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Therapeutic Touch and Agitation in Individuals With Alzheimer's Disease

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Limited effective strategies exist to alleviate or treat disruptive behaviors in people with Alzheimer's disease. Fifty-one residents of a long-term care facility with Alzheimer's disease were randomly assigned to one of three intervention groups. A multiple time series, blinded, experimental design was used to compare the effectiveness of therapeutic touch, simulated therapeutic touch, and usual care on disruptive behavior. Three forms of disruptive behavior comprised the dependent variables: physical aggression, physical nonaggression, and verbal agitation. Physical nonaggressive behaviors decreased significantly in those residents who received therapeutic touch compared with those who received the simulated version and the usual care. No significant differences in physically aggressive and verbally agitated behaviors were observed across the three study groups. The study provided preliminary evidence for the potential for therapeutic touch in dealing with agitated behaviors by people with dementia. Researchers and practitioners must consider a broad array of strategies to deal with these behaviors.

Keywords: *therapeutic touch; Alzheimer's disease; nonpharmacological interventions; complementary therapies*

Alzheimer's disease is the most common form of dementia in older people in North America. Estimates indicate that up to 4 million Americans, comprising about 3% of people between 65 and 74 years of age and nearly

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50% of those 85 years of age and older, may have Alzheimer's disease (Miech et al., 2002; National Institute on Aging, 2003). A broad range of symptoms accompany dementia. Among the most frequent and persistent behavioral symptoms are physical and verbal disruptive behaviors, such as wandering, chanting, verbal outbursts, and violence (Hope, Keene, Fairburn, Jacoby, & McShane, 1999). It is estimated that between 40% and 90% of residents in nursing homes manifest these behaviors (Brodaty et al., 2001; Davis, 1997; Gruber-Baldini, Boustani, Sloane, & Zimmerman, 2004; Kovach & Schlidt, 2001). The behaviors can be disruptive to other patients, family members, and staff. They can contribute to falls, functional decline, social isolation, and the use of physical and chemical restraints (Beck et al., 2002). Knowledge of the effective strategies to alleviate or treat these behaviors is limited and is not consistently effective with the same person or with the same type of behavior. A variety of approaches, such as music, massage, exercise, aromatherapy, gardening, pet therapy, and modifying the environment, have been explored with varying success (Cohen-Mansfield, 2005). An intervention that is not frequently considered as an alternative to decrease the behaviors and yet maintain the quality of life of the individual is therapeutic touch (TT).

TT Research

TT is based on several ancient healing practices, including the laying on of hands. It was developed by Kunz and Krieger as an intervention to be used by nurses and other health care professionals (Krieger, 1993). Underlying TT is the assumption that symmetrically balanced energy fields provide the environment for optimal physical, emotional, and spiritual health. An energy imbalance is seen as a symptom of illness. TT is an intervention that identifies and corrects the energy imbalances by the practitioners' passing their hands several inches above the patient's body. The practice is based on "the conscious use of the hands to direct or modulate, for therapeutic purposes, selected nonphysical human energies that activate the physical body" (Krieger, 1993, pp. 3-4).

TT practitioners can become certified at a basic, intermediate, or advanced level. The Therapeutic Touch and Healing certification program involves at least 100 hours of education, including workshops, seminars, supervised practice, written exams, and skills testing. Students learn about the energy system of the body, meditation, intuitive development, the procedure of TT, energy techniques for working with the chakra (energy center) system and the spine, and energy techniques for working with individuals with lung disease and cancer.

TT has been widely studied as an intervention for a variety of clinical situations, such as anxiety reduction, pain relief, wound healing, immune system changes, and blood pressure lowering (Fraser & Ross Kerr, 1993; Gordon, Merenstein, D'Amico, & Hudgens, 1998; Lafrenier et al., 1999; Olson et al., 1997; Peters, 1999; Turner, Clark, Gauthier, & Williams, 1998; Wirth, 1995). The research, however, has been consistently criticized as having poor study designs, biased reporting of results, inadequate double blinding, and inconsistent findings (O'Mathuna, 2000; O'Mathuna, Pryjmachuk, Spencer, Stanwick, & Matthiesen, 2002; Peters, 1999; Winstead-Fry & Kijek, 1999).

Numerous nursing studies have examined the behavioral and physiological effects of touch on older persons and the residents of nursing homes. Various forms of touching have been investigated, such as massage, slow stroking, or holding of hands (Edvardsson, Sandman, & Rasmussen, 2003; Fraser & Ross Kerr, 1993; Kim & Buschmann, 1999; Rowe & Alfred, 1999). Most of these studies indicate positive effects on the resident.

TT does not necessarily involve physically touching the person; therefore, its effects are not influenced by the nature of touch. Only a small number of studies have examined the effects of TT on the agitated behaviors displayed by people who have Alzheimer's disease (Griffin & Vitro, 1998; Snyder, Egan, & Burns, 1995; Woods, Craven, & Whitney, 1996; Woods et al., 2000). Anecdotal accounts of the application of TT on residents with Alzheimer's disease were recorded by Griffin and Vitro (1998). Trained TT staff performed TT on residents in the facility. Physical responses observed in the residents included relaxation, unclenching of fists, ceasing of rocking motions, and relaxed facial tension. The staff members expressed feelings of well-being and calm after they administered a treatment. The authors concluded that TT was beneficial for the residents and the staff.

Woods et al. (1996) examined the effects of TT on nursing home residents with Alzheimer's disease who had the behavioral symptom of agitation. In a double-blind study, 57 residents on a special care unit were randomly assigned to one of three interventions: (a) TT, (b) a mimic TT, and (c) no treatment. TT was conducted twice daily for 5–7 minutes for 3 days. The researchers found that, compared with the control group, the group receiving TT displayed a significant decrease in vocalization behavior after the intervention.

Woods and Dimond (2002) examined the effect of TT on the agitated behavior of 10 residents with Alzheimer's disease. This within-participant, interrupted time series study involved four phases: baseline; treatment with contact TT for 5–7 minutes twice per day for 3 days; posttreatment; and post-washout. There was a significant decrease in overall disruptive behaviors and, specifically, in two of the behaviors—pacing-wandering and vocalization.

Another study compared the effectiveness of hand massage, TT, and physical presence on the agitation, relaxation, and anxious behaviors of 17 special care unit residents with dementia (Snyder et al., 1995). A 45-day experimental crossover design was used, with participants each serving as their own control. Five days of observation separated the changeover of interventions. The participants received TT once per day for 10 days, received hand massage once per day for 10 days, and were in the physical presence of someone for 5 days (control group). The interventions were administered for 10 minutes each day. The TT procedure involved touching the patient's back, holding the patient's hand, and conducting unruffling (one of the phases of TT application). For the control group, the researcher spent 10 minutes each day speaking and briefly touching the resident. There was a significantly greater level of relaxation from pre- to postintervention for both the TT and hand massage groups. There was no significant decrease in the frequency of agitation behaviors.

Only a small number of studies have examined the feasibility of TT for alleviating agitation displayed by residents with dementia. Limitations of sample size, lack of control of confounding variables, varying definitions of agitated behaviors, no blinding of study participants or staff, and application of different forms of TT affect drawing conclusions about TT as an effective strategy. The purpose of this study was to improve on the limitations of previous studies by (a) conducting a randomized experimental study comparing the effects of TT with a simulated TT group and a control group; (b) controlling for confounding variables by inclusion criteria and statistical analysis; (c) using a standardized and commonly utilized definition of agitation; and (d) blinding of staff, research assistants, participants, and volunteers.

Research Questions

Is there a difference in the effect of TT on the agitation behavior of older residents with Alzheimer's disease compared with those who receive a simulated TT and another group of residents who receive usual care?

If TT has an effect on agitation behavior, how long is the duration of the effect?

Method

A randomized, multiple time series, three-group experimental design was used to compare the frequency of three forms of disruptive behavior

(physical aggression, physical nonaggression, and verbal agitation) in three groups of participants who received (a) TT once per day for 5 days ($n = 17$), (b) simulated TT treatment once per day for 5 days ($n = 16$), and (c) usual care for 5 days ($n = 18$). The residents who were eligible and who agreed to participate in the study were randomly assigned to one of the three study groups. The participants and their legal designate, the staff, the volunteers administering the simulated TT, and the research assistants were blinded to the group assignment. Only the investigators and the TT practitioners who were administering TT to the TT group were aware of the group assignment.

Sample

Sample participants consisted of permanent residents from the personal care and special needs units of one long-term care facility. These units comprised the most stable of the facility's population and included older residents with similar needs. The inclusion criteria included a diagnosis of senile dementia of the Alzheimer type, a score of 23 or less on the Mini-Mental State Examination (MMSE), age of 65 or older, reports by the resident's nurse of consistent agitated behavior during the past month or a history of agitated behavior, residence on the current unit for at least 2 months, and the absence of an acute illness at the time of the study. A sample size of 20 participants per group ($N = 60$) was needed to obtain at least a medium-sized effect at 80% power between the TT group and the other groups. Written consent for participation was obtained from the person legally responsible for any decision making on the resident's behalf—a family member, friend, or the public trustee. The volunteer or practitioner asked the resident for verbal consent before applying the intervention. If the resident refused, the volunteer or practitioner then did not proceed with the intervention. Ethical approval was obtained to ensure that no coercion of participants occurred and that confidentiality and anonymity were maintained.

Procedures

A pretest or baseline measurement of the participants' characteristics was obtained, including such information as type and frequency of agitation displayed, extent of cognitive impairment, health information, and demographic data. Measurement of the resident's agitation was taken (a) 2 hours after each treatment, (b) 24 hours after the final treatment, (c) 1 week after the final treatment, and (d) 2 weeks after the final treatment.

Instruments and Measures

Cohen-Mansfield Agitation Inventory (CMAI). Agitation was measured using the CMAI (Cohen-Mansfield, Marx, & Rosenthal, 1989). Cohen-Mansfield defines agitation as "inappropriate verbal, vocal or motor activity that is not explained by needs or confusion of the agitated individual" (Cohen-Mansfield & Billig, 1986, p. 712). This definition encompasses a range of behaviors, such as repetitive acts (pacing or repetition of words), behaviors inappropriate to the social norms (going into someone else's room, taking off one's clothes in public), and aggressive behaviors (hitting, pinching, slapping). The CMAI consists of 29 agitated behaviors frequently identified in people with cognitive impairment. The long version consists of a 7-point Likert-type scale (from 1 = *never* to 7 = *several times an hour*) that records the frequency of each of the agitated behaviors over the past 2 weeks and the extent of their disruptiveness. The behaviors are categorized into three subscales: (a) physically aggressive, (b) physically nonaggressive, and (c) verbal agitation. Internal consistency using Cronbach's alpha has ranged from .74, when observations are made during the day, to .82, when behaviors are observed in the evening (Miller, Snowdon, & Vaughan, 1995). Interrater reliability (Pearson's correlation coefficient) was .82 (Cohen-Mansfield, Werner, & Marx, 1992). The 7-point scale was reduced by Goddaer and Abraham (1994) to 0 (*absent*), 1 (*present*), and 8 (*would occur if not prevented*) to measure behavior during the past 2 hours. Internal consistency on four separate administrations ranged from .88 to .94.

For this study, the long version of CMAI was used at baseline and at the last two postintervention measurements. The short version was used after each of the five treatments and the first postintervention measurement (which occurred 24 hours after the final treatment). The primary nurse completed the CMAI with the assistance of the research assistant.

MMSE. The extent of cognitive impairment of the residents was measured using the MMSE (Folstein, Folstein, & McHugh, 1975) at baseline. A diagnosis of senile dementia of the Alzheimer type was confirmed from each resident's medical record.

Resident medical records. Baseline information obtained from the participant's medical record included age, gender, length of time on unit, medical diagnoses, medications, medication changes during the past 48 hours, presence of acute illness, and documentation of a history of or the presence of behavior that could be described as agitation during the past month. The definition of agitation as described by the CMAI was used. Each evening

after the intervention, the research assistant would ask the nurse if the resident's medications had changed and if the resident's health had changed within the past 24 hours.

Intervention logs. Each practitioner and volunteer completed a standardized log at each treatment. The practitioners described the characteristics of the participant's energy field, the nature of the field, and the distance of the field from the body before and after the treatment. Both the practitioners and the volunteers recorded the time and length of the treatment; the resident's behavior before, during, and after the treatment; and any environmental factors that might have affected the participant's behavior, such as visitors or excessive noise.

Interventions

The interventions were staggered to prevent more than one intervention being offered simultaneously. The study began with the measurements of the residents assigned to the usual care group. The next week, the simulated TT interventions were offered. The TT intervention did not begin until all the postintervention measurements for the previous two groups were completed. It was important to offer TT after all the interventions and their effects were completed to prevent the TT energy from influencing the energy level of the residents on the selected units and from interfering with the results of the other two interventions.

The interventions for the two groups were conducted in the evenings over 5 consecutive weekdays. The practitioners and volunteers spent approximately 30-40 minutes implementing their treatment. The five phases of nontouch TT were administered by practitioners who had completed the advanced level of TT training. Over the 5-day period, each resident in the TT group received their treatments from two different practitioners, and the simulated groups received their treatments from two different volunteers. One person would provide treatments for 3 days, and the second practitioner or volunteer provided the intervention for the remaining 2 days.

To conduct the interventions, 10 TT practitioners and 10 volunteers were recruited. The authentic TT was conducted by practitioners who were graduates of the Therapeutic Touch and Healing Program. This program has been offered in this city for a number of years by a qualified TT instructor who is also a registered nurse. All the practitioners had completed the advanced level of the program, and all were registered nurses. The 2-hour workshop for the practitioners included an orientation to the study.

The volunteer office at the facility assisted in recruiting volunteers for the study. The volunteers ranged in ages and backgrounds; for example, some were nursing or health-related students, some were nurses, and others were individuals who volunteered at the facility. The researchers deliberately obtained volunteers who were not familiar with TT. The volunteers were oriented to the study and were taught the simulated TT technique at a 3-hour workshop. The volunteers were informed that they might or might not be providing TT treatments. To prevent energy transfer during their simulated treatment, they were provided with specific standardized instructions for silently repeating simple mathematical calculations while moving their hands over the patient. The intent of this measure was to prevent them from directing any energy (Quinn, 1984). At the end of the study, the volunteers were informed that they had not conducted TT and were offered a TT workshop and treatment.

Analysis of Data

The frequencies of the 29 behaviors were examined. A number of behaviors were never or were rarely displayed (less than once per week) by most of the participants (e.g., inappropriate dress, spitting, kicking, pushing, throwing things, hurting self or others, and making sexual advances). The behaviors that were included for the analysis and subsequently categorized into the three behavior categories were those behaviors displayed at baseline by at least 25% of the participants at least once per week up to several times per hour. The following behaviors made up the three outcome variables: (a) physical aggression—hitting and grabbing; (b) physical nonaggression—pacing, repetitious movements, and general restlessness; and (c) verbal agitation—cursing, constant requests for attention, repetitive sentences, strange noises, and negativism. The frequency of the behaviors within each category was summed.

Multivariable analysis involved the use of the generalized estimating equation for analysis of repeated measures of discrete outcomes. The outcome variables were assumed to be distributed as Poisson count data (Stokes, Davis, & Koch, 2000). The effects of the treatments were expressed as incidence ratios with 95% confidence intervals (CIs). Two sets of models were constructed to measure behavior change over two different periods: baseline to Time 5 and Postintervention Time 6 to Time 8. Within each period, three models were formulated, representing the three outcome variables (physically aggressive, physically nonaggressive, and verbally agitated behaviors).

The independent variables tested in each of the models included study group (0 = TT group, 1 = simulated TT group, 2 = usual care group), day

(continuous), Group × Day interaction, age (continuous), gender (1 = female), total number of medications (continuous), medication changes (1 = yes), and total number of diagnoses (continuous). Dependent variables included the number of (a) physically aggressive behaviors displayed (0 to 2), (b) physically nonaggressive behaviors displayed (0 to 3), and (c) verbally agitated behaviors displayed (0 to 5).

Findings

The final sample size consisted of 51 participants. We were unable to recruit the 60 residents calculated by the power analysis. Changes in health, relocation to other facilities, death, and difficulty in identifying residents with agitated behavior prevented attainment of the desired sample size. There were no significant differences in baseline characteristics across the three groups, including the mean number of behaviors in the three behavior categories (Table1).

Comparison Across Groups

Time 0 (baseline) to Time 5 (after 5 days of intervention). There was no significant difference across the three groups in the incidence of physically aggressive ($\chi^2 = 2.28$, $p = .32$) and verbally agitated behaviors ($\chi^2 = 1.99$, $p = .37$). In other words, the intervention of TT did not have a greater influence on these behaviors than did the simulated TT intervention or the usual care group approach.

There were significant differences across the three intervention groups in the number of physically nonaggressive behaviors displayed during the 5 days ($\chi^2 = 5.98$, $p < .05$). More specifically, the rate for physically nonaggressive behaviors in the usual care group was 2.3 times higher than the rate for those behaviors in the TT group (CI .66, 7.81). The simulated TT group had an incidence .8 times higher than that of the TT group (Figure 1).

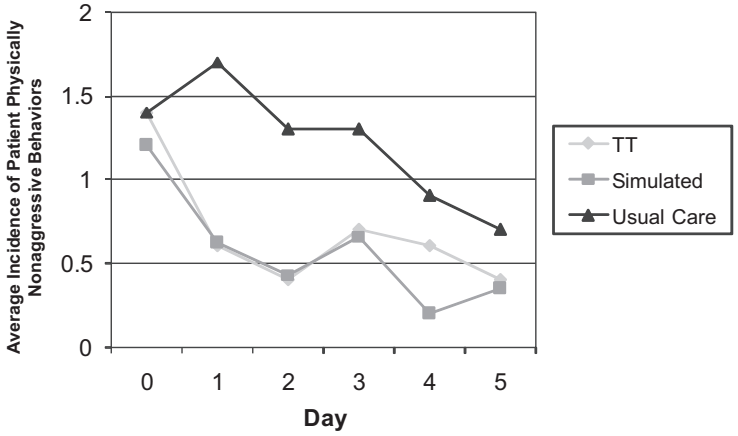
Postintervention—Time 6 (24 hours after final intervention) to Time 8 (2 weeks after final intervention). For all three behavior categories, there was no significant difference across intervention groups in the frequency of the behaviors (physically aggressive behaviors, $\chi^2 = 1.35$, $p = .51$; physically nonaggressive behaviors, $\chi^2 = 1.37$, $p = .51$; verbally agitated behaviors, $\chi^2 = 3.14$, $p = .21$).

Table 1
Characteristics of Sample at Baseline

Characteristics	Total Sample (N = 51)	Therapeutic Touch (n = 17)	Simulated Therapeutic Touch (n = 16)	Usual Care (n = 18)	p
Gender					
Female	36	10	14	12	
Male	15	7	2	6	.18
Age					
M (*SD*)	82.8 (7.37)	83.3 (8.32)	84.2 (6.20)	80.9 (7.41)	
Range	62-94	66-93	71-94	62-92	.41
Length of time on unit (months)					
M (*SD*)	30.2 (17.58)	30.1 (19.74)	30.0 (15.94)	30.6 (17.81)	
Range	2-73	2-73	3-48	3-61	.99
Number of diagnoses					
M (*SD*)	4.0 (1.1)	4.1 (.97)	4.1 (1.11)	3.8 (1.22)	
Range	2-6	2-6	3-6	2-6	.54
Number of Medications					
M (*SD*)	6.4 (3.22)	7.7 (3.86)	6.1 (3.19)	5.6 (2.25)	
Range	1-16	1-16	1-12	1-8	.14
MMSE					
M (*SD*)	5.5 (6.63)	6.6 (7.30)	7.1 (7.54)	2.9 (4.31)	
Range	0-20	0-20	1-20	0-12	.16
Number physically aggressive behaviors displayed[a]					
M (*SD*)	.82 (.79)	.94 (.83)	.75 (.77)	.77 (.81)	
Range	0-2	0-2	0-2	0-2	.76
Number physically nonaggressive behaviors displayed[a]					
M (*SD*)	1.3 (.89)	1.4 (.71)	1.2 (.83)	1.4 (1.09)	
Range	0-3	0-2	0-2	0-3	.75
Number verbally agitated behaviors displayed[a]					
M (*SD*)	2.0 (1.42)	1.9 (1.45)	1.7 (1.25)	2.3 (1.53)	
Range	0-5	0-4	0-4	0-5	.44

Note: MMSE = Mini-Mental State Examination.
a. Includes the selected behaviors only (those behaviors that were exhibited by 25% or more of the participants once per week or more).

Figure 1
Average Incidence of Patient Physically Nonaggressive Behaviors by Group and 5 Days of Intervention



Comparison Over Time

From baseline to Time 5 (the fifth and final day of intervention), a significant decrease in the number of physically aggressive behaviors displayed by all three groups was evident ($\chi^2 = 24.53, p < .001$). There was a significant decrease in physically nonaggressive behaviors ($\chi^2 = 28.18, p < .0001$) in all three treatment groups. There was also a significant decrease in verbally agitated behaviors over the 5 days ($\chi^2 = 31.94, p < .0001$; Table 2).

In contrast, during the 2-week period after the completion of the interventions (Time 6 to Time 8), there were significant increases in the physically aggressive and nonaggressive behaviors ($\chi^2 = 10.63$, $p < .01$; incidence ratio = .29, CI .13, .65 and $\chi^2 = 11.03, p < .01$; incidence ratio = .52, CI. 36, .77, respectively). No significant difference in verbally agitated behaviors was displayed ($\chi^2 = .62, p = .73$; Table 3).

Discussion

The primary objective of this study was to determine whether TT was an effective intervention in decreasing agitated behaviors in cognitively impaired older people. During the period of intervention, baseline to Time 5, there was a significant decrease in the number of physically nonaggressive

Table 2
Mean Behaviors Displayed by Groups From Baseline (T0) to Last Treatment Day (T5)

Behaviors	T0 *M* (*SD*)	T1 *M* (*SD*)	T2 *M* (*SD*)	T3 *M* (*SD*)	T4 *M* (*SD*)	T5 *M* (*SD*)	χ^2
Physical aggression							
Therapeutic Touch (TT)	.94 (.83)	.35 (.61)	.18 (.39)	.13 (.34)	.18 (.39)	.18 (.39)	
Simulated TT	.75 (.77)	.19 (.54)	.19 (.40)	.19 (.40)	.07 (.26)	.13 (.34)	
Usual care	.78 (.81)	.47 (.72)	.29 (.47)	.11 (.47)	.22 (.55)	.11 (.32)	24.53**
Physical Nonagression							
TT	1.4 (.71)	.76 (1.0)	.35 (.86)	.69 (.95)	.59 (1.1)	.29 (.69)	
Simulated TT	1.18 (.83)	.62 (.81)	.62 (.72)	.75 (.86)	.19 (.40)	.25 (.45)	
Usual care	1.39 (1.1)	1.18 (.95)	1.24 (1.20)	1.22 (1.06)	.83 (.92)	.67 (.91)	28.18***
Verbal agitation							
TT	1.88 (1.45)	.71 (1.16)	.47 (.87)	.44 (.81)	.29 (.59)	.35 (.70)	
Simulated TT	1.69 (1.25)	1.06 (1.29)	.81 (.91)	.75 (1.06)	.88 (1.08)	.38 (.89)	
Usual care	2.33 (1.53)	1.53 (1.12)	1.24 (1.30)	1.28 (1.32)	1.11 (1.32)	.89 (.96)	31.94***

**$p < .001$. ***$p < .0001$.

Table 3
Mean Behaviors Displayed by Groups From 24 Hours After Last Treatment (T6) to 1 Week (T7) and 2 Weeks After Last Treatment Day (T8)

Behaviors	T6 *M* (*SD*)	T7 *M* (*SD*)	T8 *M* (*SD*)	χ^2
Physical aggression				
Therapeutic Touch (TT)	.06 (.24)	.47 (.72)	.65 (.70)	
Simulated TT	.06 (.25)	.38 (.72)	.38 (.62)	
Usual care	.28 (.57)	.33 (.59)	.28 (.57)	10.63*
Physical nonaggression				
TT	.65 (1.06)	.59 (.94)	1.24 (.83)	
Simulated TT	.31 (.48)	.81 (.91)	.63 (.81)	
Usual care	.61 (.70)	.83 (.92)	.83 (.79)	11.03*
Verbal agitation				
TT	.59 (1.23)	1.12 (1.45)	.88 (.86)	
Simulated TT	1.25 (1.13)	1.25 (1.48)	1.50 (1.59)	
Usual care	1.44 (.98)	1.44 (1.10)	1.33 (1.24)	.62

*$p < .01$.

behaviors in all three groups; however, the TT group displayed significantly greater decreases in the frequency of these behaviors than did the other groups. The behaviors that were included in this group were pacing, repetitious movements, and general restlessness. Woods and Dimond (2002) also found that TT significantly reduced pacing.

It is important to consider why these behaviors and not the other types of behaviors were significantly reduced. Wandering and pacing are the most common forms of physically nonaggressive agitation (Cohen-Mansfield et al., 1992). Wandering and pacing take place under normal environmental conditions and may occur as a result of a need for stimulation that is not experienced from the daily routine and activities of the facility's environment (Cohen-Mansfield, 2005). Another reason for the high frequency of these behaviors at the beginning of the study may be that they are more easily identified than other behaviors because they involve the patient's physically moving about the unit, in the hallway or in other rooms. These behaviors tend to occur more frequently in areas where there are other people, such as the nurses' station. This may make the behavior more noticeable and more likely to be reported, at least initially. One of the most frequently cited effects of TT is relaxation and reduced anxiety.

TT, simulated TT, and the usual care strategies did not have a significant effect on the physically aggressive behaviors. Physically aggressive behaviors

are more likely to be displayed by people with advanced dementia as a response to unpleasant stimuli (Cohen-Mansfield, Culpepper, & Werner, 1995; Nasman, Bucht, Eriksson, & Sandman, 1993). These behaviors have been reported to occur more frequently when the person feels threatened, including when bathing or when being assisted with other activities of daily living (Cohen-Mansfield & Werner, 1995). Physical pain has also been associated with physically aggressive behaviors (Feldt, Warne, & Ryden, 1998). In this study, TT addressed the general level of distress or agitation, such as wandering or restlessness, but did not reduce the physically aggressive behavior. The intervention was implemented in the evening, with the measurements taking place approximately 1–2 hours later. Physically aggressive behaviors may occur as a result of uncomfortable stimuli that patients may perceive as threatening or an invasion of personal space. In the evenings, there tends to be increased activity related to visitors and strangers on the unit with whom the residents are unfamiliar. Sundowning is a phenomenon that occurs in evenings, particularly with people with dementia, and this may also have been responsible for the retention of the behaviors.

After the final treatment, the number of behaviors displayed in each category gradually increased over the 2-week period. The number of behaviors displayed remained less than the number exhibited at baseline. This was true for all three sample groups. There appeared to have been a slight residual effect from the TT and the simulated TT. Only after the 24-hour period did the behaviors increase substantially. Woods and Dimond (2002) also observed a gradual increase for 1–1.5 days postintervention, suggesting a sustained effect from TT.

All three sample groups displayed a reduction in all three types of behaviors over time; however, the TT and simulated TT groups demonstrated a greater reduction than the usual care group did. This was an interesting finding, and there may be several reasons for this overall decrease in all behaviors in all groups. The presence of others may explain the reduction in the TT and simulated TT groups because someone was present every evening for 5 consecutive days. Cohen-Mansfield (2005) emphasized that the most common needs of persons with dementia are for social and physical stimulation. This stimulation is lacking for the residents because of their limited cognitive capacity, the monotony of the institutional environment, and their sensory losses. The use of presence is a potent intervention to stimulate the cognitively impaired individual, ease their depression or frustration, and calm their agitation (Moch & Schaefer, 1992). No one was present with the residents who composed the usual care group. Another factor may be that during the study, staff may have become tired of reporting behaviors, and therefore, fewer

behaviors were reported to the research assistants. Because the study occurred during the summer, vacation relief staff may not have known the residents as well as the regular staff and may not have noticed some of the behaviors and, therefore, underreported the behaviors. There may also have been fewer staff available during this vacation period, and so they may have spent less time with each of the residents and may not have had adequate time to provide thorough answers to the research staff.

TT can be taught to family members, staff, and volunteers. Often family members and volunteers are unsure how to react when agitated behaviors are displayed. Using TT can help calm the agitated person and enhance the communication during the visit. This study indicated that there were minimal residual effects of the TT or simulated TT interventions after 24 hours. This finding emphasizes the need for the therapy to be implemented on a consistent basis, requiring commitment and resources of the facility. Ongoing support of staff and volunteers is needed to sustain interest, maintain skills, and encourage discussion of challenges the staff and volunteers may encounter with the various residents (Hawranik, Deatrich, & Johnston, 2004).

TT may not be appropriate for all situations or all types of behaviors, as seen in this study. Staff assessment, which may include behavioral mapping, assessment of triggering situations that may initiate certain behaviors, or laboratory investigations, may need to occur prior to the decision to implement TT. An increasing amount of research has indicated that disruptive behaviors are not necessarily a normal consequence of dementia but can be the result of interaction between the resident and the environment (Cohen-Mansfield, 2001). After all, behaviors such as physical aggression may be due to factors that TT cannot resolve, such as pain, fear, or feeling embarrassed during activities of daily living. The definition of agitation used in this study was one that is commonly used in the literature and in research (Cohen-Mansfield & Billig, 1986, p. 712). Recently, an increasing amount of literature has indicated that many of the behaviors can be explained as unmet needs or confusion. Reexamination of the definition may be needed. Closer investigation and identification of the triggers or stimuli for the behaviors may assist caregivers in arriving at interventions that can be effective in dealing with the behaviors and improving quality of life.

Additional research is needed to overcome the limitations in this study, such as small sample size, reliance on a number of different staff nurses who may not know the resident, and the need to examine other behaviors. Future research with larger study samples, conducted at another time of year and time of day, and actual observation of behaviors by research staff before and after intervention may provide more data on the efficacy of TT. Exploring the

mechanisms of TT and its relationship to the various behaviors and varying severities of dementia should be considered. Research involving individuals with dementia is difficult. Not only is their recruitment a sensitive and ethical issue, but so is determining the effects of interventions on their health. Much more research is needed in this area.

This study provided preliminary evidence for the potential of TT in dealing with agitated behaviors by people with dementia. Researchers and practitioners must consider a broad array of strategies to deal with these behaviors. TT may be an important intervention that is not costly, can be implemented by family or staff, and may prevent or delay the use of pharmacotherapy and other strategies that may decrease the quality of life of the resident.

References

Beck, C., Vogelpohl, T., Rasin, J., Uriri, J., O'Sullivan, P., Walls, R., et al. (2002). Effects of behavioral interventions on disruptive behavior and affect in dementia nursing home residents. *Nursing Research*, *51*(4), 219-228.

Brodaty, H., Draper, B., Saab, D., Low, L., Richards, V., Paton, H., et al. (2001). Psychosis, depression, and behavioral disturbances in Sydney nursing home residents: Prevalence and predictors. *International Journal of Geriatric Psychiatry*, *16*(5), 504-512.

Cohen-Mansfield, J. (2001). Nonpharmacologic interventions for inappropriate behaviors in dementia: A review, summary and critique. *American Journal of Geriatric Psychiatry*, *9*(4), 361-381.

Cohen-Mansfield, J. (2005). Nonpharmacological interventions for persons with dementia. *Alzheimer's Care Quarterly*, *6*, 129-145.

Cohen-Mansfield, J., & Billig, N. (1986). Agitated behaviors in the elderly: I. A conceptual review. *Journal of Gerontology*, *34*, 711-721.

Cohen-Mansfield, J., Culpepper, W., & Werner, P. (1995). The relationship between cognitive function and agitation in senior day care participants. *International Journal of Geriatric Psychiatry*, *10*, 585-595.

Cohen-Mansfield, J., Marx, M., & Rosenthal, A. (1989). A description of agitation in a nursing home. *Journal of Gerontology*, *44*, M77-M84.

Cohen-Mansfield, J., & Werner, P. (1995). Environmental influences on agitation: An integrative summary of an observational study. *American Journal of Alzheimer Care and Related Disorders*, *10*, 32-37.

Cohen-Mansfield, J., Werner, P., & Marx, M. (1992). The social environment of the agitated nursing home resident. *International Journal of Geriatric Psychiatry*, *7*(11), 789-798.

Davis, G. (1997). Chronic pain management of older adults in residential settings. *Journal of Gerontological Nursing*, *23*, 16-22.

Edvardsson, J., Sandman, P.-O., & Rasmussen, B. (2003). Meanings of giving touch in the care of older patients: Becoming a valuable person and professional. *Journal of Clinical Nursing*, *12*, 601-609.

Feldt, K., Warne, M., & Ryden, M. (1998). Examining pain in aggressive cognitively impaired older adults. *Journal of Gerontological Nursing*, *24*, 14-22.

Folstein, M., Folstein, S., & McHugh, P. (1975). "Mini-mental State": A practical method for grading the cognitive state of patients for the clinician. *Journal of Psychiatric Research*, *12*(3), 189-198.

Fraser, J., & Ross Kerr, J. (1993). Psychophysiological effects of back massage on elderly institutionalized patients. *Journal of Advanced Nursing*, *18*(2), 238-245.

Goddaer, J., & Abraham, I. (1994). Effects of relaxing music on agitation during meals among nursing home residents with severe cognitive impairment. *Archives of Psychiatric Nursing*, *8*(3), 150-158.

Gordon, A., Merenstein, J., D'Amico, F., & Hudgens, D. (1998). The effects of therapeutic touch on patients with osteoarthritis of the knee. *Journal of Family Practice*, *47*(4), 271-278.

Griffin, R., & Vitro, E. (1998). Overview of therapeutic touch and its application to patients with Alzheimer's disease. *American Journal of Alzheimer's Disease*, *13*(4), 211-216.

Gruber-Baldini, A., Boustani, M., Sloane, P., & Zimmerman, S. (2004). Behavioral symptoms in residential care/assisted living facilities: Prevalence, risk factors and medication management. *Journal of the American Geriatrics Society*, *52*(10), 1610-1617.

Hawranik, P., Deatrich, J., & Johnston, P. (2004). Therapeutic touch: Another approach for the management of agitation. *Canadian Nursing Home*, *15*, 46-48.

Hope, T., Keene, J., Fairburn, C.G., Jacoby, R., & McShane, R. (1999). Natural history of behavioural changes and psychiatric symptoms in Alzheimer's disease. *British Journal of Psychiatry*, *174*, 39-44.

Kim, E., & Buschmann, M. (1999). The effect of expressive physical touch on patients with dementia. *International Journal of Nursing Studies*, *36*(3), 235-243.

Kovach, C., & Schlidt, A. (2001). The agitation-activity interface of people with dementia in long-term care. *American Journal of Alzheimer's Disease and Other Dementias*, *16*, 240-246.

Krieger, D. (1993). *Accepting your power to heal: The personal practice of therapeutic touch*. Santa Fe, NM: Bear.

Lafrenier, K., Mutus, B., Cameron, S., Tannous, M., Giannotti, M., Abu-Zahra, H., et al. (1999). Effects of therapeutic touch on biochemical and mood indicators in women. *Journal of Alternative and Complementary Medicine*, *5*(4), 367-370.

Miech, R., Breitner, J., Zandi, P., Khachaturian, A., Anthony, J., Mayer, L., et al. (2002). Incidence of AD may decline in the early 90s for men, later for women: The Cache County study. *Neurology*, *58*, 209-218.

Miller, R., Snowdon, J., & Vaughan, R. (1995). One use of the Cohen-Mansfield Agitation Inventory in the assessment of behavioral disorders in nursing homes. *Journal of the American Geriatric Society*, *43*, 546-549.

Moch, S., & Schaefer, C. (1992). Presence. In M. Snyder (Ed.), *Independent nursing interventions* (pp. 238-243). Albany, NY: Delmar.

Nasman, B., Bucht, G., Eriksson, S., & Sandman, P. (1993). Behavioral symptoms in the institutionalized elderly: Relationship to dementia. *International Journal of Geriatric Psychiatry*, *8*(10), 843-849.

National Institute on Aging. (2003). *2001-2002 Alzheimer's disease progress report*. Retrieved on June 19, 2007, from http://www.nia.nih.gov/NR/rdonlyres/7049AF18-6827-4DCE-95FA-B853D171C974/0/20012002_ALZ_PR.pdf

Olson, M., Sneed, N., LaVia, M., Virella, G., Bonadonna, R., & Michel, Y. (1997). Stress-induced immunosuppression and therapeutic touch. *Alternative Therapies*, *3*, 68-74.

O'Mathuna, D. (2000). Evidence-based practice and reviews of therapeutic touch. *Journal of Nursing Scholarship*, *32*(3), 279-285.

O'Mathuna, D., Pryjmachuk, S., Spencer, W., Stanwick, M., & Matthiesen, S. (2002). A critical evaluation of the theory and practice of therapeutic touch. *Nursing Philosophy*, *3*(2), 163-176.

Peters, R. (1999). The effectiveness of therapeutic touch: A meta-analytic review. *Nursing Science Quarterly*, *12*, 52-61.

Quinn, J. (1984). Therapeutic touch as energy exchange: Testing the theory. *Advances in Nursing Science*, *6*(2), 42-49.

Rowe, M., & Alfred, D. (1999). The effectiveness of slow-stroke massage in diffusing agitated behaviors in individuals with Alzheimer's disease. *Journal of Gerontological Nursing*, *25*, 22-34.

Snyder, M., Egan, E., & Burns, K. (1995). Interventions for decreasing agitation behaviors in persons with dementia. *Journal of Gerontological Nursing*, *21*, 34-40.

Stokes, M., Davis, C., & Koch, G. (2000). *Categorical data analysis using SAS system* (2nd ed.). Cary, NC: SAS Institute.

Turner, J., Clark, A., Gauthier, D., & Williams, M. (1998). The effect of therapeutic touch on pain and anxiety in burn patients. *Journal of Advanced Nursing*, *28*, 10-20.

Winstead-Fry, P., & Kijek, J. (1999). An integrative review and meta-analysis of therapeutic touch research. *Alternative Therapies in Health and Medicine*, *5*, 58-67.

Wirth, D. (1995). Complementary healing intervention and dermal wound reepithelialization: An overview. *International Journal of Psychosomatics*, *42*, 48-53.

Woods, D., Craven, R., & Whitney, J. (1996). The effect of therapeutic touch on disruptive behaviors of individuals with dementia of the Alzheimer type [Abstract]. *Alternative Therapies*, *2*, 95-96.

Woods, D., & Dimond, M. (2002). The effect of therapeutic touch on agitated behavior and cortisol in persons with Alzheimer's disease. *Biological Research for Nursing*, *4*(2), 104-114.

Woods, D., Heitkemper, M., Elmore, S., Dimond, M., Lentz, M., & Diaz, J. (2000). Therapeutic touch effect on agitation and cortisol in Alzheimer's disease [Abstract]. *Communicating Nursing Research*, *33*, 189.