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Qigong as a Therapeutic Intervention With Older Adults

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The use of complementary therapies in the United States is growing. One complementary therapy that has received little attention in the nursing literature is Qigong. Qigong is the cornerstone of traditional Chinese medicine and consists of gentle flowing body movements, breathing, and quieting the mind. Qigong facilitates the movement of qi, the vital life energy, throughout the body, thereby enhancing health and healing disease. Preliminary research indicates that Qigong may be an effective complementary therapy for promoting health and wellness in older adults and an effective adjuvant intervention for managing chronic conditions in older adults. This article provides an overview of Qigong, reviews the English-language research literature on the therapeutic effects of Qigong, discusses the implications of Qigong as a complementary therapy for older adults, and suggests directions for further research on the use of Qigong as a therapeutic approach for older adults.

Keywords: *Qigong; older adults; complementary therapies*

Qigong is an ancient Chinese practice for promoting health and well-being. This healing art blends gentle body movements with breathing and the practice of quieting the mind. Qigong is a cornerstone of traditional Chinese medicine (TCM), which includes acupuncture, herbal medicine, and a form of massage called *tui na*.

Qigong practice is gaining popularity in the United States as increasing numbers of people adopt complementary therapies to

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promote wellness and manage chronic health conditions (Eisenberg, 1998). Many authors have provided possible explanations for the growing interest in complementary therapies, including increased prevalence of chronic conditions, rising health care costs, dissatisfaction with conventional medical care, fear of medication side effects, and a desire for increased control in health care decision making (Astin, 1998; Astin, Pelletier, Marie, & Haskell, 2000; Eisenberg, 1998; Snyder & Lindquist, 2001). Qigong may be particularly appealing to older adults because it can be practiced by anyone regardless of health condition, requires no special equipment, and may be practiced individually or in groups.

The increasing use of Qigong and other complementary therapies challenges the nursing profession. Nurses play a central role in assisting patients and their families to make decisions about therapeutic options. Accompanying this role is the responsibility to provide thorough, accurate information. Thus, nurses should possess current information regarding Qigong, empirical evidence for its effectiveness, and possible problems arising from this practice (Hospice & Palliative Nurses Association, 2002).

As the use of Qigong and other Eastern health care practices grows worldwide, research on Qigong therapy is increasing beyond the borders of China. The use of Qigong as a therapeutic modality requires careful scrutiny to assist individuals and allopathic health care providers evaluate its effectiveness.

The purpose of this article is to describe Qigong and its application as a complementary therapy to promote health and wellness for older adults and to examine the effect of Qigong for chronic conditions that commonly affect older adults. The article will review the English-language human-subjects research literature on the therapeutic effects of Qigong. Finally, the article will discuss the use of Qigong as a therapeutic approach for older adults and suggest directions for further research.

WHAT IS QIGONG?

Qi (pronounced "chee") translates as the vital energy found in nature and all living things. *Gong* translates as work or cultivation. Thus, Qigong literally translates as the cultivation of the vital energy of life. Cohen (1977) defines Qigong as "the art and science of refining and cultivating internal energy."

Qigong is based on the energy meridian system of TCM. This tradition identifies 18 energy meridians in the human body. Through these energy meridians flow the vital life energy, or qi. Qi has two important characteristics, quality and flow. According to TCM, illness is a result of stagnant, blocked, or impure qi. The state of health and well-being is achieved by clean, clear qi flowing without restriction through the body. The practice of Qigong cleanses the qi and improves the flow of qi throughout one's body, thereby resulting in an improved health state.

The practice of Qigong blends gentle body movements with breathing and the practice of quieting the mind. Defining the exact practice is challenging because thousands of Qigong forms or variations exist (Cohen, 1997; Yang, 1997). These range from forms that were created thousands of years ago and have been handed down through families to forms that have been recently developed by current Qigong masters. One simple categorization separates Qigong into internal versus external Qigong. Internal Qigong is practiced by the individual to cleanse and stimulate the flow of one's qi. The individual learns the technique from a Qigong teacher, but can then practice on his or her own. In contrast, external Qigong is applied to a person by a Qigong master. The purpose of external Qigong is for the Qigong master to emit his or her qi to the patient in an effort to unblock and cleanse the patient's qi.

Another way to classify Qigong practices is as active and passive. Active Qigong incorporates physical movements and postures with breathing techniques and meditation to cleanse and restore qi. Passive Qigong omits the physical movements and uses only the breathing techniques with meditation to purify and restore qi.

Historical records indicate that Qigong has been practiced for thousands of years. Its origins trace back to China and the animal dances of Chinese shamans (Garripoli, 1999). The forms of Qigong that exist today are based on these ritual dances. Qigong has had several different names throughout Chinese history, including *xing qi*, moving the qi; *yang sheng*, nourishing the forces of life; and *dao-yin*, leading and guiding the energy (Cohen, 1997). The term *Qigong* came into usage in the 20th century (Cohen, 1997).

Evidence that supports the use of Qigong as a healing art dates back to the sixth century. Since this time, Qigong has been viewed with great esteem and practiced by Chinese from all socioeconomic groups. During the first half of the 20th century, the Chinese government established institutes and educational facilities to further

develop and refine the medical uses of this therapeutic approach. During the Cultural Revolution, however, the Chinese government considered Qigong a type of folk medicine. Its practice was officially prohibited and interest in it was discouraged. Following the Cultural Revolution, the practice enjoyed a renaissance, with the government again supporting research and study of Qigong. Current estimates indicate that millions of Chinese practice Qigong regularly (Sancier, 1996; Yang, 1997). Estimates of the use of Qigong in the United States are not known.

USES OF QIGONG

The traditional uses of Qigong focus on promoting a balanced state of health and longevity. The current uses of Qigong remain true to the traditional uses of the art. By practicing Qigong, one cleanses one's qi and improves its flow through the body, thereby restoring or enhancing one's state of well-being. Although Qigong practitioners in the United States may or may not embrace the Chinese framework, many do use the practice to enhance wellness. The Western view is more likely to explain the health-enhancing benefits of Qigong through the mechanisms of relaxation, stress reduction, and immune system enhancement (Chan, 1987; Koh, 1982). In addition to the general health and wellness benefits, specific forms of Qigong are thought to be better suited to the treatment of specific diseases or conditions. A Qigong form is an established series of movements known to Qigong practitioners by a specific name. For example, Jade Body Qigong focuses on conditioning the spine, whereas Squash (*Hu Lu Gong*) Qigong is practiced to strengthen and maintain the immune system (K. Ivy, personal communication, December 1, 2002). In China, Qigong is prescribed as a primary and adjunct therapy for many conditions just as medications are commonly prescribed for a variety of conditions in the United States. Table 1 lists several of the more common Qigong forms practiced in the United States and their respective therapeutic uses.

SCIENTIFIC INVESTIGATIONS OF QIGONG

Eastern medicine has traditionally supported the mind-body connection. Western medicine has more recently recognized this

TABLE 1
Forms of Medical Qigong

<i>Qigong Form</i>	<i>Therapeutic Use or Target Site</i>	<i>Internal (I) or External (E)</i>	<i>Active (A) or Passive (P)</i>
Jade Woman, Liu Dong method	Female hormonal cycles; menopausal symptoms; blood, liver, and lung function; lymphatic system	I	A
Jade Body, Liu Dong method	Spine, heart, and kidney function; lymphatic system	I	A
Squash (Hu Lu Gong), traditional	Immune system	I	A
Soaring Crane, Zhao Jin-Xiang	Cancer; blood; organ system; musculoskeletal system	I	A
Jade Leaves, Liu Dong method	Eyes/eye disease	I	A
Spiritual Turtle, Liu Dong method	Kidney disease and arthritis	I	A
One Thousand Hands Buddha, Liu Dong method	Stress reduction and memory improvement	I	A/P
The Eight Treasures, traditional	Musculoskeletal system	I	A
Six Sound Therapy, traditional	Healing the six emotions	I	A
Microcosmic Orbit Meditation, traditional	Qi circulation	I	P
Inner Smile Meditation, Mantak Chia	Organ function	I	P
Hun Yuan Gong, Feng Zhi Chen	Musculoskeletal; qi, and blood circulation; core strength	I	A
Fa Song Gong, Feng Zhi Chen	Relaxation; joints, qi, and blood circulation	I	A
Five Animal Frolic, traditional	Musculoskeletal; cardiac and organ function; blood and qi circulation	I	A

(continued)

TABLE 1 (continued)

<i>Qigong Form</i>	<i>Therapeutic Use or Target Site</i>	<i>Internal (I) or External (E)</i>	<i>Active (A) or Passive (P)</i>
Wild Goose, traditional	Musculoskeletal; organ function; mental function	I	A
Sleeping Buddha, traditional	Insomnia	I	A/P
Essence, Chen, Fu Yin	Organ function; relaxation; qi and blood circulation	I	A
Bodhisattva, Liu Dong method	Breast cancer; lymphatic system	I	A
18 Luohan, Bodhidharma (Buddhist monk, 527 AD)	Musculoskeletal; organ, brain, and cardiac function; blood circulation	I	A
Meridian Longevity, Wang, Xui Zhang	Musculoskeletal; organ function; qi and blood circulation	I	A
K'ai Men, unknown	Musculoskeletal	I	A
Qi needle therapy, traditional	Dissolving qi blocks	E	P
6 Steps for Projecting Qi, traditional	Dissolving qi blocks and restoring energy function	E	A
Tibetan Llama Qigong, ancient	Dissolving qi blocks and restoring energy function	E/I	A
Balancing the Heart, modern, Chinese Ministry of Health	Heart and kidney function	I	A
Self-massage techniques, various	Blood and qi circulation	I	A

SOURCE: Kim Ivy, owner and certified Qigong instructor, Embrace the Moon School for Taijiquan and Qigong, Seattle, Washington; Web site: <http://www.embrace.themoon.com>.

connection and its potential in the treatment of health conditions. Biomedical research offers a growing body of evidence supporting the connection between the mind and the body (Cassileth, 1999; Farrell, Marr Ross, & Sehgal, 1999; Luskin et al., 2000; Shang, 2001). Several holistic approaches to treating and managing diseases and conditions are becoming more widely accepted as research documents their

effectiveness (Adams, Gatchel, & Gentry, 2001; Cassileth, 1999; Farrell et al., 1999; Shang, 2001). The empirical literature on the health and wellness outcomes of Qigong on human subjects is inconclusive but shows promising results (Astin et al., 2003; Iwao, Kajiyama, Mori, & Oogaki, 1999; Jones, 2001; M. S. Lee, Choi, & Chung, 2003; M.S. Lee et al., 2001; Reuther & Aldridge, 1998; Tsang, Cheung, & Lak, 2002; Tsujiuchi et al., 2002).

Much of the scientific research conducted on Qigong has been done in China in the past 25 years. Results of these studies have been reported only at conferences or in Chinese-language journals. Recently, Qigong research has been reported in English-language journals. To review these studies, Medline, CINAHL, and the Combined Cochrane Database were searched using the terms "Qigong," "qi gong," "chi gung," and "chi kung." The reference list of each article was then reviewed to identify other articles. A total of 71 articles were identified and retrieved.

Of the 71 articles identified by the search, only 10 described studies that examined the health and quality-of-life effects of Qigong for chronic conditions that commonly affect older adults. The remaining 61 articles were omitted from this review for the following reasons: Five articles were anecdotal reports of the effect of Qigong, one article had only an English abstract, six focused on various methods of measuring emitted qi energy, 23 were informational or review articles without report of data on outcomes, and 26 articles discussed the physiological effects of qi without direct application to health and wellness outcomes. Table 2 summarizes the 10 articles included in this review.

Qigong has been studied with regard to its effect on chronic pain. Two studies of human participants involving external and internal Qigong found evidence of Qigong's modulatory effect on pain. Wu et al. (1999) examined the effectiveness of Qigong in a randomized, controlled trial involving complex regional pain syndrome-1 (CRPS-1) patients. Three males and 19 females with a mean age of 38.5 years participated in the study. The intervention involved external qi emitted from a qi master plus group instruction of an internal Qigong form by a qi master. Participants were requested to practice the internal Qigong form at home. The control group received external qi and Qigong instruction from a sham master. Outcome measurements were taken at Weeks 1, 2, 3, 6, and 10. Physiological outcomes

(text continues on page 363)

TABLE 2
Summary of Studies on the Therapeutic Effects of Qigong

Reference	Study Purpose	Study Design and Sample	Results	Comments
Agishi (1998)	Effect of external Qigong therapy as treatment for LE arteriosclerotic obstruction.	Observational study with convenience sample, $N = 37$ (20 males, 17 females); mean age = 68 years. Intervention: external Qigong therapy. Outcome measures: lower extremity (LE) surface temperature, pulse amplitude, and blood flow.	Increased LE surface temperature noted in 90% of measurements. Increased pulse amplitude noted in 76% of measurements. Increased blood flow rate in 89% of measurements.	Lacked control group; sample recruitment not described; variability in application of intervention to participants; qualifications of Qigong therapists not mentioned.
Astin et al. (2003)	Explore short- and long-term benefits of an intervention combining mindfulness meditation (MM) and Qigong for fibromyalgia (FM).	Randomized controlled trial (RCT); sample recruited from community and local physicians, $N = 128$; mean age = 48; 8-week intervention with 6-month follow-up period. Intervention: MM + Qigong group; control: educational Qigong group; control: educational support group. Outcome measures: Beck Depression Inventory (BDI), Fibromyalgia Impact Questionnaire (FMIQ), Medical Outcomes Study Short Form-36 (MOS SF-36) Pain subscale, 6-minute walk, total Myalgia score.	With exception of the timed walk test, both groups showed significant improvement on outcome variables across time; no significant between-group differences noted on any outcome variables. BDI ($F_{3, 186} = 17.0, p < .001$); FMIQ subscale ($F_{3, 189} = 15.0, p < .001$); MOS SF-36 Pain Myalgia score ($F_{3, 156} = 4.7, p = .004$).	High attrition rate; unable to determine the effect of Qigong alone in the intervention group; short intervention period.

Iwao, Kajiyama, Mori, & Oogaki (1999)	Effects of Qigong walking on patients with diabetes mellitus (DM).	Observational study with convenience sample of hospital inpatients, $N = 10$ (5 males, 5 females); age range = 54-72 years, median age = 61. Intervention: Qigong walking after lunch on Days 1 and 3; control: conventional walking after lunch on Days 1 and 3; no exercise on Day 2. Outcome measures: plasma glucose levels and pulse rates.	Mean plasma glucose levels after walking were significantly lower in conventional group compared with the no-exercise group ($p < .01$) and in the Qigong group compared with the no-exercise group ($p < .01$). Other outcome measure results n.s.	Underpowered; short intervention time (3 days); did not control for complications of DM.
Kuang et al. (1986)	Long-term effectiveness of Qigong in treatment of hypertension (HTN) and stroke.	18 to 22-year follow-up of clinical trial; $N = 244$, 100% male; mean age = 46 years. Intervention: medication + Qigong; control: medication. Outcome measures—blood pressure (BP), urinalysis (UA), blood urea nitrogen (BUN), serum cholesterol, HTN classification, complications, cause of death, medications, Qigong practice, electrocardiogram (ECG).	91.7% response rate; incidence of stroke negatively correlated with consistent Qigong practice (bias-regression coefficient -0.18307); Qigong group showed significant reductions in total mortality ($\chi^2 = 30.6477, p < .001$), mortality due to HTN complications ($\chi^2 = 14.8411, p < .01$), mortality due to stroke ($\chi^2 = 9.232, p < .05$), and morbidity due to stroke ($\chi^2 = 32.8125, p < .01$).	Male-only cohort; control data from study by Shen et al. (1982; as cited in Kuang, 1986).
M. S. Lee et al. (2001)	Effects of qi therapy on pain reduction and mood improvement in elderly patients with chronic pain.	RCT; sample recruited from community senior center in Korea, $N = 40$, 80% female; mean age = 72 years. Intervention: external qi therapy delivered by certified qi therapist; control: standard care. Outcome measures: Profile of Mood States (POMS), Korean version, and Visual Analog Pain Scale (VAPS).	Significant reduction in pain intensity (Time \times Group effect, $F_{2, 76} = 9.379, p < .0001$) and significant improvement in positive mood state (Time \times Group effect, $F_{2, 76} = 21.29, p < .0001$) among Qigong group. Other outcome measure results n.s.	Short intervention period; no long-term follow-up.

(continued)

TABLE 2 (continued)

Reference	Study Purpose	Study Design and Sample	Results	Comments
M. S. Lee, Jeong, Oh, Ryu, & Chung (1998)	Effects of Qigong on psychological adjustments.	Cross-sectional design; controls recruited from qi training seminar, qi trainees recruited from Korean <i>ChunDoSunBup</i> (CDSB) training centers, $n = 41$ control, $n = 123$ qi trainees divided into 3 groups by length of qi training; mean age = 21 years. Outcome measures: Symptom Check List-90-Revised (SCL-90-R).	Pearson's correlation coefficients between length of qi training and SCL-90-R subscales: Somatization ($-.3657$, $p < .01$), Obsessive-Compulsive ($-.2778$, $p < .01$), Interpersonal Sensitivity ($-.3015$, $p < .01$), Depression ($-.2966$, $p < .01$), Anxiety ($-.2797$, $p < .01$), Hostility ($-.2635$, $p < .01$), paranoid ideation ($-.2807$, $p < .01$), Psychoticism ($-.2848$, $p < .01$), Global Severity Index ($-.3602$, $p < .01$), Positive Symptom Total ($-.3654$, $p < .01$), Positive Symptom Distress Index ($-.2177$, $p < .05$).	CDSB Qigong used. Study evaluated the effect of different time periods of qi training on emotional distress. In all SCL-90-R subscales except Phobic Anxiety, significant correlations found between time of Qigong training and SCL-90-R dimensions.
Tsang, Cheung, & Lak (2002)	Describe model of causative factors of depression in elderly chronically ill; establish basis for use of Qigong as an intervention for depressed chronically ill elders.	12-week pilot study; sample $N = 8$; mean age = 68; participants received Qigong instruction.	6 participants (75%) reported improved psychosocial functioning after 12 weeks.	No control group or long-term follow up; established basis for larger RCT (see Tsang, Mok, Au Yeung, & Chan, et al. 2003).

Tsang, Mok, Au Yeung, & Chan (2003)	Determine effect of Qigong on biopsychosocial health of chronically ill elders.	12-week RCT; sample recruited from geriatric day hospital and a home for elders, $N = 50$ (26 males, 24 females); mean age = 74.5 years. Intervention: standard rehab care + internal Qigong instruction; control: standard rehab care. Outcome measures: Geriatric Depression Scale (GDS), Perceived Benefits Questionnaire (PBQ), Adult Source of Self-Esteem Inventory (ASSEI) Self-Concept scale, Hong Kong version of World Health Organization Quality of Life: Abbreviated Version (WHOQOL-BREF[HK]).	Significant results reported for the Qigong group on the PBQ subscales: Physical Health ($t_{21} = 7.34, p < .001$), Activities of Daily Living (ADL) ($t_{21} = 6.89, p < .001$), Psychological Health ($t_{21} = 9.22, p < .001$), Social Relationship ($t_{21} = 4.95, p < .001$), General Health ($t_{21} = 6.65, p < .001$); GDS ANOVA n.s. ($F_{2,39} = 2.032, p = .145$); ASSEI subscales ANOVA, all results n.s.: Personal Quality $p = .549$, Family Relationship $p = .359$, Social Relationship $p = .881$, Daily Tasks $p = .782$, Leisure $p = .749$, Material $p = .792$, Physical Well-Being $p = .276$, Others $p = .740$. WHOQOL subscales ANOVA, all results n.s.: General Health $p = .269$, Social Relationship $p = .807$, Physical Health $p = .012$, Psychological $p = .909$, Environment $p = .735$.	Chinese study population; culturally relevant intervention; no long-term follow-up; small sample size; brief intervention period.
Tsujuchi et al. (2002)	Effects of Qigong exercises on type 2 DM.	RCT with paired groups matched on age and sex; control group received delayed treatment; $N = 36$. Intervention: standard DM treatment + internal Qigong therapy; control: standard DM treatment; mean ages: intervention = 65 years, control = 59 years. Outcome measures: glycosylated hemoglobin (HbA1c), C-peptide, Anxiety Index, Mood Inventory.	Significant improvement in HbA1c levels between initial Qigong group and control group using ANCOVA, ($p < .01$); significant improvement in HbA1c levels by delayed treatment group using one-way ANOVA ($F = 7.26, p < .005$). Combined Qigong data showed significant improvement in C-peptide levels using paired t test ($p < .05$)	Intervention and sample selection not well described; limited description of outcome measures & results.

(continued)

TABLE 2 (continued)

Reference	Study Purpose	Study Design and Sample	Results	Comments
Wu et al. (1999)	Effects of qi therapy on complex regional pain syndrome-1 (CRPS-1).	RCT; participants recruited from the pain management center of a U.S. medical school; N = 22 (3 males, 19 females); mean age = 38.5 years. Intervention: internal/external qi; control: sham master; evaluations at 1, 2, 3, 6, and 10 weeks. Outcome measures: thermography, visual signs, range of motion (ROM), VAPS, medication usage, Sickness Impact Profile (SIP), BDI, Cognitive-Somatic Anxiety questionnaire (CSA).	Pain intensity ANOVA, group effect n.s. ($F_{1,16} < 1$), session effect n.s. ($F_{3,48} < 1$); Group \times Session n.s. ($F_{3,14} = 2.6$); Visual signs: ANOVA, group effect n.s. ($F_{1,14} < 1$), session effect not reported, Group \times Session effect n.s. ($F_{3,42} < 1$); ROM t test n.s. ($t_{14} < 1$); thermography t test n.s. ($t_{15} < 1$); SIP ANOVA, group effect n.s. ($F_{1,16} = 1.43$), session effect n.s. ($F_{3,48} < 1$), Group \times Session n.s. ($F_{3,48} = 1.52$); BDI ANOVA, group effect n.s. ($F_{1,14} = 2.33$), session effect ($F_{3,42} = 5.23, p < .01$); CSA ANOVA, group effect n.s. ($F_{1,14} < 1$), session effect ($F_{3,42} = 5.55, p < .01$), Group (Qigong) \times Session ($F_{3,42} = 6.23, p < .01$).	Participants, regardless of group, reported less depression and anxiety over time, with the Qigong group reporting a greater reduction in anxiety than control group. Study was underpowered; Qigong may require longer treatment time; disease process may have mitigated results.

NOTE: n.s. = nonsignificant.

included visual signs of CRPS-1 (e.g., swelling, mottling, dystoria, and dystrophy), range of motion and skin surface temperature of the affected limb, and pain intensity before and after Qigong. Behavioral outcomes measured were frequency of pain awakening during sleep and illness behavior. Depression, anxiety, and pain medication usage also were assessed. Although the findings of the long-term effects of Qigong on pain intensity were not significant, a significant short-term reduction in pain intensity was noted. Also, a significantly higher percentage of the Qigong group reported pain relief at the end of the first and final Qigong sessions. Along with the reduction in short-term pain intensity, both groups showed a reduction in anxiety, with the Qigong group showing significant reduction. Weaknesses of this study include a small sample size and a complicated disease process. The disease process itself may have weakened the results of the study.

M. S. Lee and colleagues (2001) studied the use of external Qigong to reduce chronic pain and enhance mood in elderly participants. Forty Korean elders (mean age = 72 years) were randomly assigned to receive external Qigong or standard care. The groups did not differ significantly with regard to age, education, family composition, economic level, perceived health state, or level of pain. The intervention consisted of twice-weekly external Qigong sessions from a certified qi therapist for 2 weeks for a total of four sessions. The control group received their usual care for the same 2-week time period. Outcome measures were pain intensity and mood. Study results showed significant increases in the vigor and activity, friendliness, and total positive mood scores and significant decreases in the tension and anxiety, depression, and confusion scores for the Qigong group as compared with the control group scores. Although these results are promising, the study intervention was brief (four sessions) and no long-term follow-up was included.

In a National Institutes of Health-funded study conducted through the University of Maryland's Complementary Medicine Program, Astin and colleagues (2003) compared the effectiveness of an 8-week intervention combining mindfulness meditation plus Qigong with an educational support group for individuals with fibromyalgia (FM). The design included a 6-month follow-up period. The sample of 128 randomized participants were predominantly non-Hispanic White women with a mean age of 48 years. Outcome measures were the Beck Depression Inventory, Medical Outcomes Study Short Form-36 (MOS SF-36) Pain subscale, FM Impact Questionnaire, 6-minute timed walk, and total myalgic score. Both groups exhibited significant improvement

over time in all outcome variables except the timed walk. Neither group showed improvement in this outcome measure. No significant between-group differences were reported, indicating equal effectiveness of the strategies. Limitations of this randomized, controlled trial included a high dropout rate (49%) and the inability to separate the effects of Qigong from the effects of the mindfulness meditation component of the intervention. The results of these three studies suggest that Qigong may be effective in the management of chronic pain—a significant problem for older adults. The limitations underscore the need for more research in this area.

Two studies evaluated the effect of Qigong on blood glucose control in people with diabetes mellitus. In the study by Iwao et al. (1999), a convenience sample of 10 participants was studied over 3 days. The intervention group practiced a type of Qigong walking and the control group performed conventional walking after lunch for 30 to 40 minutes on two of the three study days. Blood glucose levels and pulse rates were monitored 30 minutes after lunch and again 20 minutes after exercising. These data were compared to the data obtained on a day with no exercise after lunch. Results showed that blood glucose levels decreased in both exercise groups and decreased as compared to the group with no exercise. Pulse rates increased in the conventional walking group as compared to the no-walking group and the Qigong walking group. The brief intervention, short study duration, and small sample size weaken the generalizability of the study. Also, the study did not control for the impact of the diabetic complications.

In a randomized control study with pairs matched on age and sex, Tsujiuchi et al. (2002) investigated the impact of internal Qigong on the glycosylated hemoglobin (HbA1c) control in persons with type 2 diabetes. The 36 participants (mean age = 62 years) received standard diabetic care or standard diabetic care plus weekly 2-hour group Qigong instruction by a Chinese Qigong doctor. The participants receiving the Qigong instruction were requested to practice Qigong at home. HbA1c and C-peptide levels were measured by standard lab tests. Anxiety and mood scores were measured by the Mood Inventory. Findings showed significant improvement in the HbA1c and C-peptide levels in the Qigong group. Although the matched pair randomized control trial was a strong design, the reporting of the results was weakened by the poorly described intervention and limited description of the outcome measures and study results.

The effects of external Qigong on the symptoms of arteriosclerotic obstruction in the lower extremities was examined by Agishi (1998). In an observational study, 37 participants—20 males and 17 females—received external Qigong from Qigong therapists. The external Qigong was applied once a week for 20 to 30 minutes per session. Each participant received 1 to 8 sessions for a total of 97 sessions for the 37 participants. The outcomes measured were lower extremity surface temperature, pulse amplitude, and blood flow. Almost 90% of the participants showed improvement in regional surface temperature, 75.6% showed improvement in regional pulse amplitude, and 88.9% showed improvement in regional blood flow. Weaknesses of the study include the lack of a control group and the variability in the application of the intervention to participants. No mention was made of the qualifications of the Qigong therapists.

In a follow-up study, Kuang and colleagues (1986) reported on the long-term effects of internal Qigong in male hypertensive patients. The intervention consisted of internal Qigong in addition to each participant's routine hypertensive medications. The control group received medication only. Two hundred forty-four patients treated at the Shanghai Hypertensive Institute were contacted 18 to 22 years after initial treatment and assessed for risk factors of hypertension and incidence of stroke. The response rate was 91.7%. Data from another study were used as control group data. The study found that the incidence of stroke negatively correlated with consistent Qigong practice. The Qigong group showed significant reduction in total mortality, mortality due to complications of hypertension, mortality due to stroke, and morbidity due to stroke. The study sample consisted of middle-aged adult men only (mean age = 46 years). No generalizations can be made to women or older adults. The lack of an initially defined and corresponding control group further weakens the study results.

Three studies investigated the effects of Qigong on psychological health of older adults. Lee and colleagues (M. S. Lee, Jeong, Oh, Ryu, & Chung, 1998; M. S. Lee, Kang, et al., 1998) at Wonkwang University in Korea used a cross-sectional design with 41 participants in the control group and a total of 123 participants in the intervention group. The intervention group was further divided into three groups based on length of Qigong practice. Members of the first Qigong group had received *ChunDoSunBup* Qigong training for 1 to 4 months; members of the second group for 5 to 12 months, and members of the third group

for more than 13 months. The Symptom Check List-90-Revision (SCL-90-R), which is a self-report inventory of emotional distress, was the outcome measure. The SCL-90-R includes subscales of Somatization, Obsessive-Compulsive, Interpersonal Sensitivity, Depression, Anxiety, Hostility, Phobic Anxiety, Paranoid Ideation, and Psychoticism. Global scores from the questionnaire include a Global Severity Index, positive symptom total, and Positive Symptom Distress Index. The study found a significant correlation between the length of Qigong training and all subscales of the SCL-90-R except Phobic Anxiety. The data suggest that extended Qigong training may help reduce symptoms of emotional distress and maintain these reductions over time.

In an article describing a model of the causative factors of depression in chronically ill elders, Tsang et al. (2002) elucidated a theory for the use of Qigong as a therapeutic intervention in this population. The authors proposed that culturally compatible activities may be effective in treating depression among older adults (i.e., Qigong with Chinese elders). The article also reported the results of a pilot study using Qigong as a treatment for depressed, chronically ill Chinese elders. Although conclusions cannot be made from pilot study data, the results were promising. A subsequent randomized clinical trial, described below, was conducted.

A randomized clinical trial of 50 chronically ill, elderly Chinese studied the effect of *The Eight Section Brocades* Qigong on mood, quality of life, and self-concept (Tsang, Mok, Au Yeung, & Chan, 2003). The convenience sample was recruited from a geriatric day hospital and a home for elders in Hong Kong. The chronic conditions represented in the sample were cardiovascular accident (CVA), chronic obstructive pulmonary disease (COPD), Parkinson's disease, rheumatoid arthritis, and other nonspecified chronic medical conditions. Participants were randomly assigned to the control or intervention group for the 12-week study. Control group participants (mean age = 73) received standard rehabilitation activities. Intervention group participants (mean age = 76) received twice weekly, hour-long Qigong sessions from a qualified practitioner in addition to the standard rehabilitation activities. Participants in the intervention group were also asked to practice Qigong daily for a minimum of 30 minutes. Chinese versions of The Geriatric Depression Scale, the abbreviated version of the World Health Organization Quality of Life Questionnaire, the Adult Source of Self-Esteem Inventory (ASSEI) Self-Concept scale, and the Perceived Benefits Questionnaire (PBQ) were the outcome measures used. All have adequate

psychometric properties, as reported by the study authors. The PBQ, designed specifically for this study, included questions on physical health, activities of daily living, psychological health, social relationships, and general health. Significant results were obtained on the PBQ only. The intervention group reported improvements in all areas at the end of the 12 weeks. Although the randomization was successful and the outcome measures appropriate, this study was limited by a small sample, a lack of follow-up, and a brief intervention period. The results suggest only a belief in the effectiveness of Qigong by the participants.

Two studies deserve mention although they did not target older adults. One investigated the use of Qigong as a complementary therapy for adult patients with bronchial asthma (Reuther & Aldridge, 1998). The study showed that Qigong decreased peak-flow variability, medication use, hospitalization rate, sick leave, and antibiotic use. A study of the effects of Qigong on the detoxification process of heroin addicts indicated that Qigong was effective in decreasing the intensity and rate of withdrawal symptoms (Li, Chen, & Mo, 2002). The study also reported an increased rate of morphine clearance in the group practicing Qigong.

Although the results of the studies reviewed are provocative, it is not clear what long-term health effects these results have. Qigong may be a useful adjuvant intervention in the management of chronic pain (Astin et al., 2003; M. S. Lee et al., 2001; Wu et al., 1999). Symptoms of emotional distress and depression may be mitigated by this practice (M. S. Lee, Jeong, et al., 1998; Tsang et al., 2002, 2003). Increased blood flow to the lower extremities may help prevent peripheral arterial disease (Agishi, 1998). Qigong walking may help control blood glucose in diabetics with compromised cardiovascular systems (Iwao et al., 1999). Decreases in blood glucose and HbA1c levels after a brief period of Qigong practice may indicate longer term effects (Tsujiuchi et al., 2002). The effect of Qigong on patients with asthma suggests that Qigong may be beneficial in the treatment of COPD (Reuther & Aldridge, 1998), however, to date no study has examined the effect of Qigong on COPD. The use of Qigong in the treatment of heroin addicts (Li et al., 2002) may be transferable to the treatment of alcoholism, which is a problem among older adults.

Although many salutary effects of Qigong have been identified in the literature, studies in this review suffer from limitations in study design. Limitation include small sample sizes, lack of randomization, and limited follow-up. Furthermore, methods to control for

confounding variables were not clearly articulated, leading to concerns about the effects of other factors on the study results. Most of the studies used convenience samples, which leads to concerns about sample bias. The placebo effect is also a factor that is difficult to control in studies of complementary therapies.

The studies in this review provide limited evidence regarding the effects of Qigong in older adults. In only four studies were the mean ages of the samples 65 years or older. Five studies included older adults, but none of the studies allowed one to examine different age cohorts within the elderly, that is, young-old, mid-old, and old-old. Of these studies, only one had a large enough sample that the investigators could separate analyses by age; however, these results were not reported.

POSSIBLE RISKS OR ADVERSE EFFECTS

Although Qigong generally is considered to be safe (Jahnke, 2002; Johnson, 2000; Tang, 1994), some unwanted physical and psychological effects have been reported. Adverse physiological effects, such as headaches, dizziness, nausea, and difficulty breathing, have been noted in individuals who practice Qigong too long or too intensely (Cohen, 1997; Ng, 1999; Xu, 1994). Unfortunately, the incidence or prevalence of these effects cannot be estimated because the populations were not well defined or the examples were limited to case studies.

Qigong-induced mental disorder (QIMD) is a recognized diagnosis in both the Chinese and American classification system of mental disorders (Ng, 1999). Qigong-related psychosis is well documented in the Chinese literature but remains poorly documented in English journals. This condition includes sensory, motor, and psychic disturbances. Sensory symptoms may include nervousness, insomnia, numbness, parasthesias, breathlessness, and tachycardia. Motor manifestations include spontaneous movement, spasmodic twitching, tremors, and coldness in the extremities. Psychic disturbances may include auditory and visual hallucinations, spirit possession, and mental confusion accompanied by weakness, mutism, amnesia, and aphonia. The lack of scientific data on the effect of Qigong on mental health makes quantifying this effect difficult. The number of cases of QIMD is increasing (S. Lee, 2000; Ng, 1999), but this may be due to an increase in the acceptance and visibility of Qigong. No

statistics were found to support this conclusion. S. Lee (2000) notes that symptoms similar to those noted for Qigong-induced mental disorders are described much less frequently in the meditative practices of other cultures. This observation suggests that QIMD may be specific to the Chinese culture and may seldom be encountered by Western clinicians. Excessive practice, practicing in a distracting environment, or concentrating too intensely may bring on these adverse physiological or psychiatric effects (Cohen, 1997; Ng, 1999).

To prevent or minimize potential adverse effects, authors emphasize that individuals study with a knowledgeable master or teacher. Furthermore, students need to take care to follow a progression of practice that begins with mastering the basics. Finally, students need to exercise moderation in practice (Cohen, 1997; Ng, 1999; Sancier, 1996; Tang, 1994).

FUTURE DIRECTIONS FOR RESEARCH

The effectiveness of Qigong as a therapeutic intervention remains unclear, in large part due to the lack of well-designed, randomized control trials. The lack of standardization of Qigong forms among teachers and across the country presents a challenge to the rigorous study of this healing art. Variability in the form of Qigong used and the length and frequency of the practice also need to be considered in study design. To document the effectiveness of Qigong in promoting health and achieving specific health-related outcomes, researchers need to design and implement randomized clinical trials that control for possible confounding variables such as age, comorbid conditions, medications, and concurrent treatments. Studies need to include longer intervention and follow-up periods, because behavioral interventions require more time to show effects. The potentially adverse effects of Qigong warrant further investigation. Likewise, the application of Qigong as a therapeutic modality in the Western biomedical system of disease classification and diagnosis needs to be investigated. The beneficial effects described in the literature may be lost without adequate cultural translations of health, healing, and the process of disease. Another important issue to consider is how to accurately measure the effect of Qigong. Designing better outcome measures will help answer not only the primary question of whether Qigong works, but also the subsequent question of *how* Qigong works.

IMPLICATIONS FOR NURSING PRACTICE

The current literature on Qigong suggests that Qigong may be a promising therapeutic intervention for chronic conditions found in older adults, such as carotid artery disease, hypertension, peripheral vascular disease, chronic pain, COPD, and poor kidney function (see Table 1). The research is encouraging with regard to the health-enhancing benefits of this complementary therapy in the psychosocial, emotional, and spiritual domains. Adverse effects appear to be minimal. Nurses may safely recommend the practice of Qigong to older adults with the exception of those suffering from certain psychological conditions, namely, schizophrenia and related thought disorders. Persons with schizophrenia and related thought disorders may be susceptible to QIMD. More research is needed to determine whether QIMD is culture dependent.

CONCLUSION

As the use of complementary therapies grows in the United States, nurses need to become knowledgeable of the strengths and limitations of the array of complementary and alternative medicine therapies available to guide clients in the use of these modalities. As advocates, nurses need to understand the issues facing their patients. As healers, nurses need to avail themselves of the effective and appropriate interventions to promote healing.

Qigong merits a closer look by nursing as a holistic health promotion and therapeutic intervention for older adults. Qigong acknowledges and works with the mind-body connection. The research completed to date implies some beneficial health and quality-of-life effects germane to older adults. Qigong does not require special equipment or facilities, making it a low-cost intervention. The gentle, flowing movements, which can be practiced sitting or standing, are suitable for older adults at any level of frailty or fitness.

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