

EFFECTS OF HAND MASSAGE ON COMFORT OF NURSING HOME RESIDENTS

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Patient comfort is a goal of therapeutic nursing practice and a primary nursing function. Residents in nursing homes have many comfort needs including physical, psychospiritual, sociocultural, and environmental. These comfort needs are addressed by various caregivers including nurses, nursing assistants, and family members. Hand massage is a simple comfort intervention that can be incorporated readily into routine nursing care activities and conveys caring through touch, individual attention, and presence. As an intervention, hand massage promotes comfort and facilitates communication between care recipients and caregivers. The purpose of this study was to test the effectiveness of hand massage as an intervention that affects nursing home residents' comfort and satisfaction. Results are presented for 35 participants who received hand massage and 25 participants in a comparison group. Findings showed no significant differences in comfort levels or satisfaction with care over time. Significant group differences, however, were found for comfort and satisfaction when measured at specific time periods. The discussion highlights these mixed findings and presents implications for further development of hand massage as part of nursing home residents' care. (*Geriatr Nurs* 2006;27:85-91)

Introduction

The development and implementation of interventions to enhance comfort is particularly relevant to chronically ill and frail elders who reside in nursing homes. These individuals are cared for by nursing staff who must meet the care demands of a diverse group of residents, with the predominant focus of care being the competent delivery of physical care. Ignoring the nuances of interpersonal communication associated with giving good physical

care can create a condition of diminished autonomy, dignity, and respect for elders and can contribute to discomfort experienced by older adults and their families. The call for compassionate individualized care, emphasized in recommendations by the transforming work of the Institute of Medicine Study,¹ called attention to the need to promote autonomy, dignity, and respect in all aspects of daily life for nursing home residents.

The research reported here explored and evaluated the use of touch in the form of hand massage (HM) as a comforting, caring intervention for residents in long-term care. The study aim was to add to the body of knowledge of care modalities that enhance holistic comfort, defined as the immediate state of feeling relief, ease, and transcendence.² Hand massage was hypothesized to induce positive and interrelated effects on the physical, psychospiritual, sociocultural, and environmental components of comfort.³ It is a method that can be taught easily to nursing home staff and family members and, as a comforting, caring intervention may also help bridge communication difficulties. Specifically, this research tested the effectiveness of bilateral HM to enhance holistic comfort and satisfaction with care in older adults residing in long-term care.

Background

Although comfort is a complex, multifaceted concept, difficult to define and describe, it is a well-accepted and desired outcome of effective nursing care. The term "comfort interventions" is often used to mean a contributing or sufficient cause of a state of comfort.⁴ As a goal of therapeutic nursing practice, comfort is of interest for nursing and a primary nursing function. A frequently used intervention that provides comfort, especially for older adults residing in nursing homes, is touch.⁵⁻⁷

Nursing home residents experience "touch"

everyday through routine care, but it is not the same type of touch that enhances comfort. Sansone and Schmitt⁷ stated that comfort-enhancing touch is caring, gentle, and holistic in that it is directed to a whole person response, physically, psychospiritually, socioculturally, and environmentally. This definition was foundational to their intervention study in which a professional massage therapist trained nursing staff and families to administer tender touch. Sansone and Schmitt⁷ reported decreased pain for nursing home residents and improvements in communication between nursing staff and residents after implementation of the structured massage intervention. Butts⁵ found a 5-minute social interaction that included handshaking or patting of the hand, shoulder, or forearm made a difference in perceived health, life satisfaction, and spiritual well-being for female nursing home residents. D'Eramo, Papp, and Rose⁸ incorporated training about healing touch into a program of complementary therapies that was taught to nursing assistants. Their assumption was that the training would empower nursing assistants to use interventions that could be carried out easily in routine care. They found that nursing assistants selectively used the techniques they were taught, frequently modifying them for personal use and as interventions with residents and families.

Research conducted with other patient populations has shown that use of touch has had positive results on patient comfort. Billhult and Dahlberg⁹ found that a 20-minute hand and forearm or foot and lower leg massage provided comfort for cancer patients because it allowed the individual to leave suffering momentarily and to experience being *special* and feeling *strong*. Meek¹⁰ used slow-stroke back massage as a nonpharmacological intervention to promote relaxation for 30 hospice patients. Results showed significant positive changes in physiological outcomes for heart rate, blood pressure, and skin temperature. Kolcaba and colleagues¹¹ compared the effects of bilateral HM on comfort in the contexts of physical, psychospiritual, sociocultural, and environmental as experienced by 31 hospice patients residing at home or in a residential hospice center. A treatment group received HM twice weekly for 3 weeks, and a comparison group received HM at completion of

the study. Although patients receiving HM had increased comfort over time, findings were not statistically significant. The researchers observed that comfort for these hospice patients was more than relief of physical discomforts and noted that small group size may have contributed to statistical nonsignificance.

Massage therapy is described as the systematic manual rubbing, kneading, or stroking of the body tissues performed with the hands to promote physiological effects that enhance well-being. Massage therapy that systematically produces positive clinical outcomes is viewed as medical massage and is differentiated from therapeutic massage conducted to promote relaxation.¹² Regardless of how it is categorized, massage therapy is thought to increase comfort by decreasing pain perception, increasing oxygenation profusion to cells and tissue, and increasing endorphin release. This response counteracts anxiety induced stress responses that increase secretion of epinephrine and norepinephrine.

The framework for this study is based on Kolcaba's theory of comfort.² This theory guides nursing assessments of holistic comfort needs in 4 domains: physical, psychospiritual, sociocultural, and environmental. When comfort is enhanced, individuals are strengthened to engage in health-seeking behaviors, with ultimate improvement in outcomes. Physical comfort pertains to bodily sensations and maintenance of homeostasis. Psychospiritual comfort consists of finding meaning in one's living situation, resolving family issues, belief in a higher order or afterlife, and acceptance of impending mortality. Sociocultural comfort embraces caring relationships with family and staff and respect for cultural traditions. Environmental comfort includes a familiar, homey or personal environment; and pleasant light, odors, and noise level.

Methods

Research Design

This research used a quasi-experimental design to measure differences in comfort and satisfaction between treatment and comparison groups of nursing home residents. Two research questions were addressed:

1. Do nursing home residents who receive HM have higher comfort levels over time compared with residents who do not receive HM?
2. Do nursing homes residents who receive HM have higher levels of satisfaction with care?

Also evaluated in the study was qualitative and anecdotal data about the feasibility of using HM as an intervention during routine care of nursing home residents.

Variables and Measures

Bilateral HM was the independent variable and consisted of several stroke types including slow stroke, kneading, friction, caring touch, or a combination of these. Nursing assistants, nursing students, and research team members were taught HM by a certified massotherapist who is also an advanced practice nurse. A written protocol was followed (Table 1). The massage took approximately 5 to 8 minutes for each hand.

Comfort was the dependent variable of primary interest. Comfort was defined as the immediate state of being strengthened through having needs for relief, ease, and transcendence addressed in four domains: physical, psychospiritual, sociocultural, and environmental. Comfort was measured by the General Comfort Questionnaire (GCQ)² and adapted for use in this study. The 28-item GCQ is a Likert-type self-administered format, with 6 responses ranging from *strongly agree* to *strongly disagree*. Examples of items relating to the four domains include, "I have a poor appetite" (physical), "My beliefs give me peace of mind" (psychospiritual), "My friends remember me with their cards and phone calls" (sociocultural), and "These surroundings are pleasant" (environmental). Negatively worded items are reverse scored, and a total score is obtained by summing items, with higher scores indicating better comfort levels. The GCQ had a Cronbach's alpha of .88.³ Some individuals, especially those who are frail, have difficulty with the length of the instrument. In these instances, the response format is presented in large text on 5" × 8" cards, and items are read by the data collector; this was the procedure used in the current study.

Satisfaction With Care was defined as the

person's perception of being content with the overall care received. A single question asked respondents to rate satisfaction with their overall care on a 6-point scale drawn horizontally on a 10-cm line, with 1 being low satisfaction and 6, high satisfaction. The instrument can be self-administered or read by another person.

Setting and Sample

Study participants were from 2 nursing homes located in the Midwest. Facility A was a nursing home that is part of a continuing care retirement community. This nursing home was sampled first because it was familiar to the investigators and provided uncomplicated access to residents. Facility B was a nursing home that also offered short-term rehabilitation. It was sampled second, after all eligible residents in Facility A had been either approached or enrolled as study participants. Nursing students working with the principal investigator were assigned as data collectors to both nursing homes.

Approval to conduct this study was given by the investigators' institutional review board. Participation was voluntary, and individuals were asked to provide written consent. Inclusion criteria were that the person be alert and oriented, able to understand English, and have a projected length of stay at least 3 weeks or more. Residents who were receiving some type of professional massage therapy and had a documented psychiatric illness or dementia were excluded.

Power analysis for sample size determination indicated that 25 subjects in each group would be sufficient for a power of 80% to detect significant changes in comfort and satisfaction with care. Because HM has little or no side effects, alpha was set at .10 to avoid committing a Type II error. Over sampling allowed for expected attrition due to uncertainty and unpredictability in the circumstances of nursing home residents.

Procedures

Training sessions in the HM protocol (see Table 1) and data collection procedures were held for nursing assistants and nursing students. It was anticipated that nursing assistants and students after learning HM would be data collectors for the study and incorporate HM as a

Table 1. **Protocol for Hand and Wrist Massage**

Introduction

- All strokes are repeated 3 times. Each hand is gently massaged for 5-8 minutes.
- Greet the client and establish a therapeutic rapport. Place in a comfortable position with the forearm and hand easily accessible to the therapist. Explain the procedure and clarify any questions or concerns. Hold the client's hand between your hands to establish contact. Request that the client report any sensations that are *not* comfortable to him or her as you massage the hand.
- Place the client's forearm and hand in a palm-up position with thumb abducted. The therapist collects a small amount of lubricant in his or her hand and rubs the hands together to disperse and warm the lubricant. The lubricant is then evenly applied to the palm and dorsal surfaces of the client's hand.

Procedure for Palm Side

- The therapist's dominant hand supports the client's hand; the nondominant hand grasps the radial half or the thumb side of the hand at the palm near the fingers. Using the thumb, the therapist strokes up the midline of the palm around the base of the thumb (the thenar eminence) to the wrist. The fingers pass up the midline of the dorsal surface of the hand to join the thumb at the wrist with a squeeze-out movement. Repeat this movement across the entire surface of the palm. Each time, the hand returns with a superficial stroke over the hand surface.
- The therapist uses the thumbs to knead the same area where stroking took place. Small circular movements of the thumbs over the tissue produces the kneading effect on the muscles.
- Reposition hands to have the therapists' nondominant hand support the client's hand. The dominant hand grasps the ulnar half (the little finger side) of the patient's hand at the metacarpophalangeal joint line, where the fingers join the palm. The thumb then passes up the midline of the palm around the hypothenar eminence (the fifth or little finger edge of the hand) to the wrist. The fingers pass up the midline of the dorsal surface of the hand to meet the thumb at the wrist with a gentle, squeezing, kneading movement. The hand returns with a superficial stroke. Repeat over the entire surface of the hand.
- Support the client's hand in the therapist's dominant hand while the thumb of the nondominant hand strokes over the each of the following areas: the thumb edge (thenar eminence) from the first metacarpophalangeal joint to the wrist; the interosseous and lumbrical muscles (the muscles of the palm of the hand) from the metacarpophalangeal joints to the wrist; and the fifth finger edge (hypothenar eminence), from the fifth metacarpophalangeal joint to the wrist. The thumb returns with a superficial stroke after each movement. Repeat over the entire surface of the hand. Pressure is gentle and adjusted to the comfort of the client.
- The thumb pad is kneaded in small circles over the same areas and in the same order as indicated earlier, returning each time with a superficial stroke.
- The entire palm surface of the hand is massaged with light, circular strokes. Before massaging the dorsal surface of the hand, stroke lightly with several long motions toward the heart.

Procedure for Dorsal Side

- Turn the client's hand palm down. In effect, the therapist will be stroking in the spaces between the metacarpals, with pressure directed toward the tissue forming the spaces between the bones in the back of the hand.
- The client's hand is supported by the therapist's nondominant hand. The thumb of the dominant hand strokes over the ulnar side of the first metacarpal, the little finger, just proximal to the intraphalangeal joint, continuing to the wrist. The thumb pad then returns with a superficial stroke along the radial side of the second metacarpal to the first joint; it strokes over the same area to the wrist. This repeated over the entire posterior surface of the hand.
- Supporting the hand, massage all surfaces of each finger and the thumb, starting at the point where the finger connects to the palm and move toward the tip of the finger. Pressure should be gentle to avoid any unnecessary pressure on the finger joints.
- Finish the massage by stroking the surface of the hand, wrist to fingertip with a feather-like stroke 3 times. Tell the client you are moving to the other hand and repeat the entire procedure on the opposite hand. Gently break physical contact with the client, using long gentle strokes toward the head, and reposition the hand in a comfortable position.

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care intervention. Work schedules and changeable staffing situations deterred nursing assistants from full participation. Therefore, data collection and HM were done by nursing students supervised by one of the investigators. Potential study participants were approached by a research team member and were given a general explanation of the study. Subject recruitment continued until the desired sample size was achieved for both the treatment and comparison groups.

Three times were established for data collection. Baseline was Time 1 (T1); Time 2 (T2), followed 2 ½ weeks after baseline; and Time 3 (T3) was approximately 2 ½ weeks after T2. The GCQ was administered at T1, T2, and T3, and data about satisfaction with care in general was obtained at T1 and T3. The treatment group received 6 HM interventions that were scheduled over a 5-week period. The same person administered HM of 10 to 15 minutes duration to his or her assigned resident. Data were collected on the comparison group at the 3 periods, but these participants received only 1 HM at the end of the study.

Findings

Initially, 70 residents were randomly assigned to treatment and comparison groups, with 60 participants eventually completing the study. Reasons for attrition included hospitalization (6), unavailable for HM or data collection because of other activities (3), and sudden death (1). After attrition the final sample size was 35 in the treatment group (31 women and 4 men), and 25 in the comparison group (18 women and 7 men). No significant differences were found between the average age of treatment group participants (mean = 79 years, range 51-94) compared with the average age of the comparison group (mean = 78 years, range 55-95 years) ($t = -0.033, p = .973$). The major medical diagnoses for both groups were comparable, with orthopedic or neurological the predominant diagnoses for 63% of the treatment group and 68% of the comparison group ($\chi^2 = 0.170, p = .681$). No significant group differences were found for ethnicity, with European ancestry identified by 51.4% ($n = 18$) of the treatment group and 52% ($n = 13$) of the comparison group ($\chi^2 = 0.002, p$

= .965). Only 2 subjects in each group identified themselves as African American, and 1 treatment group subject was Hispanic. Cronbach's alphas for the GCQ, with all participants combined, were .86, .83, and .82 at the 3 time points.

Multivariate analysis of variance results showed no significant findings on group differences for comfort levels ($F = 2.13, p = .15$) or comfort levels over time ($F = 1.24, p = .29$). Results of t tests were not significant for group differences on comfort at baseline ($t = -1.11, p = .27$) or at T3 ($t = -.50, p = .62$). Significant differences in comfort between treatment and comparison groups occurred at T2 ($F = 1.86, p = .07$) with the treatment group having higher comfort levels.

Analysis of variance results revealed that the mean satisfaction with care was significantly higher at T3 for both the treatment and comparison groups ($F = 7.66, p = .008$). Although the treatment group had a greater increase in mean satisfaction over time than the comparison group, the finding was not statistically significant ($F = .22, p = .64$).

Discussion

This study focused on the use and application of HM as an effective, inexpensive, and easy-to-apply comfort measure that can be integrated into routine care for nursing home residents. In this study, significant differences in comfort for treatment and comparison groups occurred within about 2 ½ weeks and after receiving HM 4 times, suggesting that HM can provide comforting and caring effects within a short period of time. However, at the third time period, no significant differences in comfort were found between nursing home residents who received massage and those who did not. A possible explanation for this finding may be attributed to the comforting presence and attention that nursing student data collectors projected as both the nursing home resident and student became known to each other. It is likely also that HM facilitates one-to-one connections between the person administering the massage and the recipient, thereby making it difficult to distinguish a separate contribution of HM to comfort.

Findings about overall satisfaction with care showed that between baseline and the

third measurements, satisfaction scores improved and were comparable for both groups. Although a positive outcome, this finding also points to the difficulty in differentiating the unique contribution that HM makes. Similar to findings about the effect of HM on comfort, the social interactions between data collectors and residents may have contributed to increased satisfaction. The attention and presence that the nursing student data collectors gave at the three data collection periods may have been reassuring and affirming of good care in general.

The initial intent of the study was to have nursing home staff, especially nursing assistants, incorporate HM into usual care routines. Training programs in HM were presented by a certified massotherapist at times most conducive to staff schedules. The sessions included a positive and encouraging atmosphere, with refreshments, personal demonstrations of the protocol, and return demonstrations. Incentives in the form of tote bags that contained hand creams and other similar items spurred initial enthusiasm about potential participation. Gift certificates were offered to staff to carry out HM on their assigned residents. Nursing staff attending the training sessions commented that they enjoyed giving and receiving the massage, and indicated that it would be easy to implement HM after daily baths. The reality is that this situation did not take place because no staff participated in giving HM to assigned residents. This lack of participation may be that incentives and motivation to participate were primarily from the research team and not from immediate supervisors or administrators. This experience suggests that implementing practice innovations requires support from not only those who will carry them out but also from those in authority.

To deal with the disappointing participation from nursing assistants, the primary investigator solicited help from undergraduate nursing students who were willing to learn and apply the intervention. Interestingly, the students felt the massage enabled them to get to know their residents faster and with fewer awkward moments. Thus, this straightforward, comfort-ing touch intervention was helpful to begin-

ning nursing students in overcoming their own communication barriers when caring for nursing home residents.

Conclusions

It is reasonable to expect that HM can meet comfort needs of nursing home residents. Results of this study show that HM is easily learned, noninvasive, simple to administer, and enhances satisfaction with care. The lack of nursing assistant participation, however, points to the need to promote this simple comfort intervention among frontline workers who are in a position to affect quality of care. Nursing management and other administrators may need to make interventions such as HM a routine expectation in daily care, thereby enhancing not only resident comfort but also satisfaction with care in general. With appropriate support and motivation to provide quality care, HM can be a valuable tool to integrate into usual care routines and even used with residents by family members and friends.

REFERENCES

1. Institute of Medicine. Improving the quality of care in nursing homes. Washington, DC: National Academy Press; 1986.
2. Kolcaba K. Comfort theory and practice. New York: Springer; 2003.
3. Kolcaba K. Holistic comfort: operationalizing the construct as a nurse-sensitive outcome. *Adv Nurs Sci* 1992;15:1-10.
4. Kolcaba K, Kolcaba R. An analysis of the concept of comfort. *J Adv Nurs* 1991;16:1301-10.
5. Butts JB. Outcomes of comfort touch in institutionalized elderly female residents. *Geriatr Nurs* 2001;22:180-4.
6. Kim EJ, Buschmann MT. Touch-stress model and Alzheimer's disease: using touch intervention to alleviate patients' stress. *J Gerontol Nurs* 2004;30(12): 33-9.
7. Sansone P, Schmitt L. Providing tender touch massage to elderly nursing home residents: a demonstration project. *Geriatr Nurs* 2000;21:303-8.
8. D'Eramo AL, Papp KK, Rose JH. A program on complementary therapies for long-term care nursing assistants. *Geriatr Nurs* 2001;22:201-7.
9. Billhult A, Dahlberg K. A meaningful relief from suffering: experiences of massage in cancer care. *Cancer Nurs* 2001;24:180-4.
10. Meek SS. Effects of slow stroke back massage on relaxation in hospice clients. *J Nurs Scholarship* 1993; 25:17-21.

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11. Kolcaba K, Dowd T, Steiner R, Mitzel A. Efficacy of hand massage for enhancing the comfort of hospice patients. *J Hospice Palliative Nurs* 2004;6:91-102.
 12. American Medical Massage Association. A comparison of the somatosensory effects of therapeutic massage and medical massage 2003; Available at www.americanmedicalmassage.com/education/a31z4.html. Accessed June 16, 2005.

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