

**Original Research: Experimental**

# Effects of Reiki on Anxiety, Depression, Pain, and Physiological Factors in Community-Dwelling Older Adults

Nancy E. Richeson, PhD, CTRS; Judith A. Spross, PhD, RN, FAAN; Katherine Lutz, FNP, RN; and Cheng Peng, PhD

## ABSTRACT

The purpose of this study was to evaluate the effect of Reiki as an alternative and complementary approach to treating community-dwelling older adults who experience pain, depression, and/or anxiety. Participants ( $N = 20$ ) were randomly assigned to either an experimental or wait list control group. The pre- and posttest measures included the Hamilton Anxiety Scale, Geriatric Depression Scale-Short Form, Faces Pain Scale, and heart rate and blood pressure. The research design included an experimental component to examine changes in these measures and a descriptive component (semi-structured interview) to elicit information about the experience of having Reiki treatments. Significant differences were observed between the experimental and treatment groups on measures of pain, depression, and anxiety; no changes in heart rate and blood pressure were noted. Content analysis of treatment notes and interviews revealed five broad categories of responses: Relaxation; Improved Physical Symptoms, Mood, and Well-Being; Curiosity and a Desire to Learn More; Enhanced Self-Care; and Sensory and Cognitive Responses to Reiki.

Reiki is a form of energy healing in which the practitioner uses light touch to channel energy. The roots of modern Reiki were founded in Japan in the early 20th century by a Zen Buddhist named Mikao Usui (Stein, 1995). The National Center for Complementary and Alternative Medicine (NCCAM; 2007) categorizes Reiki as energy medicine. Energy medicine is based on the belief that disturbances in energy cause illness, and that the laying of

hands by the practitioner can restore the flow and balance of energy in the recipient. The word *Reiki* means “universal life energy” and is composed of two Japanese words: *Rei*, which means “hidden force” or “spiritual,” and *Ki*, which means “life energy” (Stein, 1995). Reiki has been used to promote healing, relaxation, and overall wellness.

According to Rand (2005), the Reiki energy promotes overall wellness as it flows into a person’s energy system.

---

*Dr. Richeson is Associate Professor, Dr. Spross is Professor and Dean (Acting), College of Nursing and Health Professions, Dr. Peng is Associate Professor of Statistics, Department of Mathematics and Statistics, and at the time this article was written, Ms. Lutz was a graduate research assistant, College of Nursing and Health Professions, University of Southern Maine, Portland, Maine. Ms. Lutz is currently working in Plattsburgh, New York.*

*The authors disclose that they have no significant financial interests in any product or class of products discussed directly or indirectly in this activity. This research was supported by grants from the College of Nursing and Health Professions, University of Southern Maine. The authors thank Pauline Wilson, BS, and Kate Cone, JD, both Reiki Master/Teachers, for assisting with this project.*

*Address correspondence to Nancy E. Richeson, PhD, CTRS, Associate Professor, College of Nursing and Health Professions, University of Southern Maine, 96 Falmouth Street, PO Box 9300, Portland, ME 04104-9300; e-mail: richeson@usm.maine.edu.*

*Received: October 20, 2009; Accepted: May 13, 2010; Posted: June 30, 2010*

*doi:10.3928/19404921-20100601-01*

These systems can best be described as the universal energy field and chakras. The *universal energy field* is a multilayered field of energy that surrounds and permeates the physical body. *Chakras* are wheel-like vortices, often referred to as focal points for the reception and transmission of energies (Rand, 2005). Chakras bring energy to the person from this universal energy field. There are seven main chakras that can become blocked, thus distorting the natural flow of energy (Rand, 2005). According to Herron-Marx, Price-Knol, Burden, and Hicks (2008), when a person receives a Reiki treatment, the practitioner channels ki to the recipient, bringing about balance in the mind, body, and spirit. The Reiki practitioner does this by lightly placing his or her hands on or just above the body, using a series of hand placements.

Reiki is gaining popularity as a healing modality; however, the effects are not well understood, and minimal scientific evidence in the literature demonstrates its effectiveness. The existing research is narrowly focused and methodologically weak; small samples, inadequate study design, and poor reporting make it difficult to draw conclusions about the benefits of Reiki (Herron-Marx et al., 2008; Lee, Pittler, & Ernst, 2008). Although current research findings indicate that the value of Reiki remains unproven (Lee et al., 2008), it may have potential as a treatment modality and an adjunct therapy in health care (Herron-Marx et al., 2008), and thus further research is warranted.

## HEALTH CONCERNS IN OLDER ADULTS

It is estimated that one in five older adults has a significant mental disorder, with depression and anxiety being among the most common (Centers for Disease Control and Prevention, & National Association of Chronic Disease Directors, 2008). Depression affects 8% to 20% of the older adult population (Gallo & Lebowitz, 1999; Kennedy-Malone, Fletcher, & Plank, 2004), and 10% to 15% of older adults seek treatment for anxiety (Kennedy-Malone et al., 2004). More than one third of adults 45 and older report joint discomfort ranging from stiffness to severe pain; more than 80% of the population 75 and older are affected by arthritis pain (Kennedy-Malone et al., 2004). This high incidence of chronic pain disorders in older adults is alarming. Kovach, Noonan, Griffie, Muchka, and Weissman (2002) reported there is a risk for undertreatment of pain, which can contribute to depression, anxiety, weight loss, sleep disturbance, isolation, and impaired mobility. In addition, loss of loved ones and functional abilities lead to depression and anxiety as people age (Thorson, 2000).

Many older adults have multiple chronic conditions requiring multiple medications. Assessment and interpre-

tation of new symptoms is complicated because patients and providers may conclude that new symptoms are normal physiological changes of aging. In actuality, symptoms may be from an adverse drug reaction due to polypharmacy. The use of complementary and alternative medicine (CAM) may allow for fewer or lower dosages of medications intended to treat pain or mood disorders, which, in turn, may contribute to a lowered risk of adverse drug reactions.

NCCAM (2008) reports that 38% of adults in the United States used CAM. CAM offers an alternative or adjunct therapy that may have lower risks of adverse side effects and offers a new perspective: Healing patients rather than simply treating them.

Older adults have shown an interest in complementary and alternative approaches to care; therefore, it is important that a holistic approach to care be integrated into the current health care system. Quality of life must be considered when proposing pharmacological or invasive treatments; more medications and medical interventions do not always equate with an improved quality of life. Reiki is a modality that is both therapeutic and preventive, promoting a holistic (mind, body, and spirit) approach to wellness.

The primary purpose of this pilot study was to evaluate the effect of Reiki on pain, depression, anxiety, and/or elevated heart rate (HR) and blood pressure (BP) in community-dwelling older adults. A secondary purpose was to understand the benefits of Reiki from the perspective of participants to develop hypotheses that could inform future research.

## LITERATURE REVIEW

To date, few descriptive or experimental studies have evaluated the effects of Reiki therapy on pain, depression, anxiety, and physiological indicators, such as HR and BP, in older adults. Grzywacz et al. (2006) evaluated the results of the 2002 National Health Interview Survey Alternative Health Supplement and found that 81.7% of older adults with self-reported anxiety or depression did use CAM. Interestingly, only 20% of these individuals were using CAM for their mental health.

Meeks, Wetherell, Irwin, Redwine, and Jeste (2007) reviewed randomized clinical trials (RCTs) in which CAM approaches were used as treatment for depression, anxiety, and sleep disturbance in older adults. Of the 855 studies identified, only 33 met the inclusion criteria of sample greater than 30, duration of treatment greater than or equal to 2 weeks, and publication in English. The study methodologies were then rated using the Scale for Assessing Scientific Quality of

Investigations (SASQI). Next, they were categorized as positive (i.e., the study authors reported statistically significant differences in outcomes between control and experimental groups,  $p < 0.05$ ) or negative (i.e., no statistically significant differences). It should be noted that the mean SASQI score for the negative studies was higher than that for the positive studies, suggesting that those studies with negative findings were conducted more rigorously. The researchers concluded that CAM approaches should be further studied because of their widespread popularity and the fact that numerous studies did report positive outcomes. It was also recommended that future studies focus on methodology using robust research designs. An interesting question the researchers raised was the issue of holding CAM studies to Western standards of evaluation when so many subjective factors influence the patient, the therapy, and the outcome.

### Reiki and Pain

Lee (2008) conducted a systematic review of RCTs for the purpose of investigating whether Reiki is beneficial for pain management. Five RCTs met the inclusion criteria and were reviewed. Two of these studies reported statistically significant reductions in pain when Reiki was used in addition to opioid agents, rest, or conventional nursing care (Olson, Hanson, & Michaud, 2003; Vitale, 2007).

Assefi, Bogart, Goldberg, and Buchwald (2008) researched the effects of Reiki for the treatment of fibromyalgia. A factorial designed, randomized, sham-controlled trial, blinded to treatment group, was conducted on 100 adults with fibromyalgia who were experiencing chronic pain. Participants were assigned to four groups—Reiki, distance Reiki (i.e., Reiki energy sent from a distance), sham Reiki (i.e., Reiki hand positions mimicked and performed by someone not previously attuned and educated), and distance sham Reiki—and received Reiki twice weekly for 8 weeks. Participants' pain was measured using the Visual Analog Scale (VAS); other outcomes measured were physical and mental functioning, medication use, and health provider visits. No statistically significant differences in outcomes were found between the two treatment and control groups. The authors concluded that "adults with fibromyalgia were unlikely to benefit from Reiki" (Assefi et al., 2008, p. 1122).

Reiki is a holistic therapy yet the intervention described in Assefi et al.'s (2008) study was aimed at isolating the effects of Reiki from other potential influences (i.e., interveners used false names and interacted with participants using a script, and treatments were administered in a white-walled room with no incense or music). Such a design does not reflect the usual context in which Reiki is offered and may have

contributed to the failure to observe an effect. The authors acknowledged that the intervention was not delivered in a way that promoted an "optimal healing environment" (Assefi et al., 2008, p. 1121). This research approach divorces the clinical intervention from the cognitive, emotional, and interpersonal skills that are regarded as essential in therapeutic relationships generally and in pain management specifically (e.g., Murinson, Agarwal, & Haythornthwaite, 2008).

Olson et al. (2003) aimed to determine whether Reiki plus standard opioid pain medications resulted in better pain management for patients with advanced cancer. Twenty-five adults receiving palliative care for a pain rating greater than or equal to 3 on a 10-point VAS scale and requiring two to five breakthrough dosages of analgesia during the day were included in the study. One hour after the first dosage of afternoon analgesia, the participants either rested or received a 1.5-hour Reiki session on Days 1 and 4 of the study. A 10-point VAS pain scale was completed prior to and after each Reiki treatment; participants also recorded use of analgesic medications in a daily diary. A significant reduction in pain was reported on Days 1 and 4 by the opioid plus Reiki group, compared with the opioid plus rest group; those receiving Reiki plus opioid agents reported a mean decrease of 1.2 points on the VAS compared with a mean decrease of 0.3 for those in the opioid plus rest group ( $p = 0.035$ ). No significant difference was found in the use of pain medications between groups.

### Reiki and Depression

Shore (2004) investigated the long-term effects of energetic healing on psychological depression and self-perceived stress, as measured by the Beck Depression Inventory, Beck Hopelessness Scale, and Perceived Stress scale. Forty-six participants were randomly assigned to either a hands-on Reiki group, a distance Reiki group, or a distance placebo group. The participants received 1- to 1.5-hour treatments once weekly for 6 weeks. Data were analyzed using a 3-by-3 repeated measures multivariate analysis of variance. Prior to the treatment, all groups had demonstrated similar scores on the three outcome tools. A statistically significant ( $p < 0.05$ ) reduction in symptoms of depression, perceived stress, hopelessness, and physiological stress was found in the treatment groups compared with the group that received placebo treatments.

### Reiki and Anxiety, Blood Pressure, and other Biological Correlates

A 2001 study conducted by Wardell and Engebretson aimed to identify the effects of Reiki therapy on anxiety

and physiological measures of stress. The physiological measures included BP, skin conductance, muscle tension, skin temperature, and the biological indicators IgA and cortisol. The physiological effects of stress include elevation of BP and decrease in skin temperature. Biologically, it is thought that stress increases cortisol, which, in turn, lowers immunocompetence, for which IgA is a measure. A total of 23 participants (men and women ages 29 to 55) were included in the study. There was no control group; all participants received a 30-minute Reiki session. Data were collected pre- and post-session. Anxiety was measured using the State-Trait Anxiety Inventory (STAI); BP was measured with an automated Dinamap 845 cuff; cortisol was measured through radioimmunoassay of saliva; and secretory IgA was collected from saliva.

Anxiety state as measured by the STAI was lower after the Reiki session (mean = 26.17) than before the session (mean = 31.96;  $p = 0.02$ ). A statistically significant difference was found in salivary IgA in pre- versus post-session samples ( $p = 0.03$ ), but not in cortisol. Systolic BP had a statistically significant decrease between Time 1 (pre-session) and Time 2 (during treatment) ( $p = 0.003$ ) and then remained approximately the same from Time 2 to Time 3 (post-session). Diastolic BP did not change significantly. Skin temperature measurements did not differ significantly from Time 1 to Time 2 but did significantly decrease from Time 2 to Time 3 ( $p = 0.02$ ).

In a 2008 study by Baldwin, Wagers, and Schwartz, noise-stressed rats were given Reiki to see if the treatment would reduce their BP and HR. This study aimed to bridge the gap between the relatively subjective nature of CAM experiments and the more rigorously controlled environment of animal studies. Three rats were exposed to 90 decibels of white noise 15 minutes daily for 8 days. In a previous study, the researchers had shown that exposure of rats to 90 decibels of white noise for 15 minutes caused significant increases in HR and BP (Baldwin, Schwartz, & Hopp, 2007). On the last 5 days, the rats received 15 minutes of Reiki immediately before the noise as well as during the noise exposure. The experiment was repeated but using sham Reiki instead. The results showed that Reiki but not sham Reiki significantly reduced resting HR in rats ( $p < 0.05$ ) and significantly reduced the rise in HR produced by exposure to noise ( $p < 0.05$ ). Neither the Reiki nor sham Reiki significantly affected BP.

## THEORETICAL FRAMEWORK

The Transactional Model of Stress and Coping (Lazarus & Cohen, 1977) was selected as the organizing framework to

guide this project. Lazarus and Cohen highlighted the role of cognitive perceptions, coping efforts, and general health outcomes—all of which are applicable to interdisciplinary health care practice. The primary emphasis of the model is on evaluating the processes of, appraisal of, and coping with stressful events. Stressful experiences are construed as person-environment transactions and depend on the impact of the external stressor on the individual. This is influenced by the person's assessment of the stressor and the social and cultural resources at his or her disposal (Antonovsky & Kats, 1967; Cohen 1984; Lazarus & Cohen, 1977).

The theory suggests that when people are faced with symptoms of suboptimal emotional states, they evaluate the potential threat (primary appraisal), assess coping resources and options (secondary appraisal), and implement actual strategies to regulate the problem (coping efforts) (Cohen, 1984). Therefore, the Reiki intervention was designed to help participants in coping with their pain, depression, and anxiety by providing an intervention that addresses primary and secondary appraisal and coping efforts.

## METHOD

### Design

An experimental design was used to evaluate the effects of Reiki on pain, depression, and anxiety in community-dwelling older adults. In addition, HR and BP were monitored at baseline, before and after each Reiki treatment, and at the end of the study.

Face-to-face semi-structured interviews were conducted with participants in the experimental phase during their last appointments to elicit information about participants' perceptions of the benefits of Reiki. Similarly, interviews were conducted with wait list control group participants at their last appointments. Content analysis of the clinical notes and interview responses was done to identify categories of responses.

### Description of the Intervention

The experimental group received the Reiki intervention during 45-minute appointments held 1 day per week for 8 weeks. Two Reiki Master/Teachers with 8 to 10 years of experience consistently administered the Reiki treatment. One of the Reiki Master/Teachers was on the research team (N.E.R.). The Reiki Master/Teachers provided individualized treatment based on the participant's needs. This included the traditional Reiki hand placements and the advanced Reiki techniques of *Nentatsu-ho*, a Reiki method used when working with a participants' affirmations or intentions; *Byosen Reikian-ho*, focused healing; and *Reiji-ho*, the ability to find imbalances in the body (Rand, 2005).

The intervention consisted of (a) check in with an RN (K.L.) that involved monitoring HR, BP, and pain levels, as well as a brief conversation regarding the week's stressors and coping strategies; (b) 30-minute Reiki treatment with a Reiki Master/Teacher; and (c) check out with the RN, who again measured HR, BP, and pain levels, and offered supportive conversation focused on anticipating and coping with the next week's stressors. The last day of the intervention also included (a) teaching Reiki hand placements to self-treat, (b) discussion on community Reiki resources (practitioners, clinics, shares, classes), and (c) an interview. Members of the wait list control group did not receive the Reiki treatment during the experimental phase of the research project but were offered the Reiki treatment once the study had concluded.

The interdisciplinary nature of the team influenced several aspects of the project. Throughout the project, both the principal investigator (N.E.R.) and the RNs (J.A.S., K.L.) created a collaborative environment in which complementary and individual skills were honored. Both the recreation therapist (N.E.R.) and nurses (J.A.S., K.L.) had general skills in clinical assessment and planning, implementing, and evaluating interventions. They also possessed specific skills in pain assessment and interpersonal and relaxation interventions. The nurses provided expertise in medication, pain, and physiological (HR, BP) assessments, and clinical knowledge of chronic illnesses. The expertise of the recreation therapist, a gerontologist, included broad knowledge and skill related to nondrug and therapeutic recreation approaches to pain, depression, and anxiety, as well as assessing pain, depression, and anxiety in older adults. In addition, the recreation therapist is a Reiki Master/Teacher, and the nurses were Reiki II practitioners. Furthermore, expertise in statistics was provided by the statistician (C.P.). Their interdisciplinary skills provided the expertise needed to conduct the research project. In particular, their backgrounds informed the design of the project, the debriefing of delivery of the intervention, and the interpretation of the data.

### Setting

The pilot project was conducted at a northern New England university within the College of Nursing and Health Professions by the interdisciplinary group of health professionals described above. All Reiki visits were held in the university's nursing skills laboratory, a quiet location away from the commotion of the university. The laboratory was divided into two Reiki treatment rooms separated by an accordion-style room partition. Each Reiki treatment room had soft lighting and was equipped with a Reiki

table, cotton sheets, a fleece blanket, a pillow, a bolster, a CD player, and music (i.e., *Music as Medicine* by Khechog, 2005). The Reiki interventions took place on Fridays from 8:00 a.m. to 5:00 p.m. during fall 2008.

### Participants

The participants were community-dwelling older adults living in southern Maine who volunteered to participate in the research project. Participants were recruited through a lifelong learning institute, a community-based wellness program, and the state medical center. In addition, a press release was sent to all local newspapers highlighting the research project. The research team received 243 telephone calls and e-mails from individuals interested in the study. The research team screened the inquiries using the following eligibility criteria: (a) adults 55 and older; (b) medical diagnosis of pain, depression, and/or anxiety; (c) willingness to participate in an 8-week Reiki intervention; (d) willingness to participate in a research study; and (e) available transportation. The first 25 (16 women, 9 men) to meet the eligibility criteria were scheduled for baseline testing. No exclusion criteria were applied. All participants read and signed an informed consent form approved by the university's Institutional Review Board prior to participating in the study.

Random assignment of participants to an experimental ( $n = 13$ ) or wait list control ( $n = 12$ ) group was completed by drawing names from a basket. Baseline data for the experimental and control groups were collected by the research team using the Geriatric Depression Scale-Short Form (GDS-15), the Hamilton Anxiety Scale (HAM-A), and the Faces Pain Scale (FPS).

### Social-Political Context

The research team would be remiss if the historical context of this project was not mentioned. Pretesting took place Friday, October 3, 2008, the week the U.S. House of Representatives failed to pass a proposed bailout bill to rescue Wall Street firms and the crumbling credit markets. The U.S. stock market immediately dropped more than 700 points, and markets in other parts of the world opened the next day with more declines. Many participants approaching retirement age (mean age = 63.8) commented during pretesting that they were worried about the future and the quality of their lives as they contemplated the fragile nature of their jobs and retirement accounts.

### QUANTITATIVE COMPONENT

Experimental group participants took part in three phases of the research: (a) baseline data collection; (b) the



8-week Reiki intervention; and (c) posttesting with follow-up interview, completed at the end of Week 8. Participants incurred no costs; the costs of participation, including parking, were covered by the grant.

## Measures

**Depression.** The GDS, developed by Yesavage et al. (1982-1983) is a widely used screening tool for adults older than 55. The short form (GDS-15) consists of 15 yes/no items that ask participants how they feel on that particular day. For clinical purposes, scores of 5 to 9 on the GDS-15 suggest mild to moderate depression, while a score of more than 10 indicates depression requiring immediate attention by the clinician. The validity and reliability of the GDS-15 have been well established in the literature; it has been found to have 92% sensitivity and 89% specificity when evaluated against diagnostic criteria. The GDS-15 has a high level of internal consistency (Cronbach's alpha coefficient = 0.80). The tool is useful in clinical settings to facilitate the assessment of depression in older adults, especially when baseline measurements are compared with subsequent scores (Buettner & Fitzsimmons, 2003).

**Anxiety.** The HAM-A was developed by Hamilton in 1959 as a rating scale to quantify the severity of anxiety symptomatology. It is often used as an outcome measure for therapies, interventions, and treatments for children, adults, and older adults. It consists of 14 items, each defined by a series of symptoms. Each item is rated on a 5-point scale, ranging from 0 (*not present*) to 4 (*severe*). The HAM-A is administered by an interviewer who asks a semi-structured series of questions related to symptoms of anxiety and then rates the individual using the 5-point scale. The total anxiety score ranges from 0 to 56, with 17 or less indicating mild anxiety, 18 to 24 mild to moderate anxiety, and 25 to 30 moderate to severe anxiety. The HAM-A is widely used due to its high reliability, internal consistency (Cronbach's alpha coefficient = 0.85), and convergent validity with other anxiety scales ( $r = 0.23, p < 0.05$ ), as well as divergent validity with other depression scales ( $r = 0.30, p < 0.05$ ) (Diefenbach et al., 2001).

**Pain.** The FPS (Bieri, Reeve, Champion, Addicoat, & Ziegler, 1990) was originally developed as a pain scale in pediatrics but has been shown to be effective with older adults (American Geriatrics Society Panel on Persistent Pain in Older Persons, 2002; Herr, 2002; Herr, Mobily, Kohout, & Wagenaar, 1998; Young, Mentis, & Titler, 1999). The tool consists of a series of facial expressions representing degrees of pain from 0 (*no pain*) to 10 (*unbearable pain*). Participants simply indicate which face represents

the intensity of their current pain. The FPS has demonstrated construct validity and strong reproducibility over time with a Spearman rho correlation coefficient of 0.94 ( $p = 0.01$ ) (Herr et al., 1998).

**Blood Pressure and Heart Rate.** Systolic and diastolic BP was measured by the RN using a stethoscope and a sphygmomanometer. BP was categorized as 1 = *good*, <120/80; 2 = *at risk*, 120-139/80-89; 3 = *high risk*, 140 or higher/90 or higher. HR was measured by the RN placing two fingers over the participant's radial artery at the wrist, counting the number of pulses for 30 seconds, and multiplying that number by two for HR in beats per minute.

## Data Analysis

The sample ( $N = 25$ ) for the pilot project was determined based on the number of participants who could reasonably be seen in one day in addition to the limited availability of laboratory space and Reiki Master/Teachers due to schedules. The instrument reliability was estimated based on the values of GDS-15, HAM-A, FPS, BP, and HR taken before and after the Reiki treatment. The standardized Cronbach's alpha coefficient is approximately 0.75, which indicates the adequate internal consistency of the set of variables used in the current study.

The variables of interest, except HR, are not continuous. BP is an ordinal categorical variable, and the GDS-15, HAM-A, and FPS are index-like scores with ordinal discrete values. Therefore, all statistical procedures based on normally distributed populations are inappropriate for this analysis. Because of the small sample in this pilot study, the following robust nonparametric- and non-approximated-based procedures were used for individual variables according to the type of their values.

Analyses associated with variables GDS-15, HAM-A, FPS, and HR are based on the nonparametric rank-based procedure: signed rank for testing before and after Reiki intervention effect, and Wilcoxon Mann-Whitney test for testing effects between the experimental and wait list control group (see Hollander & Wolfe, 1999, for details on these procedures). For variable BP, Fisher's exact test was used for assessing the Reiki treatment effect between the control and experiment groups. Since BP has more than two categories, the before and after effect of the Reiki intervention on BP was assessed using the generalized McNemar's test (see Maxwell, 1970; Stuart, 1955).

On one hand, it is clear from **Table 1** that  $p$  values associated with the before and after treatment effect for the GDS-15, HAM-A, and FPS are significant ( $p < 0.05$ ), which indicates that some confounding effects are involved. On

**TABLE 1**  
**Results Related to Pain, Depression, Anxiety, Heart Rate,**  
**and Blood Pressure (N = 20)**

Measure	Experimental Group (n = 12)			Control Group (n = 8)		
	Pretest	Posttest	p Value <sup>a</sup>	Pretest	Posttest	p Value <sup>a</sup>
	Median (IQR) Mean (SD)	Median (IQR) Mean (SD)		Median (IQR) Mean (SD)	Median (IQR) Mean (SD)	
GDS-15	7.5 (4.0) 7.8 (3.7)	3.5 (5.5) 5.0 (4.4)	0.0005*	4.0 (4.0) 4.3 (3.4)	5.0(7.0) 6.1 (4.5)	0.0313*
HAM-A	21 (23.5) 25.2 (14.4)	10 (19.5) 17.5 (15.5)	0.0005*	18.0 (17.0) 21.2 (12.9)	28.0 (21.5) 28.5 (13.5)	0.0313*
FPS	3 (2.5) 4.8 (1.3)	1 (2.0) 2.2 (1.2)	0.0078*	2.5 (1.5) 5.0 (1.3)	4.0 (2.0) 7.6 (1.2)	0.0156*
HR	65 (14.5) 65.0 (8.4)	62 (7.0) 64.1 (4.2)	0.7793	62.0 (11.0) 64.0 (6.5)	62.0 (8.0) 63.2 (6.1)	1.00
	<b>n (%)</b>	<b>n (%)</b>	<b>p Value<sup>b</sup></b>	<b>n (%)</b>	<b>n (%)</b>	<b>p Value<sup>b</sup></b>
BP						
Good	5 (41.67)	6 (50)	0.3679	6 (75)	2 (25)	0.3679
At risk	6 (50)	6 (50)		4 (25)	4 (50)	
High risk	1 (8.33)	0 (0)		0 (0)	0 (0)	

Note. The instrumental reliability measure (standardized) Cronbach's alpha coefficient = 0.75 for the current study.

BP = blood pressure (*good* = <120/80; *at risk* = 120-139/80-89; *high risk* = 140 or higher/90 or higher); FPS = Faces Pain Scale (0 = *no pain* to 10 = *unbearable pain*); GDS-15 = Geriatric Depression Scale-Short Form (scores range from 0 to 15, with scores of 5 to 9 suggesting mild to moderate depression, higher than 10 indicating depression requiring immediate attention); HAM-A = Hamilton Anxiety Scale (scores range from 0 to 56, with scores of 17 or less indicating mild anxiety, 18 to 24 mild to moderate anxiety, and 25 to 30 moderate to severe anxiety); HR = heart rate (beats per minute); IQR = interquartile range (the range between the first and third quartiles).

<sup>a</sup> p values based on the one-sample (Fisher's exact) rank test.

<sup>b</sup> p values based on the generalized McNemar's test (Stuart-Maxwell test).

\* Significant at  $p < 0.05$ .

the other hand, the baseline scores of the GDS-15 (Table 2) in the experimental and control groups are significantly different ( $p = 0.024$ ), which implies the existence of a floor effect between the two groups. Therefore, a relative comparison between the change of scores from pretest to posttest of all variables in the experimental group and that of the control group is necessary for this analysis. In other words, to remove the baseline floor effect and the unnamed confounding effect, the difference of the scores in the matched pairs in the experimental group was compared with that in the control group to assess the Reiki treatment effect. To assess the treatment effect of the categorical variable BP, the generalized mixed model approach was used because the measurements of BP were taken repeatedly (before and after the Reiki intervention).

Statistical significance was set at  $p < 0.05$ . Data were analyzed using SAS version 9.2. A SAS Macro for the generalized McNemar's test was used to analyze BP (Sun & Yang, 2008).

## DESCRIPTIVE COMPONENT

Kvale (1996) observed that a qualitative (descriptive) interview is a research approach that seeks to describe and understand the meanings of what the participants say. McNamara (n.d.) also stated that interviews are particularly useful for getting an account of participants' experiences. To capture the perspectives of individuals who participated in the Reiki intervention, the investigators kept clinical notes of each treatment for each participant. Clinical notes included subjective reports of sensations and symptoms. In addition, investigators conducted a semi-structured, face-to-face interview; this ensured the same questions were asked of all participants.

For both the experimental and control groups, interviews were conducted with participants at their last Reiki appointment by the investigators (N.E.R., K.L.). The interview schedule was informed by the theoretical framework and consisted of five questions (Table 3). For example, the first question focused on the impact of Reiki on perceived

**TABLE 2**  
**Nonparametric Rank-Based Test for Equal Location of the Variables at Pre- and Postintervention After Removing the Baseline Floor Effect**

Variable	<i>p</i> Value <sup>a</sup>		
	Preintervention	Postintervention	Equal Location between Differences of Matched Pairs in Experimental and Control Groups
GDS-15	0.02*	0.26	0.00*
HAM-A	0.33	0.07	0.00*
FPS	0.47	0.00*	0.00*
BP	0.46 <sup>b</sup>	0.67 <sup>b</sup>	0.28 <sup>c</sup>
HR	0.36	0.38	0.47

Note. BP = blood pressure; FPS = Faces Pain Scale; GDS-15 = Geriatric Depression Scale-Short Form; HAM-A = Hamilton Anxiety Scale; HR = heart rate.

<sup>a</sup> *p* values were obtained based on the independent two-sample rank sum test (Wilcoxon Mann-Whitney test).

<sup>b</sup> *p* values based on the one-sample (Fisher's exact) rank test.

<sup>c</sup> *p* values based on the generalized McNemar's test (Stuart-Maxwell test).

\* Significant at  $p < 0.05$ .

symptoms (appraisal of threat and effect of Reiki). Questions 2, 4, and 5 elicited perceptions about Reiki, which can be considered a coping resource. Question 3 elicited perceptions about participants' confidence in their ability to cope with symptoms (coping efforts).

Content analysis of the interviews and clinical notes was performed by one of the authors (J.A.S.). Interviews were read, and phrases from each question on each interview were listed. The investigator reviewed this list and identified recurring, similar phrases to create broad categories of responses. The phrases were then reorganized under these broad categories. Similarly, the clinical notes were reviewed, and phrases were organized according to the categories that emerged from the interviews.

This document was reviewed by two co-authors (N.E.R., K.L.) who affirmed that these categories captured the content of the interviews and notes they completed. Subsequently, these categories were described to one participant in the intervention group and one in the control group, both of whom agreed the categories represented their experience of Reiki.

## RESULTS

### Characteristics of Participants at Baseline

Of the 243 queries, the first 25 (16 women, 9 men) participants who met the entrance criteria were recruited. From these 25 participants, 4 (3 women, 1 man) dropped out prior to pretesting; all of them identified time constraints as the barrier to participation. Additionally, one participant completed baseline measures and received one

Reiki treatment but could no longer participate because of an unrelated illness. No significant differences were found between this participant who did not complete and the remaining participants on pain, depression, anxiety, HR, or BP. No follow-up analysis of the 4 nonparticipants was performed.

Study participants who remained ( $N = 20$ , 12 women, 8 men) ranged in age from 57 to 76 (mean age = 63.8,  $SD = 4.9$  years); all reported to be Caucasian. Self-reported diagnoses included a range of musculoskeletal, psychological, neurological, and/or inflammatory conditions, most of which were associated with pain, depression, and/or anxiety (Table 4).

### Quantitative Research Findings

The distributions of all variables except the GDS-15 ( $p = 0.024$ , Table 1) showed no significant difference between the experimental and control groups. The statistically significant floor effect of the GDS-15 is unexplainable in this case. However, the floor effect was automatically removed in the analysis as all comparisons are based on the matched pairs of values taken before and after the Reiki treatment. In other words, only the treatment effects were compared.

Since the sample was small, the research team used robust nonparametric tests in this analysis (Table 2). The GDS-15 ( $p < 0.001$ ), HAM-A ( $p < 0.001$ ), and FPS ( $p < 0.001$ ) scores for the experimental group revealed significant decreases in depression, anxiety, and pain compared with the control group. No significant differences were found in BP ( $p > 0.25$ ) or HR ( $p > 0.45$ ). An interesting



observation is that the medians for the variables GDS-15, HAM-A, and FPS were significantly different between groups at pre- and posttest (Table 1).

### Adverse Events

Of the 12 individuals who received the Reiki treatment, the clinical notes documented that 1 participant reported a depressed mood during the fourth week, the day following the treatment. The Reiki Master/Teacher and participant discussed the depressed mood and adjusted the treatments to include an advanced Reiki technique called Nentatsu-ho (Rand, 2005). In this situation, the participant verbally stated to the Reiki Master/Teacher, "I would like to have more energy after the Reiki sessions." The Reiki Master verbally repeated the intention and hence the intention for the Reiki session was set. Each subsequent Reiki session included a verbal intention to have more energy after the Reiki session. Once the technique of Nentatsu-ho was implemented, the participant stated that the depressed mood following treatments ceased.

### Descriptive Research Findings

The Transactional Model of Stress and Coping informed the elucidation of themes. While each question (Table 3) was meant to elicit particular aspects of the experience of Reiki, such as appraisal and impact of stressors; confidence in coping; learning; benefits; and plans for seeking Reiki after the project was over, responses tended to be not specific to the question. Therefore, responses to all questions were analyzed to determine categories of responses. Five broad categories emerged: Relaxation; Improved Physical Symptoms, Mood, and Well-Being; Curiosity and a Desire to Learn More; Enhanced Self-Care; and Sensory and Cognitive Responses to Reiki.

These categories are consistent with the Transactional Model of Stress and Coping that informed this study. On the basis of the theoretical framework, the categories of relaxation and symptom improvement suggest an impact on outcomes; the categories of sensory and cognitive responses to Reiki and enhanced self-care suggest that Reiki may be a coping resource and can enhance coping efforts; and curiosity and a desire to learn more indicated that participants were open to expanding their repertoire of coping resources.

*Improved Health Outcomes.* Two of the five categories of responses reflected improvement in health outcomes: Relaxation and Improved Physical Symptoms, Mood, and Well-Being.

The most common health-related outcome was a feeling that most participants ( $n = 10$ ) characterized as relaxation.

TABLE 3

### Reiki Interview Questions

1. Please describe the impact, if any, Reiki has had as a complementary and alternative intervention to treating your pain, depression, and/or anxiety.
2. Please share your thoughts, if any, regarding what you have learned about Reiki as a complementary and alternative approach to treatment.
3. Share your feelings, if any, regarding your confidence in coping with your pain, depression, and/or anxiety after participating in the Reiki treatment.
4. What has been the biggest benefit, if any, from participating in the Reiki treatment?
5. Share your thoughts, if any, about seeking out Reiki treatment now that the research project is over.

TABLE 4

### Participants' ( $N = 25$ ) Self-Reported Illnesses and Symptoms

Illness/Symptom	$n$ (%)
Cervical degenerative disk disease	5 (20)
Depression	5 (20)
Anxiety	4 (16)
Fibromyalgia	4 (16)
Ankylosing spondylosis	3 (12)
Arthritis	2 (8)
Attention-deficit/hyperactivity disorder	1 (4)
Blepharitis	1 (4)
Back pain	1 (4)
Cervical fracture with minimal residual pain	1 (4)
Gastrointestinal reflux disease	1 (4)
Knee replacement	1 (4)
Multiple sclerosis	1 (4)
Posttraumatic stress disorder	1 (4)
Prostate cancer	1 (4)
Spinal stenosis	1 (4)
Somatoform disorder	1 (4)
Urinary track infection	1 (4)

The following words were used consistently by participants themselves at Reiki sessions and in the postintervention interviews: *very relaxed*, *relaxed feeling*, *complete relaxation*, *relaxing*, and *state of relaxation*. Selected participant quotes include:

- “Very relaxed after Week 1; felt peace of mind...relaxed and joyful after Week 3.”
- “Best hour of the week”
- “Peaceful and relaxing.”
- “Effects of relaxed feeling lasted longer after the second treatment.”
- “Complete relaxation after Week 1.”
- “Relaxed, like a pink cloud surrounds me all day after treatment.”

Throughout the study, individual participants noted the following types of changes: decreased back spasm; decreased neck and shoulder pain; reported comfort despite no significant decrement in a pain score that ranged between 8 and 10; decreasing pain; and sleeping better after Week 2. During the postintervention interviews, 2 participants reported improvements in quality of sleep and 4 reported relief of pain.

Throughout the study, participants described self-appraisals that indicated improvements in physical state, mood, and/or well-being. One participant described “breathing deeper [*sic*] after Week 1,” and another reported feeling the “negative energy [of anxiety] leaving.” An individual who reported having attention-deficit/hyperactivity disorder and anxiety reported feeling “more focused” after Week 4. Another participant described the experience of Reiki as an “emotional cleansing” that persisted throughout the week following treatment.

One person reported “more serenity”; another indicated a better sense of “control”; a third said Reiki helped replace negative thoughts with positive thoughts; and a fourth reported less stress and anxiety. Although five participants reported depression at baseline, no one mentioned amelioration of depression specifically.

*Increased Coping Resources and Enhanced Coping Efforts.* Two broad categories suggested participants found that Reiki and the associated relaxation were viewed as a coping resource (Sensory and Cognitive Responses to Reiki) and enhanced their coping efforts (Enhanced Self-Care). Comments made by several participants indicated that effects persisted beyond the time of treatment.

Participants used a variety of words and phrases to describe the cognitive and sensory responses they experienced, many of which are consistent with characteristics of relaxation and imagery (McCaffery & Pasero, 1999). Phrases included: “the negative energy leaving” “soothing,” and “pleasant.” Two participants noted they looked forward to the Reiki session (“positive anticipation”), and 2 described the Reiki session as “a safe place.” One person reported that the experience provided a new outlook on

pain and changed the person’s thought process about it; one reported she had more insight into her body; and another noted that Reiki was a “helpful tool.”

During postintervention interviews, 5 participants indicated their abilities to cope with pain, stress, or other suboptimal states had improved. Similarly, 5 participants indicated they felt more confident in their ability to manage such symptoms.

*Reiki and Relaxation as a Potential Coping Resource.* Most participants indicated their Curiosity and a Desire to Learn More about Reiki and other similar approaches. One noted he was initially skeptical, and 3 reported that the experience opened their minds to new approaches. Three participants said they would like to take a class, and 1 indicated she would do more reading about the subject. Four participants indicated they planned to learn more about self-Reiki, with 1 specifically mentioning learning and practicing the hand positions.

## DISCUSSION AND RECOMMENDATIONS

Quantitative measures indicated that the participants who received the Reiki intervention significantly improved on measures of pain, depression, and anxiety when compared with those who did not receive the intervention, a finding that was supported by the qualitative data. No statistically significant findings in HR or BP were noted. This is not surprising since the majority of the participants (85.5%) were not considered to be in the *high risk* category for BP, and all participants were within normal range for HR prior to admittance into the study.

These study findings are consistent with those of Shore (2004), who reported a decrease in psychological distress, and those of Olson et al. (2003), who reported that Reiki plus opioid medications reduced pain compared with Reiki plus rest. Although not significant, findings reported by Wardell and Engebretson (2001) found that Reiki decreased anxiety on the STAI. In addition, they noted some physiological changes in salivary, systolic BP, and skin temperature measures. A study conducted on rats reported that Reiki, compared with sham Reiki, significantly reduced resting HR but had no effect on BP (Baldwin et al., 2008).

Qualitative findings suggest Reiki may have the potential to improve health outcomes and increase individuals’ coping resources—findings that warrant further study. One of the key findings from the qualitative data of this pilot study is the number of participants who reported feeling relaxed during and after Reiki treatments. Participants’ reports of relaxation are consistent with the authors’ experiences using progressive muscle relaxation and Reiki in clinical popula-

tions. Another interesting finding was that, for some participants, the duration of benefit persisted for periods beyond the treatment itself. In addition, some participants' remarks suggest the benefits of Reiki are cumulative. These findings have important implications for future research.

Relaxation has long been recognized as an evidence-based intervention for pain and insomnia. A systematic review of research on behavioral and relaxation approaches to pain and insomnia conducted by the National Institutes of Health Technology Assessment Panel on Integration of Behavioral and Relaxation Approaches into the Treatment of Chronic Pain and Insomnia (1996) led the panel to conclude that for relaxation interventions for chronic pain, "The evidence is strong for the effectiveness of this class of techniques in reducing chronic pain in a variety of medical conditions" (p. 6). While some evidence indicates relaxation may be beneficial in depression, a systematic review suggested that further research is needed (Jorm, Morgan, & Hetrick, 2008). Two meta-analyses indicated that relaxation is beneficial in the reduction of anxiety (Manzoni, Pagnini, Castelnuovo, & Molinari, 2008; Thorp et al., 2009).

It may be that Reiki produces a therapeutic effect by inducing relaxation; if this is the case, then this would be consistent with the classic studies of Benson, author of *The Relaxation Response* (1975, 2000) and widely recognized for pioneering research in mind-body medicine and health care (e.g., Benson, 1979, 1984; Esch, Stefano, Fricchione, & Benson, 2002; Galvin, Benson, Deckro, Fricchione, & Dusek, 2006; Peters, Benson, & Porter, 1977). Benson (2000) observed that progressive muscle relaxation, meditation, and prayer seemed to have similar physiological and cognitive effects. A pilot study of relaxation response training in a sample of healthy aging adults demonstrated a statistically significant improvement on a simple attention task and a decrease in anxiety that approached significance (Galvin et al., 2006).

This finding suggests an important avenue for further research. The NCCAM characterizes Reiki as energy medicine, which is a complementary or alternative therapy, not a mind-body intervention. If relaxation is one of the human responses to Reiki, future studies could build on the extensive research that has evaluated the physiological and cognitive effects of relaxation. If Reiki is another strategy for modulating individual responses to stress, including negative physical and emotional states, then future research should be designed to test this observation and compare Reiki interventions with relaxation training to determine the ways in which they are similar and different. Studies comparing the effects of self-Reiki with Reiki delivered by Reiki practitio-

ners, as well as studies comparing the effects of interventions delivered by clinician and non-clinician Reiki practitioners, will contribute to an understanding of the benefits of Reiki for clinical and community-dwelling populations.

In addition, future research must be based on a theoretical framework. The study of Reiki compared with sham Reiki in 100 participants with fibromyalgia (Assefi et al., 2008) was atheoretical. Prominent researchers in the fields of pain (Dalton & Blau, 1996) and CAM (Astin, Shapiro, Eisenberg, & Forsys, 2003) advocate the importance of a theoretical framework in the design, implementation, and interpretation of studies. Astin et al. (2003) noted "that despite seemingly widespread acknowledgement of and support for the importance of a biopsychosocial model, psychosocial factors continue to be overlooked or missed" during clinical visits (p. 131).

## CONCLUSIONS

The small sample and voluntary nature of participation may indicate a biased sample. This could suggest a pre-existing level of readiness to treat pain, depression, and anxiety using complementary approaches to care, thus posing a threat to the internal validity of the project and affecting generalizability. The confounding variables of having therapeutic contact with the research team and using music during the Reiki intervention may have contributed to alleviating the pain, depression, and anxiety. Therefore, given the study design, it is impossible to know whether the Reiki treatment served as the primary independent variable. However, the study does have much strength, including a mixed-method research design, individualized treatment based on participants' needs, and an interdisciplinary research team.

Recommendations for future research include further qualitative studies that elucidate the perceived benefits of Reiki, the health problems that seem to improve, and the conditions under which improved health outcomes are realized. Such qualitative findings can inform the design of focused quantitative studies aimed at testing hypotheses generated by such research. Quantitative research that uses rigorous research methodology; is grounded in a multidimensional, theoretical framework; and that considers the biopsychosocial context and effects of Reiki and Reiki practitioners will be needed. In addition, research strategies that aim to determine the ways in which Reiki and relaxation are similar and different, and studies that evaluate the impact of contextual factors on Reiki interventions and outcomes are necessary to determine the role of Reiki in ameliorating effects of physical and psychological symp-

toms associated with acute and chronic illnesses experienced by older adults.

## REFERENCES

- American Geriatrics Society Panel on Persistent Pain in Older Persons. (2002). The management of persistent pain in older persons. *Journal of the American Geriatrics Society*, 50. Retrieved from <http://www.americangeriatrics.org/products/positionpapers/JGS5071.pdf>
- Antonovsky, A., & Kats, R. (1967). The life crisis history as a tool in epidemiologic research. *Journal of Health and Social Behavior*, 8, 15-20.
- Assefi, N., Bogart, A., Goldberg, J., & Buchwald, D. (2008). Reiki for the treatment of fibromyalgia: A randomized controlled trial. *Journal of Alternative and Complementary Medicine*, 14, 1115-1122.
- Astin, J.A., Shapiro, S.L., Eisenberg, D.M., & Forsys, K.L. (2003). Mind-body medicine: State of the science, implications for practice. *Journal of the American Board of Family Practice*, 16, 131-147.
- Baldwin, A., Wagers, C., & Schwartz, G. (2008). Reiki improves heart rate homeostasis in laboratory rats. *Journal of Alternative and Complementary Medicine*, 14, 417-422.
- Baldwin, A.L., Schwartz, G.E., & Hopp, D.H. (2007). Are investigators aware of environmental noise in animal facilities and that such noise may affect experimental data? *Journal of the American Association for Laboratory Animal Science*, 46, 45-51.
- Benson, H. (1975). *The relaxation response*. New York: Morrow.
- Benson, H. (1979). *The mind/body effect*. New York: Simon and Schuster.
- Benson, H. (1984). *Beyond the relaxation response*. New York: Times Books.
- Benson, H. (2000). *The relaxation response updated and expanded* (25th anniversary ed.). New York: Avon.
- Bieri, D., Reeve, R.A., Champion, G.D., Addicoat, L., & Ziegler, J.B. (1990). The Faces Pain Scale for the self-assessment of the severity of pain experienced by children: Development, initial validation, and preliminary investigation for ratio scale properties. *Pain*, 41, 139-150.
- Buettner, L., & Fitzsimmons, S. (2003). *Dementia practice guidelines for recreational therapy: Treating disturbing behaviors*. Alexandria, VA: American Therapeutic Recreation Association.
- Centers for Disease Control and Prevention, & National Association of Chronic Disease Directors. (2008). *The state of mental health and aging in America. Issue brief 1: What do the data tell us?* Retrieved from [http://www.cdc.gov/aging/pdf/mental\\_health.pdf](http://www.cdc.gov/aging/pdf/mental_health.pdf)
- Cohen, F. (1984). Coping. In J.D. Matarazzo, S.M. Weiss, J.A. Herd, N.E. Miller, & S.M. Weiss (Eds.), *Behavioral health: A handbook of health enhancement and disease prevention* (pp. 3-40). New York: Wiley and Sons.
- Dalton, J., & Blau, W. (1996). Changing the practice of pain management: An examination of the theoretical basis of change. *Pain Forum*, 5, 266-272.
- Diefenbach, G.J., Stanley, M.A., Beck J.G., Novy, D.M., Verill, P., & Swann, A.C. (2001). Examination of the Hamilton Scales in assessment of anxious adults: A replication and extension. *Journal of Psychopathology and Behavioral Assessment*, 23, 117-127.
- Esch, T., Stefano, G.B., Fricchione, G.L., & Benson, H. (2002). The role of stress in neurodegenerative diseases and mental disorders. *Neuro Endocrinology Letters*, 23, 199-208.
- Gallo, J.J., & Lebowitz, B.D. (1999). The epidemiology of common late-life mental disorders in the community: Themes for the new century. *Psychiatric Services*, 50, 1158-1166.
- Galvin, J.A., Benson, H., Deckro, G.R., Fricchione, G.L., & Dusek, J.A. (2006). The relaxation response: Reducing stress and improving cognition in healthy aging adults. *Complementary Therapies in Clinical Practice*, 12, 186-191.
- Grzywacz, J.G., Suerken, C.K., Quandt, S.A., Bell, R.A., Lang, W., & Arcury, T.A. (2006). Older adults' use of complementary and alternative medicine for mental health: Findings from the 2002 National Health Interview Survey. *Journal of Alternative and Complementary Medicine*, 12, 467-473.
- Hamilton, M. (1959). The assessment of anxiety states by rating. *British Journal of Medical Psychology*, 3, 50-55.
- Herr, K. (2002). Chronic pain: Challenges and assessment strategies. *Journal of Gerontological Nursing*, 28(1), 20-27.
- Herr, K.A., Mobily, P.R., Kohout, F.J., & Wagenaar, D. (1998). Evaluation of the Faces Pain Scale for use with the elderly. *Clinical Journal of Pain*, 14(1), 29-38.
- Herron-Marx, S., Price-Knol, F., Burden, B., & Hicks, C. (2008). A systematic review of the use of reiki in health care. *Alternative and Complementary Therapies*, 14, 37-42.
- Hollander, M., & Wolfe, D.A. (1999). *Nonparametric statistical methods* (2nd ed.). New York: Wiley and Sons.
- Jorm, A.F., Morgan, A.J., & Hetrick, S.E. (2008). Relaxation for depression (Article No. CD007142). *Cochrane Database of Systematic Reviews*, Issue 4.
- Kennedy-Malone, L., Fletcher, K., & Plank, L. (2004). *Management guidelines for nurse practitioners working with older adults* (2nd ed.). Philadelphia: Davis.
- Khechog, N. (2005). *Music as medicine* [CD]. Louisville, CO: Sounds True.
- Kovach, C.R., Noonan, P.E., Griffie, J., Muchka, S., & Weissman, D.E. (2002). The assessment of discomfort in dementia protocol. *Pain Management Nursing*, 3, 16-27.
- Kvale, S. (1996). *Interviews: An introduction to qualitative research interviewing*. Newbury Park, CA: Sage.
- Lazarus, R.S., & Cohen, J.B. (1977). Environmental stress. In I. Altman & J.F. Wohlwill (Eds.), *Human behavior and environment* (Vol. 2, pp. 90-127). New York: Plenum.
- Lee, M. (2008). Is reiki beneficial for pain management? *Focus on Alternative and Complementary Therapies*, 13, 78-81.
- Lee, M., Pittler, H., & Ernst, E. (2008). Effects of reiki in clinical practice: A systematic review of randomized clinical trials. *Journal of Clinical Practice*, 62, 947-954.
- Manzoni, G.M., Pagnini, F., Castelnuovo, G., & Molinari, E. (2008). Relaxation training for anxiety: A ten-years systematic review with meta-analysis. *BMC Psychiatry*, 8, 41-53.
- Maxwell, A.E. (1970). Comparing the classification of subjects by two independent judges. *British Journal of Psychiatry*, 116, 651-655.
- McCaffery, M., & Pasero, C. (1999). *Pain: Clinical manual* (2nd ed.). St. Louis: Mosby.
- McNamara, C. (n.d.). *General guidelines for conducting interviews*. Retrieved from the Free Management Library website: <http://www.managementhelp.org/evaluatn/interview.htm>
- Meeks, T., Wetherell, J., Irwin, M., Redwine, L., & Jeste, D. (2007). Complementary and alternative treatments for late-life depression, anxiety, and sleep disturbance: A review of randomized controlled trials. *Journal of Clinical Psychiatry*, 68, 1461-1471.
- Murinson, B.B., Agarwal, A.K., & Haythornthwaite, J.A. (2008). Cognitive expertise, emotional development, and reflective capacity: Clinical skills for improved pain care. *Journal of Pain*, 9, 975-983.

- National Center for Complementary and Alternative Medicine. (2007). *What is CAM?* Retrieved from <http://nccam.nih.gov/health/whatiscam/overview.htm>
- National Center for Complementary and Alternative Medicine. (2008). *The use of complementary and alternative medicine in the United States*. Retrieved from [http://nccam.nih.gov/news/camstats/2007/camsurvey\\_fs1.htm](http://nccam.nih.gov/news/camstats/2007/camsurvey_fs1.htm)
- National Institutes of Health Technology Assessment Panel on Integration of Behavioral and Relaxation Approaches into the Treatment of Chronic Pain and Insomnia. (1996). Integration of behavioral and relaxation approaches into the treatment of chronic pain and insomnia. *Journal of the American Medical Association*, 276, 313-318.
- Olson, K., Hanson, J., & Michaud, M. (2003). Other complementary therapies, reiki effects on pain and quality of life in advanced cancer patients. *Journal of Pain and Symptom Management*, 26, 990-997.
- Peters, R.K., Benson, H., & Porter, D. (1977). Daily relaxation response breaks in a working population: Effects on self-reported measures of health, performance, and well-being. *American Journal of Public Health*, 67, 946-953.
- Rand, W.L. (2005). *The reiki touch workbook*. Louisville, CO: Sounds True.
- Shore, A. (2004). Long-term effects of energetic healing on symptoms of psychological depression and self-perceived stress. *Alternative Therapies*, 10(3), 42-48.
- Stein, D. (1995). *Essential reiki: A complete guide to an ancient healing art*. New York: Ten Speed Press.
- Stuart, A. (1955). A test for homogeneity of the marginal distributions in a two-way classification. *Biometrika*, 42, 412-416.
- Sun, X., & Yang, Z. (2008). *Generalized McNemar's test for homogeneity of the marginal distributions*. Retrieved from the SAS website: <http://www2.sas.com/proceedings/forum2008/382-2008.pdf>
- Thorp, S.R., Ayers, C.R., Nuevo, R., Stoddard, J.A., Sorrell, J.T., & Wetherell, J.L. (2009). Meta-analysis comparing different behavioral treatments for late-life anxiety. *American Journal of General Psychiatry*, 17, 105-115.
- Thorson, J. (2000). *Aging in a changing society* (2nd ed.). Belmont, CA: Wadsworth.
- Vitale, A. (2007). An integrative review of reiki touch therapy research. *Holistic Nurse Practitioner*, 21, 167-179.
- Wardell, D., & Engebretson, J. (2001). Biological correlates of reiki touch healing. *Journal of Advanced Nursing*, 33, 439-445.
- Yesavage, J.A., Brink, T.L., Rose, T.L., Lum, O., Huang, V., Adey, M.B., et al. (1982-1983). Development and validation of a geriatric depression screening scale: A preliminary report. *Journal of Psychiatric Research*, 17, 37-49.
- Young, D.M., Mentis, J.C., & Titler, M.G. (1999). Acute pain management protocol. *Journal of Gerontological Nursing*, 25(6), 10-21.



Copyright of Research in Gerontological Nursing is the property of SLACK Incorporated and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.