

2016

# Effects of Mind and Body Interventions on Family Dementia Caregivers: A Systematic Review

Katherine C. Johnson

*University of St. Thomas, Minnesota, k8848mn@gmail.com*

Follow this and additional works at: [https://ir.stthomas.edu/ssw\\_mstrp](https://ir.stthomas.edu/ssw_mstrp)

Part of the [Clinical and Medical Social Work Commons](#), and the [Social Work Commons](#)

---

## Recommended Citation

Johnson, Katherine C., "Effects of Mind and Body Interventions on Family Dementia Caregivers: A Systematic Review" (2016). *Social Work Master's Clinical Research Papers*. 581.  
[https://ir.stthomas.edu/ssw\\_mstrp/581](https://ir.stthomas.edu/ssw_mstrp/581)

This Clinical research paper is brought to you for free and open access by the School of Social Work at UST Research Online. It has been accepted for inclusion in Social Work Master's Clinical Research Papers by an authorized administrator of UST Research Online. For more information, please contact [libroadmin@stthomas.edu](mailto:libroadmin@stthomas.edu).

Effects of Mind and Body Interventions on Family Dementia Caregivers:  
A Systematic Review

by

Katherine C. Johnson

MSW Clinical Research Paper

Presented to the Faculty of the  
School of Social Work  
St. Catherine University and the University of St. Thomas  
St. Paul, Minnesota  
in Partial fulfillment of the Requirements for the Degree of

Master of Social Work  
Committee Members  
Robin Whitebird, MSW, Ph.D, LISW  
Rebecca Lutt-Pournoor, MSW, LICSW  
Tanya Rand, MSW, LICSW

The Clinical Research Project is a graduation requirement for MSW students at St. Catherine University/University of St. Thomas School of Social Work in St. Paul, Minnesota and is conducted within a nine-month time frame to demonstrate facility with basic social research methods. Students must independently conceptualize a research problem, formulate a research design that is approved by a research committee and the university Institutional Review Board, implement the project, and publicly present the findings of the study. This project is neither a Master's thesis nor a dissertation.

**Abstract**

Family members caring for a loved one with dementia encounter a multitude of physical and psychological stressors. Current interventions address some of these concerns, but are not adequate to address the daily psychological stress that leads so many dementia caregivers to anxiety and depression. The current review selects empirical research from the past twelve years on the effects of mind and body interventions on family dementia caregivers and finds that, while intervention type varies widely, overall results suggest that MBSR and yoga-based methods implemented for eight weeks can have a beneficial impact on caregiver anxiety, depression, mood, stress, and quality of life.

### **Acknowledgements**

I would like to express sincere gratitude to my research chair, Robin Whitebird, PhD, MSW, LISW, for providing structure, firmness, timely guidance and warmth throughout the research and writing process. I am also appreciative of the wisdom, critical feedback, and encouragement provided by my other two committee members and mentors, Tanya Rand, MSW, LICSW, and Rebecca Lutt-Pournoor, MSW, LICSW. Finally, I thank my partner, close friends, and family for accommodating and supporting me through the balance of personal and academic commitments.

**Table of Contents**

Conceptual Framework.....	2
Mindfulness and Physical Health .....	4
Mindfulness and Emotional Coping.....	4
Literature Review .....	5
Dementia.....	5
Family Caregivers.....	6
Caregiver Burnout .....	7
Traditional Interventions for Caregivers.....	8
Complementary and Alternative Interventions.....	9
Mind and Body Practices in Therapy .....	10
Mind and Body Practices .....	11
Meditation.....	11
Yoga. ....	11
Tai Chi. ....	12
Mind and Body Interventions for Caregivers.....	12
Methods .....	12
Search Criteria .....	12
Search Strategy .....	13

Data Abstraction and Analysis.....	13
Results.....	14
Table 1. Key Characteristics.....	14
Table 2. Interventions.....	16
Table 3. Results.....	17
Discussion.....	19
Limitations.....	20
Cultural Considerations.....	20
Implications for Social Work Practice.....	21
Implications for Policy.....	22
Implications for Research.....	24
Conclusion.....	26
References.....	28
Appendix.....	35

Dementia is a chronic, progressive condition currently affecting five million people in the United States, mostly adults ages 65 and older (Alzheimer's Association, 2015a). The U.S. census predicts older adults will comprise more than 20% of the population in the next 15 years, nearly double the current rate (Ortman, Velkoff & Hogan, 2014). Dementia rates are also therefore expected to increase, as prevalence increases with age (Plassman et al., 2007).

People with dementia require increasing levels of assistance with daily tasks as the illness progresses, and this help often comes in the form of a spouse or family caregiver. While caregiving can be a rewarding activity, it can also create significant stress, the effects of which can negatively impact both the physical and psychological health of the caregiver (Connell, Janevic & Gallant, 2001). Caregiver-specific stressors include shifts in family dynamics and changing role expectations, intimacy fluctuations, and financial strain (Mackenzie & Poulin, 2006). Depression, anxiety, overall morbidity and wellbeing have all been shown to be negatively impacted by caregiver burden (Roche, Croot, MacCann, Cramer & Diehl-Schmid, 2015).

As this clinical population grows, the health community is challenged to find adequate interventions to mediate the effects of dementia caregiver burden for family caregivers. Current methods include psychoeducation and support groups, which have been moderately successful in reducing burden for caregivers. Schulz et al. (2002) and Selwood, Johnston, Katona, Lykestos, and Livingston (2006) have reviewed studies of caregiver interventions which address both psychosocial needs of caregivers and the environmental and pharmacological needs of care recipients, but have determined that while promising, many of these studies fail to produce

outcomes that are clinically meaningful. In addition, these interventions are often problem-focused, which is only one element of the complex caregiver issue (Roche et al., 2015).

Mind and body strategies including yoga, meditation, and Mindfulness-Based Stress Reduction (MBSR) have been recently introduced to the physical and mental health communities as effective strategies for teaching clinical populations how to change their relationship to stressors. This is especially key when stressors cannot be eliminated. Yoga has been shown to have a positive effect on remission rates and other psychological symptoms in patients with major depressive disorders (Butler et al., 2008; Shapiro, Cook, Davydov, Ottaviani, Leuchter & Abrams, 2007). Hurley, Patterson and Cooley (2013) have reviewed initial studies of meditation-based interventions on dementia caregivers and found statistically significant effects of reduction in psychological stress and overall burden, but they recommend further rigorous and large-scale studies before conclusive statements can be made. Indeed, even in the two years since Hurley's review was published, several researchers have explored the effects of mind and body interventions, strengthening the body of literature on its clinical significance for dementia caregivers.

### **Conceptual Framework**

In laying the groundwork for how we look at mind and body interventions as related to the caregiver population, it is important to note that a conceptual framework has not yet been developed to explain the underpinnings of mindfulness interventions; however, several researchers have begun to develop themes and a theoretical perspective. Hölzel et al. (2011) in particular have gathered together much of the research on how mindfulness works on both biological and emotional levels.



The roots of mindfulness - the most common element of mind and body interventions - can be traced back to Eastern practices of Buddhism and yoga. A major tenet of Buddhism is the commitment to silent stillness, cultivating an attitude of non-attachment to stimuli. Additionally, Buddhism illuminates the intrinsic suffering involved with judging experiences and sensations as good or bad, desirable or undesirable. Meditation in the Buddhist tradition aims to guide practitioners toward a mind that is not judging, and is not in a constant state of striving or avoiding.

The yogic tradition also places an emphasis on mindful awareness, both in stillness and in movement. Within the practice of intentional breathing and mindful movement through postures called *asanas*, students of yoga tune in to sensations and practice mental and physical stability in the midst of constant change.

Practices that engage the mind and body in subtle attention encourage participants to notice sensations in the mind and body, and to see them as neutral experiences. The natural human desire is to move toward that which is pleasurable, and avoid those sensations that are uncomfortable; however, it is not always possible to escape from discomfort. Mindfulness allows its participants to change their perceptions of distressing emotions and sensations, which are inevitable in human existence.

Caregivers in particular are exposed to daily stressors that can be considered socially, psychologically, and physically taxing. People with dementia can shift rapidly between mood states and can be triggered into distressed - sometimes violent - episodes rather suddenly. Practicing the perspective of nonjudgmental acceptance and focusing on the present moment can help caregivers to become unattached to their desire that the situation were different. The

practice can also bring caregivers' attention to their physiological responses and give them the tools for regulating stress.

### **Mindfulness and Physical Health**

Jon Kabat-Zinn (2003), one of the creators of a Westernized approach to mindfulness, describes mindfulness as “the awareness that emerges through paying attention on purpose, in the present moment, and non-judgmentally to the unfolding of experience moment by moment” (p. 145). He posits that mindfulness can improve practitioners' physical health by reducing stress and therefore the body's stress responses. Indeed, empirical studies of mindfulness interventions show its effects on subjective pain ratings, various medical symptoms, and psychological symptoms of anxiety and depression (Baer, 2003). Specifically, mindfulness demonstrates effectiveness in reducing recovery time for patients with psoriasis (Kabat-Zinn et al., 1998) and in other medical symptoms for fibromyalgia patients (Kaplan, Goldenberg, & Galvin, 1993). Cancer patients also exhibit improved physiological and psychological symptoms when engaging in mindfulness practices (Carlson & Garland, 2005).

### **Mindfulness and Emotional Coping**

In mindfulness, thoughts are seen as temporary experiences, rather than a reflection of reality. Baer (2003) states, “Training in self-directed attention can result in sustained exposure to sensations, thoughts, and emotions, resulting in desensitization of conditioned responses and reduction of avoidance behavior” (p. 130). Thoughts are not evaluated; they are simply observed as part of the ever-changing environment of the mind.

Important in the teaching of mindfulness is to normalize the experience of judgment and living outside of the present moment. It is a natural human tendency to evaluate sensation and

experience and to move toward pleasure, away from pain. It is also normal to plan for the future and reflect on the past (Brown, Marquis, & Guiffrida, 2013). Through repeated mindfulness practice, though, participants can cultivate an ability to “calmly step back from thoughts and feelings during stressful situations, rather than engaging in anxious worry or other negative-thinking patterns that might otherwise escalate a cycle of stress reactivity and contribute to heightened emotional distress” (Bishop, 2002).

When participants regularly practice mindfulness, the relationship they develop with their thoughts and feelings transfers beyond the practice into their daily experiences. The intended outcomes of mindfulness on emotions is a decrease in reactivity, an increase in acceptance, and a change in perspective. Those who engage in mindfulness have a greater sense of empathy, as they are more “tuned in” to their own experience and their immediate surroundings (Mackenzie & Poulin, 2006). These skills can help caregivers to grow compassion for the care recipients, depersonalizing the distressing situations they encounter in their daily experiences.

## **Literature Review**

### **Dementia**

Dementia is a broad term referring to conditions of neurocognitive impairment affecting functions such as memory, cognition, communication, attention, judgment and perception (Alzheimer’s Association, 2015b). Specific dementia-related illnesses include Alzheimer’s disease, vascular dementia (resulting from stroke), Lewy-body dementia, Parkinson’s disease, and frontotemporal dementia. According to data from the Alzheimer’s Association (2015a), there are currently 5.3 million Americans living with Alzheimer’s Disease, and an estimated 14% of adults over 70 have some form of dementia.

Those diagnosed with dementia can vary in their need for assistance with daily functioning. Disease type and stage of progression are two major factors affecting a patient's level of independence. When a person with dementia is no longer able to live independently, several options exist for assistance, from occasional visits by a personal care attendant to full-time placement at a residential care facility. Due to financial constraints and familial relationship values, many family members choose to keep their loved ones at home to be cared for by a relative, most commonly a spouse or adult child. Nearly 85% of the time, this care is provided without pay (National Alliance for Caregiving, 2015).

### **Family Caregivers**

The National Alliance for Caregiving (2015) defines a caregiver as one who provides care to a family member or friend. This care can be given in the form of assistance with chores and/or personal needs, such as eating, dressing and toileting. The care commitment can be anywhere from 1 hour per week to live-in, around-the-clock care. Often carers find themselves in this role because a friend or family member has a debilitating physical, mental or cognitive condition which limits his or her ability to live independently. This dependence can stem from a lifelong developmental disability or more short-term recovery from an injury. It can also include progressive illnesses such as malignant cancer or dementia.

The Alzheimer's Association (2015a) estimates that 15 million Americans are providing care to friends or family members with dementia. The majority of these caregivers are female, with an average age of 69.4 years (National Alliance for Caregiving, 2015). While a typical caregiving situation consists of an older adult caring for another, many younger caregivers find

themselves part of the “sandwich generation”, caring for both an aging parent and their own children.

### **Caregiver Burnout**

Providing physical and emotional care for someone on a regular basis is stressful, and can lead to burnout. Bialon and Coke (2012) define caregiver burden as “the psychosocial and physical reaction to the imbalance of demands placed on the caregiver by various factors, including personal time, multiple roles, physical and emotional states, financial resources, and formal care resources” (p. 210).

Caregivers, especially those caring for a person with dementia, experience a higher than average level of financial, physical, and emotional stress as compared with other caregivers.

According to Connell, Janevic and Gallant (2001):

Dementia caregivers provide more care and assist with a greater variety of tasks than non dementia caregivers, resulting in employment complications, family conflict, mental and physical health problems, and decreased time for leisure activities (p.179).

As the caregiver’s time commitment increases, so does his or her severity of stress-related symptoms. As the care recipient’s dementia progresses, caregiver burden increases as well. Additionally, in the 23% of of caregivers - mostly spouses - who provide more than 40 hours of assistance per week this shift in partnership roles can be particularly challenging, as the associated cognitive changes and increased dependency can affect intimacy and relationship dynamics (Harris, Adams, Zubatsky, & White, 2011).

The challenges with dementia caregiving in particular lie in the combination of exposure to both physical limitations and behavior issues. Depending on the specific illness, a person with

dementia may experience confusion, become increasingly agitated, and can even become combative or violent. A caregiver who sees his or her distressed family member and is not able to soothe the situation can experience incredible stress, which contributes to caregiver burnout. The stress resulting from repeated exposure to confusion and behaviors increases a caregiver's risk for stress-related illnesses, including elevated blood pressure, depression, weakened immunity, premature mortality, and decreased cognitive functioning (Tilly, Wiener, & Gould, 2014; D'Amelio et al., 2009; Mackenzie & Poulin, 2006).

When caregivers reach burnout levels of stress, their ability to care for the dementia patient is also compromised. Furthermore, Bialon and Coke (2012) assert that “[a]s caregivers experience multiple losses while caring for a dying loved one, anticipatory grief may manifest itself as anxiety, depression, nervousness, restlessness, fear and tension, as well as difficulty remembering, concentrating, and accomplishing tasks” (p. 211). In order to improve the quality of care to people with dementia and to reduce the financial burden of institutionalizing care recipients, more sustainable interventions for caregivers must be established (Roche et al., 2015).

### **Traditional Interventions for Caregivers**

Support groups that include psychoeducational components are the most common form of intervention for caregivers. Support groups give participants a chance to share stories of struggles and breakthroughs and provide educational materials for community resources such as respite care and behavior modification. Other interventions include cognitive behavior therapy (CBT) to address caregiver anxiety and depression, and respite services to allow the caregiver time away from the care relationship.

Though support groups, psychoeducation, and CBT have been shown to increase caregivers' knowledge and abilities, significant impacts on feelings of burden and symptoms of depression have not been consistently reported (Pinquart & Sörensen, 2006). Mackenzie and Poulin (2006) note that psychoeducational and social support interventions “do not address the difficulties caregivers may have in disengaging from habitual ways of responding to challenging behavior...[or] how to manage internal sources of stress, such as grief and helplessness” (p. 44). Borkovec (2002) additionally reports that cognitive behavior therapy is actually only successful for about half of those receiving this treatment. And while respite care is effective at reducing care recipient institutionalization (Pinquart & Sörensen, 2006), these methods of intervention inadequately address caregiver burden, stress, depression, and anxiety.

### **Complementary and Alternative Interventions**

Beginning in the 1980's, modern medicine began to pay closer attention to interventions considered to be complementary and/or alternative. According to the U.S. Department of Health and Human Services (2015), “complementary” therapies refer to non-mainstream methods used to supplement conventional medicine; “alternative” therapies are those used *instead of* mainstream methods. More recently, the term “integrative medicine” has been used to refer to the *coordination* of complementary and conventional treatment approaches.

Many healing methods are considered to be outside the mainstream, or “alternative,” including herbal supplements, massage therapy and acupuncture. Often, alternative approaches are divided into two categories: natural products, and mind and body practices. Natural products include herbal remedies, vitamins, and probiotics. Mind and body practices encompass any

method of bringing mindful awareness to the physical body. Examples of these practices include meditation, yoga, tai chi, qi gong, massage therapy and acupuncture.

### **Mind and Body Practices in Therapy**

Mind and body interventions are gaining credibility in psychotherapeutic communities. Jon Kabat-Zinn (2003), one of the pioneers of western mindfulness practice, developed a technique called Mindfulness Based Stress Reduction (MBSR), which was originally intended to alleviate stress in patients with chronic pain. This and other mind and body therapies are intended to draw a sharper connection between the physiological experience and the way it is processed in the mind. Traditionally, many of these practices stem from Eastern practices of Buddhism and yoga, which emphasize mindful awareness of how physical and physiological sensation is interpreted in the mind.

The concept of mindfulness increased its presence in counseling therapy during the 1990's when Linehan (1993) incorporated the practice into Dialectical Behavior Therapy (DBT), primarily used to treat borderline personality disorder. Around the same time, Mindfulness-Based Cognitive Therapy (MBCT) was developed by Segal, Williams, and Teasdale (2002), utilizing principles of MBSR to prevent relapse in patients with major depression. Additional interventions, such as Acceptance and Commitment Therapy (ACT) incorporate the best practices of both mindfulness and cognitive therapy to address clinical issues (Hayes & Lillis, 2012).

A systematic review of the effects of mindfulness practices reports that these methods improve the regulation of emotion and attention and increase nonjudgmental awareness of body sensation (Holzel et al, 2011). Baer (2003) compiled empirical studies of the effects of mind and



body practices on clinical populations and has reviewed their effects on chronic pain, anxiety disorders, eating disorders, depression, fibromyalgia, cancer and psoriasis. Results show statistically significant reductions in subjective pain rating, medical symptoms, and psychological distress. Further, many of these studies indicate that participants maintain these positive effects several weeks and months post-treatment.

### **Mind and Body Practices**

Mindfulness can be practiced through several mind and body methods, regardless of whether the practitioner is active or still. The most common methods are yoga, meditation and tai chi.

#### **Meditation.**

The most basic form of mind and body integration is meditation. This method is traditionally practiced in a comfortable upright and seated position, but can also be incorporated into slow walking (moving meditation). The eyes are often closed while the practitioner observes sensations that arise - intrusive thoughts, physical discomfort, or autonomic arousal - and releases the mind's grip on these sensations without judgment. Many methods emphasize attention to the rhythm of the breath as a strategy for shifting thoughts away from more gripping sensations. Thoughts, emotions, and sensations arise, are curiously observed, and then released. This method is most commonly practiced less than one hour per day.

#### **Yoga.**

Yoga is another common method for integrating the mind and body. The practice stems from Indian traditions involving methodical movement, breathing techniques, and an awareness

of the body as it moves through postures. Yoga can take many forms, but the forms typically used in therapeutic settings are those more gentle, such as Kriya, yin, Iyengar or restorative.

### **Tai Chi.**

The practice of Tai Chi began in China in the late 18th century. It is a practice of harnessing and manipulating energy, releasing it in a controlled way through intentional, steady movement. Tai chi purports to create balance between the mind and body as it meets the environment, opening participants up to a greater sense of wellness.

### **Mind and Body Interventions for Caregivers**

Recent research indicates that mind and body interventions can be therapeutic for a wide variety of clinical populations. Only recently have its impacts been measured specifically for dementia caregivers (Hurley, Patterson, & Cooley, 2013), but the conclusion is logical - in an environment where some stressors can be solved and others require a change in perspective, it follows that interventions must address coping strategies (mindfulness) as well as self-efficacy (psychoeducation). Building on this exploratory review, the current systematic review aims to further ascertain the effectiveness and specific psychosocial benefits of mind and body therapies for dementia caregivers.

### **Methods**

The research design is a systematic review. It focuses on empirical research of mind and body interventions on family caregivers of people with dementia.

### **Search Criteria**

The intention of this study is to explore empirical research conducted about family dementia caregivers using mind and body interventions. For the purposes of this study, methods

of mind and body intervention have been limited to those that require active participation from subjects and can be done independently from a lead practitioner once the skills are learned. This includes, but is not limited to yoga and meditation.

### **Search Strategy**

Searches were conducted on databases specifically concerned with social work, health, complementary and alternative therapies, and psychology. This includes SocIndex, Medline, PsycInfo, AltHealthWatch, AMED, Health Source, and Social Work Abstracts. More broad searches of Google Scholar and Academic Search Premier were also included. Specific search criteria were for peer-reviewed empirical research articles published between the years 2004 and 2016. International results were considered, providing an English translation of the study was available. Search terms included *caregiver*, *dementia* or *Alzheimers*, and a boolean search of terms beginning with the roots *mindful\** or *meditat\**. Results referring to professional caregivers were not considered.

### **Data Abstraction and Analysis**

After a thorough search of the available literature was completed, data from the articles was abstracted using the form in the Appendix. Data analysis considered population size as well as demographics of research participants to determine how broadly the findings could be applied. Methods of mindfulness interventions, as well as instruments used to measure the various outcomes were compared. Data in the aforementioned areas were extracted and synthesized to identify themes, draw conclusions, and determine where additional research is needed. Quality of methods in each study was also considered.

## Results

Searches yielded 32 results from library databases and 6,420 from Google Scholar. The number of articles found in Google Scholar may sound alarming, but limited options were available for narrowing search criteria, so the vast majority of these articles were eventually excluded. After filtering out studies that did not meet all criteria, only 13 studies from all databases were eligible for the current review (Table 1).

**Table 1. Key Characteristics**

Study	Number of Participants	Females	Retention (%)
Black et al. (2013)	45	100%	87%
Brown et al. (2015)	38	84%	89%
Danucalov et al. (2013)	53	88%	87%
Hoppes et al. (2012)	11	91%	91%
Innes et al. (2012)	12	50%	83%
Jain et al. (2014)	12	100%	83%
Lavretsky et al. (2013)	45	100%	87%
Leach et al. (2015)	17	74%	94%
Oken et al. (2010)	37	80%	87%
Paller et al. (2015)	37	80%	84%
Pomykala et al. (2012)	10	11%	90%
Waelde et al. (2004)	12	100%	83%
Whitebird et al. (2012)	78	89%	90%

Sample sizes for each of these studies is overall strikingly small, with most research participation at 10-12. More specifically, six of the thirteen results included participant numbers below 20. Six more included participants totaling between 20 and 55. One study measured the effects on 78 participants.

Inclusion criteria for study participants also impacts study quality. The majority of studies in this review followed the best practice of excluding caregivers who had previous mental illness or chemical dependency diagnoses, were currently being treated for a major medical issue, or had participated in mind and body practices within the past year - all factors important in isolating variables. The inclusion criteria in Paller et al.'s (2015) study, however, only required participants to be patients and caregivers (without defining these terms), have a willingness to participate in the testing and interventions, and possess an ability to understand instructions at each stage. Without controlling for other factors that may be contributing to mental health or stress, results are less reliable.

Among the eligible studies were a wide variety of intervention models involving the mind and body (Table 2). Four studies were an adaptation of Kabat-Zinn's Mindfulness-Based Stress Reduction (MBSR) method; another two were mindfulness-based therapies, such as Transcendental Meditation and Mindfulness-Based Cognitive Therapy; six were yoga-based (four of which specifically focused on Kirtan Kriya yoga); and one study emphasized central meditation and imagery therapy. The common threads of meditation and mindfulness were woven among the various iterations, yet the degree to which these intervention styles differed was significant. Five characteristics were found in varying combinations for each intervention: meditation, breath work, movement, chanting, and visualization. All studies incorporated some element of meditation, with breathwork the second most common element, followed by movement. Five included chanting, and three incorporated visualization.

**Table 2. Interventions**

Study	Study design	Intervention	Control	Duration (minutes)
Black et al. (2013)	Randomized control trial	KKM	R	12/day*
Brown et al. (2015)	Randomized control trial	MBSR	SS	90-120/week**
Danucalov et al. (2013)	Randomized control trial	YCMP	WL	75 biweekly*, 75 weekly**
Hoppes et al. (2012)	nonexperimental, pre-post	MBSR	-	60/week**
Innes et al. (2012)	Case series study	KKM	-	11, 2x/day*
Jain et al. (2014)	Case series study	CMIT	-	20-30/day*, 90/ week**
Lavretsky et al. (2013)	Randomized control trial	KKM	R	12/day*
Leach et al. (2015)	Randomized control trial	TM	WL	60/week**
Oken et al. (2010)	Randomized control trial	MBCT	P, RO	daily* 90/week**
Paller et al. (2015)	Case series study	MBSR	-	30-60/day* 90/week**
Pomykala et al. (2012)	Randomized control trial	KKM	R	12/day*
Waelde et al. (2004)	Randomized control trial	IR	yes	30/day* 90/week**
Whitebird et al. (2012)	Randomized control trial	MBSR, yoga	P, SS	daily* 150/week**

**CMIT**=Central Meditation and Imagery Therapy, **IR**=Inner Resources, **KKM**=Kirtan Kriya Meditation, **MBCT**=Mindfulness-Based Cognitive Therapy, **MBSR**=Mindfulness Based Stress Reduction, **TM**=Transcendental Meditation, **YCMP**=Yoga and Compassion Meditation Program

**R**=relaxation, **WL**=waitlist, **SS**=social support, **P**=psychoeducation, **RO**=respite only

\*Independent practice, \*\*Group practice

**Table 3. Results**

Study	Physiological effects	Mental Health effects	Burden effects	Other significant effects	Follow-up
Black et al. (2013)	-	-	-	-	-
Brown et al. (2015)	-	tension, anger (POMS)	-	stress (PSS)	none
Danucalov et al. (2013)	stress (SC)	depression (BDI), anxiety (BAI),	-	stress (LSSI)	-
Hoppes et al. (2012)	-		burden (ZBI) hope (SHS)		burden, hope
Innes et al. (2012)	blood pressure	mood (POMS)	-	stress (PSS), sleep (GSDS), memory (MFQ)	-
Jain et al. (2014)	-	anxiety (ZAS) depression (CESD)	-	quality of life (QLESQ-SF)	anxiety, depression, quality of life
Lavretsky et al. (2013)	telomerase activity	depression (HRSD-24)	-	cognitive functioning (CVLT II)	-
Leach et al. (2015)	-	-	-	-	-
Oken et al. (2010)	-	depression (CESD)	-	stress (RMBPC), cognitive functioning	-
Paller et al. (2015)		depression (GDS)	-	quality of life (QOL-AD)	-
Pomykala et al. (2012)	-	-	-	-	-
Waelde et al. (2004)	-	depression (CES-D), anxiety (STAI)	-	self-efficacy (SEC)	-
Whitebird et al. (2012)		mental health (MCS-12), depression (CES-D), anxiety (STAI)	-	stress (PSS)	general mental health, stress, depression

**BDI**=Beck Depression Inventory, **BAI**=Beck Anxiety Inventory, **CESD**=Center for Epidemiologic Studies Depression Scale, **CVLT II**=California Verbal Learning Test II, **GDS**=Geriatric Depression Scale, **GSDS**=General Sleep Disturbance Scale, **HRSD-24**=Hamilton Rating Scale for Depression, **LSSI**=Lipps' Stress Symptoms Inventory for Adults, **MCS-12**=Mental Health score of Short Form-12 Health Survey, **MFQ**=Memory Functioning Questionnaire, **PSS**=Perceived Stress Scale, **POMS**=Profile of Mood States, **QLESQ-SF**=Quality of Life Enjoyment and Satisfaction Questionnaire-Short Form, **QOL-AD**=Quality of Life (AD), **RMBPC**=Revised Memory and Behavior Problems Checklist, **SC**=Salivary Cortisol, **SEC**=Caregiving Self-Efficacy, **SHS**=State Hope Scale, **STAI**=State-Trait Anxiety Inventory, **ZAS**=Zung Anxiety Scale, **ZBI**=Zarit Burden Interview (short version)

Nearly all studies followed intervention methods at the recommended doses deemed effective by prior research. For example, Jon Kabat-Zinn's Mindfulness-Based Stress Reduction course involves eight weekly in-person training sessions, a five-hour retreat, and a recommended daily meditation practice. All but one MBSR-based intervention from the present study followed this dosage model, with the majority of these studies excluding the day-long retreat (for practical reasons). Hoppes et al.'s (2012) MBSR-based study, however, was only conducted for four weeks, giving the rationale that caregivers would not have time for the full eight-week course. Other studies completed prior to 2012 do not support this hypothesis, and Hoppes' results, unsurprisingly, do not reflect any conclusive effects.

Intervention dose also varied, with the smallest at four weeks and the most robust at twelve. Ten involved some combination of a home practice (from 11 to 60 minutes daily) and a weekly group practice (60 - 150 minutes); three also included a day-long mindfulness retreat.

Nine of the studies included in the current review were controlled; six with other interventions, three with a waitlist. Of the six with interventions as the control, three of these were relaxation-based, which strengthened these studies' ability to measure whether it was mindfulness or simply relaxation that had an impact on outcomes.

While all studies measured the effectiveness of mind and body interventions on dementia caregivers, the type of effects were wide ranging, from physiological effects to subjective impact (Table 3). Six studies gathered data on biological measures such as salivary cortisol (stress), blood leukocytes (inflammation, immunity), telomerase activity (immunity), and brain metabolism (cognitive functioning). Mental health effects measured in ten studies included



mood, depression and anxiety. Eleven results included subjective measurements of stress, burden, sleep, and quality of life.

The measurement of intervention effects can be determined by a wide variety of instruments. Self-report of subjective measures is least effective, as it contains a large margin for human error. Validated subscales, such as the PHQ-9 and the Beck Depression Inventory, while subjective, include concrete and measurable questions which can improve the validity of responses. The majority of research included in the present study relied heavily upon subjective measures, but nearly half added a physiological measure (such as blood pressure or salivary cortisol) to strengthen results.

Overall outcomes in the research results seem to suggest that mind and body interventions are effective at positively influencing caregiver depression, anxiety, mood and stress. Nine of the thirteen studies found significant outcomes for depression, anxiety, and mood. Quality of life (including stress) and cognitive functioning were also significant factors affected by these interventions. Eight of the thirteen studies reported significant results for quality of life and/or stress.

### **Discussion**

The last twelve years of research related to mind and body interventions and their impact on dementia caregivers indicates that they can have beneficial effects on mental health, stress, and quality of life. Analysis of the varying types of interventions shows that some common themes may be contributing to intervention effectiveness, but that the wide variety of intervention implementation proves challenging for making qualitative comparisons within the research. Participant demographics also leave gaps in our knowledge of how effective these

interventions can be cross-culturally. Overall, we can see that for caucasian women, mind and body techniques can be effective in addressing mental health, stress, and quality of life in dementia caregivers, but more information is needed to determine how we can refine interventions and develop best practices that will accommodate caregivers from a more diverse array of backgrounds and life circumstances.

### **Limitations**

The majority of studies measured the effects of interventions on caregiver mental health, primarily depression and anxiety. Stress levels were also a common theme. But the struggle in determining a common effect is the inconsistency in intervention type. It seems safe to say that mindful meditation and breathing exercises play a part in the effects, as all interventions included these components. But the question remains: what other elements need to be present in order for an intervention to be successful? Some interventions included physical movement (such as yoga), and others included chanting and guided imagery. Future research could parse these elements with controls in order to refine the boundaries of intervention effectiveness.

### **Cultural Considerations**

The vast majority of research participants in the present study are caucasian females. This is not surprising, as most caregivers fit this demographic; however, this fact gives little to no evidence as to the effectiveness or appropriateness of mind and body interventions for men or persons of color. Future studies will need to consider the available research on how these communities experience burden and coping in order to develop an appropriate comparison intervention. Especially prudent to consider would be how gender and/or race factors might influence a participant's openness to mind and body strategies.

Income level and access to resources are also important considerations to make when assessing the appropriateness of mind and body interventions for a particular population. Group practice sessions included in a traditional MBSR course would require the caregiver to be away from the care recipient for several hours. If the care recipient is unable to be left alone for this amount of time, which is frequently the case, respite care would need to be obtained. For low-income participants, this factor may be cost-prohibitive. As mentioned in the previous section, some studies accommodated these needs; social workers implementing these interventions in the community would be wise to consider obtaining funding for this purpose.

Finally, mind and body interventions may also encounter resistance from religiously conservative caregivers who feel that some of the elements (such as chanting, or sending lovingkindness to others) conflict with their spiritual beliefs. The research does not currently suggest that these elements have any effect on participant retention, but most mitigated these concerns by confirming prospective participants' comfort with the intervention before entering the study. This would be a factor to consider, depending on the proposed caregiving community. Trends also indicate that younger generations are more open to complementary and alternative therapies, so this barrier may become less of a concern as these generations age into caregiving roles.

### **Implications for Social Work Practice**

Many research-based methods have been used to increase the sustainability of the dementia caregiver role: psychoeducation, support groups, psychiatric medications for the care recipient, cognitive behavior therapy, and respite care, to name a few. In reviews of the effectiveness of each of these interventions, Pinquart and Sörensen (2006) note that structured

and intensive methods that entail active participation from the caregiver are most effective. But effective at what?

The research reviewed in the present study measures a wide range of effects, from mental illness and physiological changes, to sleep quality, burden, memory, and self-efficacy. Most consistently, when yoga and/or meditation are applied on a weekly basis in person, with the expectation of some daily independent practice for eight or more weeks, the most significant effects are seen in caregiver depression, anxiety and stress.

As social workers, mental health and stress tolerance are vital factors in clients' abilities to build sustainable lives and relationships. Caregivers are already attending support groups at clinics, nursing homes and in church basements, sometimes with the added benefit of group respite. Why not add an extra component of mindfulness-based stress reduction for eight weeks? Or bring in an experienced yoga teacher to guide the caregivers in gentle postures and mindful breathing? Research shows that the practical information and social support offered through psychoeducation groups is helpful in increasing caregiver competency and resource knowledge. But the issues of stress, depression and anxiety are not as frequently addressed in these groups. The relatively low cost of implementing an eight-week mindfulness intervention would equip caregivers with new skills to create healthier boundaries between the care recipients' frustrating behaviors and their own emotional responses.

### **Implications for Policy**

The question of feasibility is always lingering in the background of any new intervention. With mind and body interventions, the scientific support is growing, which eases part of the burden of advocacy. Adverse effects are also a consideration with any new therapy, but because

meditation and mindful yoga are low- to no-impact, body chemistry reactions and injury are relatively low. This leaves a third concern of funding. Participants in mind and body interventions can certainly pay privately for an MBSR course or a yoga class, and there are some grants available to support pilot programs. But if we are to look at the sustainability of mind and body programs for dementia caregivers, we need legislative and institutional support in order to incorporate them into mainstream health and wellness programs that caregivers are likely to attend.

Beginning at the macro level, we already see an increased attention to mind and body therapies through the development of the National Institutes of Health Center for Complementary and Integrative Health. This government agency is recognizing the impact of these new therapies on the health of individuals with physical and mental health issues. At the state level, major educational institutions such as the University of Minnesota are developing entire centers, such as the Center for Spirituality and Health, that bring mind and body interventions to the general public and advocate for their importance.

As social work practitioners, we can certainly refer clients and patients to these institutions, but we can also advocate for mind and body offerings within our own organizations. Hospitals, for instance, are a fertile ground for such interventions, as many already provide caregiver resources, such as support groups and recreational therapy for dementia patients. Research on the impact of mind and body interventions on the health of dementia caregivers such as that included in the current review can give support to developing in-house programs within health care institutions, perhaps as an augmentation to a currently existing support group or psychoeducation program.

### **Implications for Research**

Reviewing the limited research on mind and body interventions for dementia caregivers reveals both encouraging and challenging results. The thirteen studies included here generally followed best practices for quality research. They used appropriate recruitment methods and exclusion criteria to control for previous mindfulness experience or chronic health conditions. They used various methods to retain an adequate number of participants throughout the course of the studies. Their instruments of measurement were evidence-based and tested for validity and reliability. But there was one major challenge.

The thirteen studies varied widely in the type of mind and body interventions used. Two methods of intervention were found to be used most often: Mindfulness-Based Stress Reduction (MBSR) and Kirtan Kriya Yoga (KKY). The extent to which each implementation of the method remained true to the original format, however, was significantly different. Some studies altered the dosage, while others removed elements of the practice that they determined would affect participants' abilities to complete the program, such as the MBSR's traditional day-long meditation retreat. Alterations to an intervention method are certainly encouraged if the changes will still produce beneficial results and accommodate the specific needs of participants; however, the changes make comparative research rather difficult. Continued research has the potential to further explore how the varying elements of MBSR and KKY may be useful and which are limiting to caregivers' ability to participate. It is completely feasible to expect that the next phase in mind and body research for this population would include the development of a new model of mind and body intervention specific to the needs of dementia caregivers. It would

include the best elements of MBSR and KKY, while removing those elements that may not necessarily be practical or feasible for a caregiver.

The present review included several biological measures of effects - such as salivary cortisol stress testing - which reinforce the validity of more subjective, self-reported effects. While the addition of these elements did not always support meaningful outcomes, the inclusion of biological indicators can strengthen the credibility of mind and body techniques in the eyes of the medical community.

An additional factor to consider when reviewing intervention effects is the extent to which participants are recruited and retained in numbers large enough to gather compelling data. All of the studies in the present review had completion rates above 80%, which is very good, considering the time and energy required to participate in these studies. Recruitment, however, appears challenging. Despite a wide variety of recruitment methods, final participation rates were most commonly between 10 and 30, with a few studies exceeding 50. Several strategies were employed to support and encourage continued participation. For example, the coordinator for the Whitebird et al. (2012) study made weekly phone calls to caregivers to address concerns and provide encouragement. Another study (Danucalov et al., 2013) offered several locations at which participants could go to engage in group sessions. Also notable were the studies that provided respite care to those participants for whom its absence would make participation impossible (Oken et al., 2010; Whitebird et al., 2012) Efforts like these can effectively address cultural barriers and improve the participant experience, resulting in better outcomes for caregivers and researchers alike.

In reviewing best practices and evaluating the strengths and challenges of these thirteen studies, the author recommends that future intervention designs include the following: (a) several options for in-person participation, most conveniently a session that would precede or follow an already-attended support group or run alongside an adult day care option; (b) resources for participants who are unable to afford respite services in order to attend in-person sessions; (c) audio resources for participants to take home, in order to increase home practice fidelity; and (d) meaningful supports for participants between in-person group sessions, such as phone calls or emails.

### **Conclusion**

Family members caring for a loved one with dementia encounter a multitude of physical and psychological stressors. Support groups are able to provide important community resources and needed social interactions with others encountering similar struggles. Psychotherapy methods, such as Cognitive Behavior Therapy, are useful in addressing some mental health issues. Medications can be given to dementia care recipients in order to quell distress, making caregiving less psychologically taxing. But the beauty of mind and body interventions for caregivers - such as gentle yoga or MBSR - is that these are tools that, once learned, cannot be taken away. After a typical eight-week course of in-person and daily home practice, participants can choose to continue to maintain a group practice, or may never again become involved in a community mindfulness class. But the skills and knowledge these caregivers take with them can be accessed independently of any paid professional, and can be applied to more than just their caregiving relationship. Participants are empowered to take with them the tools for a daily personal practice that has the potential - as the current review suggests - to reduce symptoms of



anxiety and depression, lower stress levels, and improve quality of life. This level of empowerment is what social workers strive to provide, and what can ultimately serve as a protective factor in caregiver health and wellness, with little strain on the healthcare system.

### References

*References marked with an asterisk indicate studies included in the meta-analysis.*

- Alzheimer's Association. (2015a). *What is dementia?* Retrieved from the Alzheimer's Association website: <http://www.alz.org/what-is-dementia.asp>
- Alzheimer's Association. (2015b). Alzheimer's Disease Facts and Figures. *Alzheimer's & Dementia*, 11(3), 332-384.
- Baer, R. A. (2003). Mindfulness training as a clinical intervention: A conceptual and empirical review. *Clinical Psychology: Science and Practice*, 10(2), 125-143.
- Bialon, L. N. & Coke, S. (2012). A study on caregiver burden: Stressors, challenges, and possible solutions. *American Journal of Hospice & Palliative Medicine*, 29(3), 210-218.
- Bishop, S. (2002). What do we really know about mindfulness-based stress reduction? *Psychosomatic Medicine*, 64, 71-84.
- \*Black, D. S., Cole, S. W., Irwin, M. R., Breen, E., St. Cyr, N. M., Nazarian, N. ... & Lavretsky, H. (2013). Yogic meditation reverses NF-kB and IRF-related transcriptome dynamics in leukocytes of family dementia caregivers in a randomized controlled trial. *Psychoneuroendocrinology*, 38, 348-355. doi: <http://dx.doi.org/10.1016/j.psyneuen.2012.06.011>
- Borkovec, T. D. (2002). Life in the future versus life in the present. *Clinical Psychology: Science and Practice*, 9, 76-80.
- Brown, A. P., Marquis, A. & Guiffrida, D. A. (2013). Mindfulness-based interventions in counseling. *Journal of Counseling & Development*, 91, 96-104.

- \*Brown, K. W., Coogle, C. L., & Wegelin, J. (2015). A pilot randomized controlled trial of mindfulness-based stress reduction for caregivers of family members with dementia. *Aging & Mental Health*, 2015. doi: 10.1080/13607863.2015.1065790
- Butler, L. D., Waelde, L. C., Hastings, T. A., Chen, X., Symons, B., Marshall, J.... Spiegel, D. (2008). Meditation with yoga, group therapy with hypnosis, and psychoeducation for long-term depressed mood: A randomized pilot trial. *Journal of Clinical Psychology*, 64(7), 806-820.
- Carlson, L. E. & Garland, S. N. (2005). Impact of Mindfulness-Based Stress Reduction (MBSR) on sleep, mood, stress and fatigue symptoms in cancer outpatients. *International Journal of Behavioral Medicine*, 12(4), 278-285.
- Cooper, C., Katona, C., Orrell, M. & Livingston, G. (2008). Coping strategies, anxiety and depression in caregivers of people with Alzheimer's disease. *International Journal of Geriatric Psychiatry*, 23, 929-936.
- Connell, C. M., Janevic, M. R. & Gallant, M. P. (2001). The costs of caring: impact of dementia on family caregivers. *Journal of Geriatric Psychiatry and Neurology*, 14(4), 179-187.  
doi: 10.1177/089198870101400403
- D'Amelio, M., Terruso, V., Palmer, B., Di Benedetto, N., Famoso, G., Cottone, P.... Savettieri, G. (2009). Predictors of caregiver burden in partners of patients with Parkinson's disease. *Neurological Sciences*, 30(2), 171-174.
- \*Danucalov, M. A. D., Kozasa, E. H., Ribas, K. T., Galduróz, J. C. F., Garcia, M. C., Verreschi, I. T. N. ... & Leite, J. R. (2013). A yoga and compassion meditation program reduces stress

- in familial caregivers of Alzheimer's disease patients. *Evidence-Based Complimentary and Alternative Medicine*, 2013. doi: <http://dx.doi.org/10.1155/2013/513149>.
- Family Caregiver Alliance (2014). Grief and Loss. Retrieved from the Family Caregiver Alliance website: <https://caregiver.org/grief-and-loss>.
- Grecucci, A., Pappaianni, E., Siugzdaite, R., Theuninck, A. & Job, R. (2015). Mindful emotion regulation: Exploring the neurocognitive mechanisms behind mindfulness. *BioMed Research International*, 2015, . doi: <http://dx.doi.org/10.1155/2015/670724>
- Harris, S. M., Adams, M. S., Zubatsky, M. & White, M. (2011). A caregiver perspective of how Alzheimer's disease and related disorders affect couple intimacy. *Aging & Mental Health*, 15(8), 950-960.
- Hayes, S. C. & Lillis, J. (2012). *Acceptance and Commitment Therapy*. Washington, D. C.: American Psychological Association.
- Hölzel, B. K., Lazar, S. W., Gard, T., Schuman-Olivier, Z., Vago, D. R. & Ott, U. (2011). How does mindfulness meditation work? Proposing mechanisms of action from a conceptual and neural perspective. *Perspectives on Psychological Science*, 6(6), 537-559.
- \*Hoppes, S., Bryce, H., Hellman, C., Finlay, E. (2012). The effects of brief mindfulness training on caregivers' well-being. *Activities, Adaptation & Aging*, 36, 147-166.
- Hurley, R. V. C., Patterson, T. G. & Cooley, S. J. (2013). Meditation-based interventions for family caregivers of people with dementia: A review of the empirical literature. *Aging & Mental Health*, 18(3), 281-288.
- \*Innes, K. E., Selfe, T. K., Brown, C. J., Rose, K. M., & Thompson-Heisterman, A. (2012). The effects of meditation on perceived stress and related indices of psychological status and

- sympathetic activation in persons with Alzheimer's disease and their caregivers: A pilot study. *Evidence-Based Complementary and Alternative Medicine*, 2012. doi: 10.1155/2012/927509
- \*Jain, F. A., Nazarian, N., & Lavretsky, H. (2014). Feasibility of Central Meditation and Imagery Therapy for dementia caregivers. *International Journal of Geriatric Psychiatry*, 29, 870-876. doi: 10.1002/gps.4076
- Kabat-Zinn, J., Wheeler, E., Light, T., Skillings, A., Scharf, M., Cropley, T. G....Bernhard, J.D. (1998). Influence of a mindfulness meditation-based stress reduction intervention on rates of skin clearing in patients with moderate to severe psoriasis undergoing phototherapy (UVB) and photochemotherapy (PUVA). *Psychosomatic Medicine*, 60(5), 625-632.
- Kabat-Zinn, J. (2003). Mindfulness-based interventions in context: Past, present, and future. *Clinical Psychology: Science and Practice*, 10, 144–156. doi:10.1093/clipsy/bpg016
- Kaplan, K. H., Goldenberg, D. L., & Galvin-Nadeau, M. (1993). The impact of a meditation-based stress reduction program on fibromyalgia. *General Hospital Psychiatry*, 15, 284-289.
- \*Lavretsky, H., Epel, E. S., Siddarth, P., Nazarian, N., St. Cyr, N., Khalsa, D. S. ... Irwin, M. R. (2013). A pilot study of yogic meditation for family dementia caregivers with depressive symptoms: effects on mental health, cognition, and telomerase activity. *International Journal of Geriatric Psychiatry*, 28, 57-65.
- \*Leach, M. J., Francis, A., & Ziaian, T. (2015). Transcendental Meditation for the improvement of health and wellbeing in community-dwelling dementia caregivers

- [TRANSCENDENT]: a randomised wait-list controlled trial. *BMC Complementary & Alternative Medicine*, 15, 145-156.
- Linehan, M. M. (1993). *Skills training manual for treating borderline personality disorder*. New York: Guilford Press.
- Mackenzie, C. S. & Poulin, P. A. (2006). Living with the dying: Using the wisdom of mindfulness to support caregivers of older adults with dementia. *International Journal of Health Promotion and Education*, 44(1), 43-47.
- National Alliance for Caregiving and American Association of Retired Persons, Public Policy Institute. (2015). *Caregiving in the U.S.* Retrieved from National Alliance for Caregiving website: [http://www.caregiving.org/wp-content/uploads/2015/05/2015\\_CaregivingintheUS\\_Final-Report-June-4\\_WEB.pdf](http://www.caregiving.org/wp-content/uploads/2015/05/2015_CaregivingintheUS_Final-Report-June-4_WEB.pdf)
- \*Oken, B. S., Fonareva, I., Haas, M., Wahbeh, H., Lane, J.B., Zajdel, D., & Amen, A. (2010). Pilot controlled trial of mindfulness meditation and education for dementia caregivers. *Journal of Alternative and Complementary Medicine*, 16(10), 1031-1038.
- Ortman J. M., Velkoff, V. A. & Hogan, H. (2014). *An aging nation: The older population in the United States* (Report No. P25-1140). Retrieved from U.S. Census website: <https://www.census.gov/prod/2014pubs/p25-1140.pdf>
- \*Paller, K. A., Creery, J. D., Florczak, S. M., Weintraub, S., Marsell Mesulam, M., Reber, P. J., ... & Maslar, M. (2015). Benefits of mindfulness training for patients with progressive cognitive decline and their caregivers. *American Journal of Alzheimer's Disease & Other Dementias*, 30(3), 257-267.

- Pinquart, M. & Sörensen, S. (2006). Helping caregivers of persons with dementia: Which interventions work and how large are their effects? *International Psychogeriatrics*, 18(4), 577-595.
- Plassman, B. L., Lang, K. M., Fisher, G. G., Herringa, S. G., Weir, D. R., Ofstedal, M. B.... Wallace, R. B. (2007). Prevalence of Dementia in the United States: The Aging, Demographics, and Memory Study. *Neuroepidemiology*, 29, 125-132.
- \*Pomykala, K. I., Silverman, D. H. S., Geist, C. L., Voegelé, P., Siddarth, P., Nazarian, N., ... Lavretsky, H. (2012). A pilot study of the effects of meditation on regional brain metabolism in distressed dementia caregivers. *Aging Health*, 8.5, 509.
- Roche, L., Croot, K., MacCann, C., Cramer, B. & Diehl-Schmid, J. (2015). The role of coping strategies in psychological outcomes for frontotemporal dementia caregivers. *Journal of Geriatric Psychiatry and Neurology*, 28(3), 218-228.
- Segal, Z. V., Williams, J. M. G., & Teasdale, J. D. (2002). *Mindfulness-based cognitive therapy for depression: A new approach to preventing relapse*. New York, NY: Guilford Press.
- Selwood, A., Johnston, K., Katona, C., Lykestos, C., & Livingston, G. (2006). Systematic review of the effect of psychological interventions on family caregivers of people with dementia. *Journal of Affective Disorders*, 101, 75-89.
- Schulz, R., O'Brien, A., Czaja, S., Ory, M., Norris, R., Martire, L. M.... Stevens, A. (2002). Dementia caregiver intervention research: In search of clinical significance. *The Gerontologist*, 42(5), 589-602.
- Shapiro, D., Cook, I. A., Davydov, D. M., Ottaviani, C., Leuchter, A. F. & Abrams, M. (2007). Yoga as a complementary treatment of depression: Effects of traits and moods on

treatment outcome. *Evidence-Based Complementary and Alternative Medicine*, 4(4), 493-502.

Tilly, J., Wiener, J. M. & Gould, E. (2014). Dementia-capable states and communities: The basics. U.S. Administration for Community Living/Administration on Aging. Retrieved from [http://www.aoa.acl.gov/AoA\\_Programs/HPW/Alz\\_Grants/docs/BH-Brief-Dementia-Capable-Basics.pdf](http://www.aoa.acl.gov/AoA_Programs/HPW/Alz_Grants/docs/BH-Brief-Dementia-Capable-Basics.pdf)

U.S. Department of Health and Human Services, National Institutes of Health, National Center for Complementary and Integrative Health. (2008). *Complementary, alternative, or integrative health: What's in a name?* (NCCIH Publication No. D347). Retrieved from <https://nccih.nih.gov/health/integrative-health>

\*Waelde, L. C., Thompson, L., & Gallagher-Thompson, D. (2004). A pilot study of a yoga and meditation intervention for dementia caregiver stress. *Journal of Clinical Psychology*, 60(6), 677-687.

\*Whitebird, R. R., Kreitzer, M., Crain, A. L., Lewis, B. A., Hanson, L. R., & Enstad, C. J. (2012). Mindfulness-based stress reduction for family caregivers: a randomized controlled trial. *The Gerontologist*, 53(4), 676-686.



**Appendix**

APA Citation			
Research Q/ hypotheses			
Independent variable + operational definition, how measured, validity, reliability			
Dependent variable and operational definition, how measured, validity, reliability			
Control			
Sample – type, how constructed, size, and characteristics			
Data collection – methods, procedures (how, when, where, by whom)			
Research design			
Purpose of the research (explore, describe, explain)			
Data analysis - statistics used			
Findings, results, or outcomes of the research			
Conclusions (validity, issues)			
Ethical issues and safeguards			
Practice implications			
Policy implications			
Research implications and next logical research steps			
Limitations			
Your critique of this research			
Database			