table 2
Measures Obtained Two Years and One Week Before Inner Resources Meditation Intervention (N = 8)

Variable	Baseline		Preintervention		<i>t</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Depression (CES-D)	16.85	14.15	27.38	18.89	1.52
State anxiety (STAI)	25.88	9.01	26.25	6.04	.14
Self-efficacy (SEC)	74.50	16.89	66.19	26.11	-1.04
Number of problems (RMBPC)	5.00	1.41	13.88	7.79	3.70**
Reaction to problems (RMBPC)	.70	.85	.82	.80	.35

Note. CES-D = Center for Epidemiological Studies–Depression Scale; STAI = State-Trait Anxiety Inventory; SEC = Self-Efficacy for Caregiving; RMBPC = Revised Memory and Behavior Problem Checklist.

***p* < .01.

Correlations between treatment adherence and outcomes also indicate the extent to which improvements are related to participation in the intervention. Although treatment adherence was set at 180 minutes per week of at-home practice, participants averaged 91 minutes each week ($SD = 61.1$), with a range of 0 to 173 minutes. Adherence (average number of minutes of weekly practice) was significantly associated with change in depression score from pre- to postintervention ($r(11) = .62, p = .02$). There was a trend for adherence to be associated with improvement in self-efficacy ($r(11) = .39, p = .11$). Additionally, there is some indication that participants' at-home practice time increased over the course of the intervention: Average minutes per week of practice (with standard deviations in parentheses) for weeks 1 through 5 (assessed at sessions 2 through 6) were 58.13 (53.51), 80.00 (67.56), 81.25 (66.81), 118.64 (100.15), 105.00 (79.72), respectively.

Session attendance is another possible indication of treatment adherence. Caregivers attended an average of 4.33 ($SD = 1.67$) of the six sessions, with a range of 1 to 6. Session attendance was not associated with changes in any of the outcomes from pre- to postintervention but was significantly associated with the average number of minutes of weekly practice ($r(11) = .67, p = .009$).

Discussion

Although many types of caregiver interventions have been tested, to our knowledge this is the first study of yoga and meditation for dementia caregivers. These pilot findings suggest that this intervention significantly reduces depression and anxiety and increases self-efficacy in chronically stressed women who are primary caregivers of persons with dementia. Effect sizes for these relationships were medium to large. A 2002 review of caregiver research (Schultz et al., 2002) highlighted depression and anxiety as clinically meaningful indicators of caregiver well-being. A majority of caregivers reported subjective improvements (on the Follow-up Questionnaire) in emotional and physical symptoms after the intervention, despite the fact that their ratings of objective and subjective caregiving burden were unchanged after treatment. That objective caregiving burden did not change over the course of the intervention is not surprising, because the intervention did not address care recipients' problems.

Previous research has highlighted the importance of selecting intervention strategies that address specific domains of self-efficacy that are relevant to caregiver functioning. Cross-sectional studies have found self-efficacy for controlling distressing caregiving-related thoughts to be related to caregiver depression and anxiety (Steffen et al., 2002). There is some indication that the present meditation intervention, which encourages detachment from distressing cognitions, improves caregivers' perceived ability to control distressing thoughts and reduces their depression and anxiety.

A serious limitation of the current study is the lack of a control group. However, two analyses address the issue of whether improvements were attributable to the intervention: the extended baseline comparisons and the relationships between treatment adherence and improvement in depression. There were no significant differences in depression, anxiety, self-efficacy, or reaction to caregiving problems between the baseline assessments conducted 2 years and 1 week before the intervention. An inspection of the means provided in Table 2 shows that caregivers were more distressed at 1 week before the intervention than they were 2 years earlier, so there is no indication that caregivers were improving as a function of time.

Adherence (average number of minutes of weekly practice) was significantly associated with change in depression score from pre- to postintervention, indicating that more practice time was associated with greater decreases in depression. In addition, there was

a trend for adherence to be associated with improvement in self-efficacy. Thus, there is some indication that improvements in caregiver mood were related to use of the skills that were taught in the intervention.

Because of the demanding nature of caregiving responsibilities, target adherence was set at 30 minutes of practice a day for at least 6 days per week. Improvements were noted in depression, anxiety, and self-efficacy despite the fact that caregivers averaged fewer than the suggested 180 minutes of practice for each week in the intervention. Although adherence was strongly related to improvement in depression, possibly the adherence target could be lowered for caregivers without sacrificing the usefulness of the intervention. The number of sessions attended was also significantly associated with the number of minutes of weekly home practice. Preliminary data from our ongoing trial of *Inner Resources* for family caregivers indicate substantially better adherence; this improvement may be the result of the addition of new material in the participants' home practice manual to promote adherence and greater attention to this issue in the sessions.

There is some indication that this intervention was useful and acceptable to caregivers. The majority of caregivers reported subjective improvement in all of the 11 caregiver problem domains, and almost all caregivers rated the intervention components as useful. The increases in practice time over the course of the intervention also indicate that caregivers found these techniques to be acceptable and feasible even in the context of demanding caregiving responsibilities. Further, the yoga–meditation intervention was acceptable to minority women, as evidenced by the lack of attrition in that group, even though the intervention was administered in translation.

These pilot findings suggest that the *Inner Resources* means is a feasible and effective program to reduce symptoms of stress and depression among Caucasian and Latina dementia caregivers and may enhance affect, self-efficacy, physical well-being, and stress management. Although these results are encouraging, they should be viewed with caution because the current study had a small number of subjects and did not have a control group. To address these shortcomings, the *Inner Resources* program is currently the focus of a randomized, controlled trial with a larger group of female caregivers.

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