

Review of Studies of Healing Touch

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Purpose: To review studies of healing touch and its implications for practice and research.

Design: A review of the literature from published works, abstracts from conference proceedings, theses, and dissertations was conducted to synthesize information on healing touch. Works available until June 2003 were referenced.

Methods: The studies were categorized by target of interventions and outcomes were evaluated.

Findings and Conclusions: Over 30 studies have been conducted with healing touch as the independent variable. Although no generalizable results were found, a foundation exists for further research to test its benefits.

JOURNAL OF NURSING SCHOLARSHIP, 2004; 36:2, 147-154. ©2004 SIGMA THETA TAU INTERNATIONAL.

[Key words: healing touch, biofield therapy, energy therapy, alternative healing, complementary and alternative medicine (CAM)]

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Healing touch (HT) is a nursing therapeutic that is considered a complementary therapy (Dossey, Keegan, & Guzzetta, 2000). HT is a biofield or energy-based therapy included under the designation complementary and alternative health care and medical practices (CAM) by the National Health Center for Complementary & Alternative Medicine of the National Institutes of Health. Along with the Kreiger-Kunz Method of Therapeutic Touch® (TT), such practices are becoming more prevalent as confirmed by Eisenberg and colleagues (1998), who found that from 1990 to 1997 the use of energy healing had increased among the population surveyed.

Although TT has been systematically analyzed in two meta-analyses (Peters, 1999; Winstead-Fry & Kijek, 1999) an overall analysis of HT research has not been conducted. The lack of analysis for HT is due in part to the relative newness of this technique, the clinical emphasis of the program, and the lack of detailed findings in many of the studies to date.

HT began in the early 1980s as a nursing continuing education program. In 1989 the American Holistic Nurses Association (AHNA) offered it as a continuing education program, and in 1996 it was an endorsed program for AHNA through Healing Touch International, Inc. The principle of the work is that the body is a complex energy system that can be affected by another to promote well being (Mentgen, 2002). It includes the use of intention and the placement of hands in specific sequences either above or on the body. HT is taught as a multilevel program with a 1-year mentorship that leads to certification. The increased use of HT in health care has been largely accomplished by the enthusiasm of its practitioners and patients' responses. In the United States

alone over 75,000 people have taken at least the first-level course, and it is also taught in countries around the world (Anselme, 2003). Practitioners use this technique in such diverse areas as outpatient pain centers, private practices, and operating rooms.

The purpose of this review was to evaluate findings of studies of HT as a basis for facilitating directions in research and clinical practice. This review included reports on quantitative research. It did not include qualitative research, case studies, or patient satisfaction evaluations. An important element in reviewing this information was to include non-significant statistical findings. The field of energy research does not readily lend itself to traditional scientific analysis because paradoxical findings often co-exist (Engebretson & Wardell, 2002).

Methods

The information for this analysis was obtained from publications in peer-reviewed journals, the research survey compiled by Healing Touch International, Inc., HT newsletters, theses, dissertations, and textbooks with reports of relevant research, and electronic data bases. This review was limited by the sources of data in that bias may have occurred in the

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Accepted for publication October 24, 2003.

presentation of the findings, and other studies may not have been available. Full studies were usually not available to the authors, and incomplete reporting and lack of consistency was often found in the summary documents. This fact is reflected in the brevity of some of the following analyses and lack of comment on quality and robustness. Also missing in many summaries was information about practitioner expertise, a variable that may influence outcomes (Wilkinson et al., 2002), and a standard treatment approach was often not used. Because nearly 30 distinct HT interventions are used, analysis of different techniques was not possible.

Findings

Findings are categorized by problem or study area, including pain, cancer, endocrine and immune system, cardiovascular, elderly, mental health, and other. A brief description of the studies is provided, followed by a summary of the category as a whole. The Table shows a summary of the findings.

Pain

Pain is one condition for which alternative therapies have wide general acceptance in both the general community and traditional health care settings (Astin, 1998). Small sample sizes, varied questionnaire usage, and differing pain conditions limit pain studies in HT. Findings vary within and between studies. Nine studies including chronic pain, orthopedic pain, and other pain syndromes were reviewed.

Chronic pain. Darbonne (1997) conducted a quasi-experimental study with 18 chronic pain patients in a clinic setting, using a visual analog scale (VAS) and Chronic Pain Experience Instrument (CPEI) scores before and after four HT sessions. A repeated measures ANOVA of the VAS scores showed significance ($p < .005$), and a one-tailed t test on the CPEI showed significance ($p < .01$). Tukey's HSD indicated a significant pairwise difference before and after all four HT sessions ($p < .01$). In addition to reduced pain, patients reported increased relaxation and a better overall perspective toward everyday life.

In a retrospective descriptive study of chronic pain of at least 1 year duration and of mixed etiology, Wardell (2000) studied the response to a specific HT technique, trauma release, in seminar participants no sooner than 1 month after the treatment. Ten of the 12 participants provided responses to the query. Four reported absence of pain, two reported decrease in pain, two said pain initially decreased and then returned, and two reported no change. No one reported an increase in pain.

Slater (1996) studied the effects of HT on chronic non-malignant abdominal pain using a quasiexperimental design and interviews. The McGill-Melzack Pain Questionnaire was used with 23 participants experiencing lingering postoperative abdominal pain for 4 months to 9 or more years. Each participant received a placebo treatment by a naïve healer trained in HT interventions by video-

tape, and treatment by an experienced healer. Participants reported a decrease in pain ($p < .0001$) in both the naïve and experienced healer groups. Recipients' responses indicated relaxation, some pain relief, with the most dramatic and long-lasting pain relief occurring after treatment by the experienced providers (Benor, 2001). An interesting finding was that the naïve healers experienced physical discomfort by doing the sessions.

In a descriptive study of five participants with fibromyalgia, Diener (2001) found varied responses to HT treatments. Preintervention pain ratings on a scale of 0-9 showed 4 of 5 participants with an average of 5.2 to 5.7 and the 5th with a 3.4. Postintervention ratings ranged from 1.2 to 5.5. One participant reported that the treatments helped reduce overall pain, decrease stress, and eliminate headaches with an effect of 4 to 5 days. One participant reported relaxation, spiritual uplifting, and being more mobile. Another reported great reduction in pain, feeling more socially open, improved mental clarity, improved posture, and a return of her sense of humor. Two participants did not report any changes in pain, but one of these did report improvement in her shoulder and sleeping.

Orthopedic pain. Cordes, Proffitt, and Roth (2002), in a study of 48 postoperative participants with total knee replacements, used a single-blind, three-group design including control, mock treatment (MT), and HT treatment groups. They found no changes in pain on a 1 to 10 scale or in medication usage. Goniometer reading showed a 30.6% average increase in joint mobility with HT and 27.0% with MT compared to the control.

Weymouth and Sandberg-Lewis (2000) conducted an experimental pilot study with 20 participants to compare the efficacy of HT with chiropractic treatment for chronic low-back pain. Participants received either eight HT treatments or chiropractic adjustments. Measurements of pain, range of motion, orthopedic tests, and quality of life were taken 2 weeks before and after the treatments. Both groups were equivalent in these four measurements. T -test analysis showed HT and chiropractic resulted in significantly ($p = .05$) decreased pain, improved range of motion, and improved orthopedic measurements. The chiropractic group reported more improvement in quality of life ($p < .005$) than did the HT group. The researchers could not account for this finding, but they said it may have occurred because the groups were not equivalent in number of years in pain and physical demands of their jobs—the HT group had higher scores in both categories. Future studies should include controls for these differences.

Other pain. Merritt and Randall studied cancer pain (2002) in 18 participants receiving 143 sessions in HT, HT with reflexology, massage, acupuncture, Reiki, or meditation. A subjective pain scale of 0-10 before (4.14) and after treatment (2.16) showed a 48% reduction in pain in 33 sessions in which participants received HT and practiced reflexology. A clear indication of the efficacy of HT was not possible because of the multiple modalities used.

Table. Summary of Studies of Healing Touch

Author (Date)	Design	Area	Control	N	Measurement	Significance
Pain						
Cordes et al. (2002)	RT	Total knee replacements	Sham healer	48	Goniometer, pain scale	30.6% increase in mobility; no pain difference
Darbonne (1997)	P	Chronic pain	No	18	Chronic Experience Instrument, VAS	$p < .005$
Diener (2001)	P	Fibromyalgia	No	5	Pain scale	Decrease in pain from 5.2-5.7 to 1.2-5.5
Merritt et al. (2002)	P	Cancer pain	Multiple groups	18	Pain scale	48% reduction in pain with HT and reflexology
Protzman (1999)	P	In and out-patient HT practice	No	280	Pain scale(1-10)	4 point decrease in pain
Slater (1996)	E, Q	Chronic post-surgery pain	Sham healer	23	McGill-Melzack Pain Question	$p < .0001$ decrease in pain
Wardell (2000)	S, Q	Chronic pain	No	10	Survey	Absence of pain (n=4)
Welcher et al. (2001)	P	Pain syndromes	No	138	Pain scale(1-10)	Decrease in pain, $p = .00$; $M = 5.94$ to $M = 3.64$; $SD = 2.36$
Weymouth et al. (2000)	E	Chronic low back	Chiropractic	18	Pain, orthopedic tests, quality of life	$p = .05$ decrease in pain, improved range of motion and orthopedic measurements
Cancer						
Guerrero et al. (2001)	RT	GYN/breast cancer	Sham healer	62	VAS, functional status	<i>ns</i> for fatigue, positive gain in mood
Post-White et al. (2003)	RT	Chemotherapy	Massage, Presence	164	BP, pain, mood, fatigue	$p < .01$ decreased BP; $p < .001$ decreased pain; $p < .01$ improved mood; $p < .05$ improved fatigue
Ziembroski et al. (2003)	RT	Hospice	Standard care	55	Missoula VITAS	<i>ns</i> : interpersonal well-being, function
Immune						
Wheeler-Robbins (1999)	P	HIV disease	Wait-list	27	Well-being, serum serotonin, DHEA, cortisol	<i>ns</i> on any measure; self-report of stress reduction and spiritual growth
Wilkinson (1998)	Q & P	Healthy	No	13	Interview	Relaxation
Wilkinson (2002)	E	HIV disease	Crossover	15	slgA	27% positive response, change over time
Wilkinson et al. (2002)	E	Healthy	Standard HT, HT and music	22	Scale stress (1-10), qualitative, slgA	$p < .001$ stress reduction, relaxation, 55% pain reduction, $p = .014$ slgA decrease
Cardiovascular						
Arom and MacIntyre (2002)	RT	Coronary bypass	Standard	174	Surgery time, pump time, length of stay, arterial fibrillation, blood transfusion, nausea	Decreased hospitalization
Krucoff et al. (2001)	RT	Pre-angioplasty	Prayer, relaxation, HT, control	150	Adverse periprocedural outcomes	25%-30% reduction of adverse outcome
McAdams (1996)	E	Critically ill	Presence	25	Oxygenation variables	Clinically <i>ns</i>
Elderly						
Gehlhaart & Dial (2000)	P	Long-term care	No	22	Pain, VAS of tension, worry, happiness, nervousness	$p = .000$ for all
Ostuni & Pietro (2001)	Pilot	Alzheimer's disease	Standard care	5	Functional Behavioral Profile	$p = .02$; (5 out of 10) behavioral areas improved
Ostuni & Pietro (2001)	E	Alzheimer's	Standard care	12	Functional Behavioral Profile	$p = .046$; 10 behavioral areas improved; $p = .024$ composure scale
Peck et al. (2001)	P and Q	Elders and persons with chronic disease	No	14	Pain, functional ability	Improvement and pain reduction
Wang & Hermann (1999)	P	Dementia	No	14	Cohen-Mansfield Agitation Inventory	$p < .05$ decrease in agitation levels
Mental Health						
Bradway (1998)	E	Moderate-severe depression	Standard care	30	Beck Depression Inventory	Significantly less depression after 1 month
Guevara et al. (2002)	P	PTSD in abused women	No	35	Speilberger's State Trait Anxiety Scale, Impact of Events Scale	$p < .01$ decrease in PTSD symptom score
Rexilius et al. (2002)	E, Q	Caregivers	Massage, HT, standard care	36	Beck, CESDS, Subjective Burden Scale	<i>ns</i> for anxiety, depression, subjective burden, fatigue
Taylor (2001)	RT	Undergraduate nursing students	Music	51	Lazarus Coping Scale	1st yr student (<i>ns</i>); 3rd yr $p = .05$ less transient and chronic stress, coped by putting more effort
Postoperative Recovery						
Silva (1996)	E	Abdominal hysterectomy	Massage standard	60	BP & P; amount of medication; lung, GI, urinary, & motor function	$p < .05$ on lung, GI, motor function, BP, pulse; decreased use of pain med
Theoretical						
Stouffer et al. (1999)	P	Carbonated beverages	No	50	Subjective	Chakras closed
Stouffer et al. (2003)	P	Electrical resistance	No	6 trials	Electrodermal	Changes in electrical resistance at 40 points
Pediatrics						
Verret (2000)	P	Chronic spasticity	No	3	Oximeter, Ashworth Scale, goniometer, HELP Strands	Described weight gain, increased ROM, decreased spasticity, and improved skills

Note: Types of design: S=survey, P=pre-post-test, E=experimental, Q=qualitative, RT=randomized trial, *ns*=nonsignificant, VAS=Visual Analog Scale.

Welcher and Kish (2001) studied 138 inpatients with varying pain syndromes before and after a single HT session. They reported a change in pre- to posttreatment pain from 5.94 ($SD=2.72$) to a mean of 3.64 ($SD=2.36$) on a scale of 1-10 ($p=.000$). The mean level of anxiety significantly decreased ($p=.00$) from pretreatment (6.84, $SD=2.62$) to after treatment (3.30, $SD=2.14$).

In a 1999 report to the Joint Commission for Accreditation of Hospitals, Protzman found a 4-point decrease in perceived pain on a 10-point rating scale in inpatient and outpatients who received 280 HT treatments. Relaxation was also reported; many times patients were asleep.

Summary of pain studies. In spite of the varied quality of these studies, the overall outcomes indicate encouraging results for the use of HT for pain management. Of these nine studies, seven indicated decreased pain, one no change, and one a decrease when paired with reflexology. The studies of chronic pain show that HT might have beneficial results, a finding that is important because chronic pain is such a major challenge to successful treatment.

Cancer

Funded programs for offering HT to women undergoing treatment for breast cancer are ongoing in Hawaii, New York, and Colorado. One current NIH-funded study is focused on use of HT as supportive therapy for women with stage IV cervical cancer at the University of Iowa. The studies discussed here do not include those related to cancer pain, which was covered in the previous section.

Guerrero, Slater, and Cook (2001) studied 62 women receiving radiation therapy for gynecological or breast cancer. Participants were randomized to six sessions of either a mock treatment (control group) or noncontact HT. Participants were physically screened to blind them to treatment group. Assessment data included: fatigue indicated on a VAS before and after the session, functional status, emotional well-being, radiation doses, fatigue-inducing medications, and laboratory values. Comparison of mean VAS scores before and after the sessions showed a larger but nonsignificant reduction in fatigue in the HT group than in the control group. The HT group had statistically significant gains in overall mood, physical functioning, pain reduction, and vitality compared to the control group. A report of these findings is in press (Cook, Guerrero, & Slater, in press).

Post-White and colleagues (2003) measured the effects of massage therapy (MT) and HT on pain, nausea, fatigue, and anxiety of chemotherapy patients in comparison to caring presence (CP) or standard cancer treatment alone. A randomized prospective, two-period-crossover intervention study was conducted with 164 participants. All participants received four 45-minute weekly sessions. The order of sessions (intervention or control) was randomized. Results showed significant immediate and overall effects for both MT and HT. CP showed weak significance in reducing fatigue in comparison to control ($p=.058$). Both MT and HT were associated with reduced blood pressure and heart rate in comparison to CP ($p<.01$) and significantly re-

duced level of pain in comparison to CP ($p<.001$). MT and HT were related to reduced mood disturbance ($p<.01$) but not to anxiety during the intervention periods. Fatigue was less in the HT period ($p<.05$). No significant immediate or overall effects on nausea were found, but some participants commented that the HT or MT helped reduce their nausea or use of anti-emetics. Participants rated both interventions highly regarding overall helpfulness and satisfaction.

Hospice. Ziembroski, Gilbert, Bossarte, and Goldberg (2003) used two HT techniques to determine their effects on the quality of life people at the end stage of life. In this experimental design, 55 participants were randomized into standard care ($n=26$) and HT groups ($n=29$). Outcomes monitored during the study were quality of life, physical symptoms, and spiritual meaning measured with the Missoula Vitas instrument. No significant differences were found between those who had received standard care and those who received the HT sessions.

Summary of cancer studies. In these studies of cancer patients, both significant and nonsignificant findings have been reported. Even in the absence of significant results in outcomes studied, HT recipients often reported subjective benefits, including improved mood, well-being, and interpersonal relationships; reduction in pain, blood pressure, and fatigue; increase in vitality; and satisfaction with the treatments. Thus, HT might be a comfort measure for patients undergoing cancer treatment and end-of-life care.

Endocrine-Immune-HIV

This area of research is limited by few studies having varied foci. The use of biological and physiological markers in some studies provides a nonsubjective outcome measure and is an area currently under investigation by other researchers. Other biological markers will likely be found as a basis for an expanded exploratory model beyond the stress model.

Healthy people. Wilkinson's (1998) master's thesis with 13 participants provided the foundation for further studies using biological markers. In this preliminary work, participants received two HT treatments, followed by telephone interviews 2 to 3 months later. All except one person reported positive changes on posttreatment questionnaires or follow-up. The positive changes included relaxation, physical touch, and energy exchange. In a later study with a repeated measures design, Wilkinson and colleagues (2002) randomized 22 participants to no treatment, standard HT, and HT plus music (HT+). Outcome measures were secretory immunoglobulin (sIgA) and self-reports of stress, perceptions of health enhancement, and qualitative questionnaires. The results indicated a significant interaction effect of the treatment stage and the practitioner training level ($p<.021$) with a nearly four times average positive change for those participants with the more highly trained practitioner. Stress rating (on a scale of 1-10) indicated a significant reduction after treatment for both HT and HT+ ($p<.000$). Pain relief was reported by 55% of respondents. In the qualitative analysis, relaxation was the most frequent theme.

Merritt (2002) evaluated the response of diabetics with biofeedback monitoring and fingerstick blood tests before and after a 15-minute intervention of HT, massage, and reflexology. Participants could select from any or all modalities. In the HT group, 77% of the participants had increased skin temperature with an average of 4.8°F. Average blood sugar decreased by 38 points. No statistical analysis was reported; and information was reported in percentages with no indication of the number of participants in each category. No discussion of the methods, sample, or findings was provided.

In a doctoral dissertation by Wheeler-Robins (1999) 27 men with AIDS received weekly HT sessions for 4 weeks. No significant results were found in well being, serum serotonin, salivary DHEA, or cortisol, nor was improved immune function indicated. Participants reported that they experienced stress reduction and spiritual growth.

In another study with 15 HIV-positive participants, Wilkinson (2002) investigated the clinical effectiveness of HT for increasing sIgA in saliva and quality of life (QOL). A quasi-experimental repeated-measures design was used, with all participants enrolled in two no-treatment control conditions before a series of four HT treatment conditions over 1 to 2 months. The Healthcare Practices and Beliefs Scale, an instrument designed to indicate a "placebo" score or measure of beliefs and conditioning affecting health outcomes, was pilot tested. Twenty-seven percent met the criteria for positive response, one on the sIgA measure and three on QOL as measured by the Functional Assessment of HIV Infections (FAHI). All positive responders were HIV symptomatic and showed evidence of change over the treatment series, compared to change over a single HT treatment. HT could not be isolated as solely responsible for the positive changes.

Summary of endocrine-immune-HIV studies. Participants reported stress and anxiety reduction, pain relief, and spiritual growth, findings that are consistent with other studies. Reports indicated only weak findings related to endocrine values and HIV disease. Longer treatment phases and extended follow-up might be useful; Targ (1999) found significant improvements among the HIV group only at the follow-up phase several weeks after the treatment.

Cardiovascular

Only one completed study and two ongoing studies were found about the effects of HT on cardiovascular factors. The studies are preliminary.

Krucoff and colleagues (2001) conducted a pilot study called the measurement and actualization of noetic training (MANTRA) study. This randomized, controlled study was focused on the association of healing interventions before angioplasty and complication rates. The 150 patients were randomly assigned to receive either prayer from prayer groups around the world, relaxation training with phrase concentration, guided imagery, a modified chakra connection (HT), or usual care (control group). A 25% to 30% reduction was found in adverse procedural outcomes in

those treated with any noetic therapy. Adverse events and mortality at 6 months were lowest in the off-site prayer group. High anxiety patients with noetic therapies had a 33% to 100% lower incidence of all adverse outcomes during hospitalization than did highly anxious patients in the standard therapy group. An additional multicenter study is being concluded to determine if outcome indicators are reliable.

An ongoing study by Arom and MacIntyre (2002) on the effects of HT on coronary artery bypass surgery patients is a randomized, controlled trial of approximately 400 patients undergoing coronary artery bypass. Preliminary results with 174 participants indicate trends toward better outcomes for HT patients in the areas of surgery time, pump time, length of stay, number of grafts performed, postoperative arterial fibrillation, postoperative blood transfusion, and antiemetic use.

McAdams (1996) used a cross-over design to examine the effects of HT in comparison to presence (CP) in 25 critically ill patients in a medical intensive care unit. Cardiovascular variables (heart rate, systolic blood pressure, diastolic blood pressure, and mean arterial blood pressure) and oxygenation variables (pH, CO₂, PO₂ and HCO₃) were collected before and after both HT and CP. Participants received interventions in a randomly ordered sequence. Findings indicated the average mean and standard deviations for diastolic blood pressure for the group who received HT first was significantly higher ($M=70.7$, $SD=11.24$) compared to the group who received CP first ($M=63.3$, $SD=11.63$). No other significant main or interaction effects were found for the cardiovascular variables. Descriptive data indicated a tendency for the cardiovascular outcomes to show the greatest decrease for the intervention of HT compared to CP. In the oxygenation variables of arterial blood gases (pH, CO₂, PO₂ and HCO₃) analysis revealed an interaction effect on pH of group and time ($p=.009$). Although statistically significant differences in pH were found, the differences were not clinically significant.

Summary of cardiovascular studies. Most measurements in these studies showed trends toward better outcomes but the findings were not robust. More exploration of presence is needed; all HT practitioners practice caring presence, but not all who do so practice HT. Studies such as the MANTRA study can help indicate the value and efficacy of noetic interventions.

Elderly

Five studies have been conducted with elderly people, including a variety of methods and locations. The results of these studies might provide some insight into how older adults might benefit from HT, but these studies were limited by small sample size and pilot data.

Gehlhaart and Dail (2000) conducted their work in a long-term care setting with 12 volunteers trained to do HT. The HT group had 22 participants with a median age of 81.9 years ($SD=11.3$). The study was conducted over 6 months with an average of 6.4 sessions per person.

Pre- and postassessment was done on pain with a VAS scale of 0-10 in color; self-report of tension, worry, happiness, and nervousness on a 4-point scale for each emotion; and pulse and respiration. All were significant in ANOVA analysis ($p < .000$). A significant therapist effect ($p < .01$) was found on level of posttreatment pain; however, when the therapist effect was eliminated, the significant difference between pre- and posttreatment pain remained.

A pilot study involving biweekly HT sessions for 5 weeks with five nursing home residents with Alzheimer's disease was conducted by Ostuni and Peitro, 2001. Participants were evaluated biweekly by nursing home staff on a 10-item Functional Behavior Profile. Each resident deteriorated in at least one behavior (average of 2.8), but each person had also improved in at least five behavioral areas (average of 6.2; $p = .02$). Twelve additional participants were then selected and assigned to treatment or control based on approximate stage of progress of the illness. Results indicated significant improvement ($p = .046$) in behavior scores in all 10 behavioral items for the HT group (appetite, sleep, freedom from pain, orientation, compliance with daily routine, socialization, emotional stability, nonverbal responses, conversational communication, and freedom from jargon). No improvement was found in the control group, whose behavior scores declined. The composure scores (freedom from agitation, extreme restlessness, catastrophic outbursts) improved significantly ($p = .024$) as did physical comfort (freedom from complaints; $p = .005$) for the HT group but not for the control group.

Peck, Wypyzynski, and Hauser (2001) conducted a descriptive study using a purposive sample of 14 patients to determine outcomes of HT treatments in an agency for elders. Participants received an average of nine HT sessions. Participants, staff nurses, and the HT practitioner were interviewed. All patients noted pain relief and most had improved functional ability. The cost of services was estimated at \$200-\$300 per patient. After the treatments were abruptly discontinued by the agency, some of the patients noted severe exacerbation of pain, decreased functional ability, sleep disturbance, and change in emotional status.

Wang and Hermann (1999) investigated the use of HT on agitation levels in 14 participants with dementia at a Veteran's Administration Medical Center. The HT treatment was given three times a week for 4 weeks (12 sessions) with two techniques designed to induce relaxation. The results on the Cohen-Mansfield Agitation Inventory indicated that the HT group showed a significant decrease in agitation levels ($p < .05$). Psychotropic medication use decreased and the participants verbalized the calming effects of HT.

Summary of studies of older adults. Outcomes from these four studies with elderly people, independent of diagnosis, were positive. Physical status such as pain, appetite, and sleep were enhanced; behavioral markers such as worry, outbursts, and restlessness were decreased; and behaviors that make staff jobs easier, such as compliance with daily routine,

decreased medications, and increased functional ability, all support use of HT for this population.

Mental Health

This area of practice has not been well researched. Four studies were preliminary in nature and they showed a variety of outcomes. Adequate conclusions cannot be drawn because of the small sample sizes, inadequate controls, and potential study biases.

In a quasi-experimental study, Bradway (1998) evaluated depression in 30 participants with moderate to severe depression. Participants were evenly divided into the HT group to receive biweekly sessions for 3 weeks, or a standard treatment group. The HT group had significantly less depression than did the standard group as measured with the Beck Depression Inventory, and 1 month later they continued to be less depressed than they were at the beginning of the study.

Guervara, Mendias, and Silva (2002) designed a protocol for decreasing posttraumatic stress syndrome (PTSD) for abused women living in Mexico. Thirty-five women with PTSD received 10 HT sessions and completed Spielberger's State-Trait Anxiety Scale and the Horowitz Impact of Events Scale before and after sessions at three intervals. The results indicated that PTSD symptom scores were statistically decreased ($p < .01$) at all three measurement intervals. Clinical personnel and participants were all receptive to HT.

In a study by Rexilius, Mundt, Megel, and Agrawal (2002) HT and massage therapy (MT) were used for caregivers of patients undergoing stem-cell transplants. Thirty-six caregivers, 13 in the control group, 13 in the MT group, and 10 in the HT group received biweekly treatments for 3 weeks. The control group received usual care with a 10-minute supportive visit. Data from the Beck Anxiety Inventory, the Center for Epidemiologic Studies Depression Scale, the Subjective Burden Scale, and the Multidimensional Fatigue Inventory showed statistical significance only for MT in anxiety scores, depression, and fatigue. The fatigue scores in the HT group increased. The poststudy survey of 9 of the 10 participants in the HT group indicated that most reported a time for self-focus and decreased worry; two reported a decrease in pain symptoms. The authors' discussion included recognition of the limitations of the small sample size, non-randomization, unequal numbers of men and women, and changes in caregiving expectations at the hospital in the middle of the study.

Taylor (2001), using mixed methods, reviewed the effect of providing HT to 51 undergraduate students. Participants were randomly assigned to the experimental or control group. The experimental group received one HT session with music weekly for 4 weeks, and the control group listened to music. Pre- and posttest measures included Lazarus Coping Scale, Rosenberg's Self Esteem Scale, and Goldberg's General Health Questionnaire, along with a semi-structured interview. HT had no effect on the coping ability, self-esteem, and general health of 1st-year students, but significant effects were found for the 3rd-year students who reported less transient stress ($p = .05$), less chronic stress ($p = .05$), and

copied by putting more effort ($p=.05$) than among those in the control group. The qualitative findings showed that all participants in the HT group found the experience positive and reported feeling relaxed, more open-minded, and better able to study and think; and they noticed positive changes in sleeping patterns and being in less hurry.

Summary of mental health studies. Although these reports were generally positive, they were too limited in internal and external validity to permit robust conclusions. The preliminary work into PTSD showed promise and should be explored further. The question of HT as an intervention in mental health care has had only exploratory study.

Other

This section indicates the diverse ways HT has been used and how data are gathered to test results. It includes areas in which only one or two studies have been conducted, including the categories of postoperative recovery, theoretical foundations, and pediatrics.

Postoperative recovery. Silva (1996) examined the use of touch (HT) on recovery from abdominal hysterectomy. The 60 participants were randomly assigned to one of three groups: HT, back massage, or no treatment. The outcome measures were the amount of narcotic analgesic self-administered postoperatively, the frequency of bowel-program treatments, and use of medications. Variables evaluated before and after treatment were blood pressure, pulse rate, and respiratory rate; and lung, gastrointestinal, urinary, and motor function. The analysis of variance for repeated measures and analysis of covariance indicated that the HT participants had a significantly higher level of recovery than did the two control groups on lung, gastrointestinal, and activity status ($p<.05$). Reductions in systolic and diastolic blood pressures and pulse rate were statistically significant for the HT group ($p<0.05$). Narcotic analgesia and bowel treatments were less for the HT patients than that of back massage and control.

Theoretical foundations. Stouffer, Kaiser, and Stouffer (1999) studied the effect of carbonated beverages on two (sacral and solar plexus) of the seven chakras in the human body. The two tested chakras were open prior to ingestion in all 50 participants. After consuming a beverage with regular sweetening the chakras for 33.3% of the participants remained open but became blocked for 33.3% or closed for 33.3%. For those who consumed aspartame, no chakras remained open; all were either blocked (33.3%) or closed (66.3%). The suggested mechanism of action is that carbon dioxide is a waste product and that menthol in aspartame decomposes into formaldehyde. The study is not generalizable because of lack of reliability data between investigators and the subjectivity of the measuring device (pendulum assessment).

In another study Stouffer, Kaiser, Pitman, and Rolf (2003) reported readings before, during, and after a bioenergy intervention (HT and other techniques) (HT+T). HT+T treatments showed changes in the electrical resistance at acupuncture points in the hands and feet. Six trials were

conducted to test this hypothesis, including two control tests and four tests with HT+T. Three of the intervention tests were designed to differentiate emotional and relaxation effects from the effect of the bioenergy intervention. Readings before, during, and after the treatment showed changes in electrical resistance (measured at 40 points). The authors concluded that electrodermal testing by an experienced operator could be used to measure the effect of a bioenergy intervention.

Pediatrics. Verret (2000) reported case studies with quantitative and qualitative measurements to explore the use of HT for three 6-7-year-old children with chronic spasticity. Instruments included a pulse oximeter for monitoring heart rate and oxygen saturation, modified Ashworth Scale for grading spasticity, goniometer for measuring range of motion (ROM), and the Hawaii Early Learning Profile (HELP) Strands for Preschooler for assessing gross motor skills. Additional information was obtained by gross motor skill evaluation, reports of daily living activities, reports from the mothers, and participants' height and weight. The intervention consisted of five 30-minute HT sessions weekly. One participant had a weight gain of 2 pounds, increased ROM, decreased muscle tone, and improvement in three gross motor skill subcategories of reflexes and reactions, catching and throwing, and bilateral play. The second participant gained 2.5 pounds, had increased ROM, and improved in three skill subcategories of balance and standing, walking and running, and jumping. The third participant had behavioral change with an increased ROM and improved jumping. Mothers' comments were that they observed dissipation in tremors; more self-confidence, willingness to explore environment, light-heartedness, and tolerance; less impulsivity; and improved interpersonal relationships. Findings showed positive benefits of HT in health, psychomotor behavior, cognitive functioning, and affective qualities of the 3 participants.

Summary of other studies. This grouping includes a variety of approaches and problem areas. Overall, studies reported positive outcomes (except for fatigue scores in one), but reports of statistical analysis were lacking. The study of electrical resistance might indicate a useful approach to evaluate responses to energy-based interventions.

Discussion

Although many positive results of HT have been reported, none of the findings were conclusive. Many studies were difficult to evaluate accurately, particularly those submitted to the HTI research program, because they lacked vital information, leading to problems with both internal and external validity. As Weymouth and colleagues (2000) noted in an assessment of HT research through August 2000, only 6 of 28 studies surveyed met the criteria for quality research. The reviewer cannot determine whether studies were poorly designed, poorly conducted, or simply poorly reported. One conclusion is that the guidelines for research and reporting are important.

In spite of these limitations, studies indicated results in reducing stress, anxiety, and pain; accelerated healing; some improvement in biochemical and physiological markers; and a greater sense of well-being. Participants generally reported improved quality of life physically, emotionally, relationally, and spiritually. If these results continue to be found, another result might be reduced medical costs for fewer pharmaceuticals, hospital stays, and clinic time. HT might also be another treatment option for nurses to provide safe, noninvasive care to promote healing. Practitioners are encouraged to carry out new research and to replicate existing research to test these potential effects.

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