Background
In intensive care environments, patients’ families are often encouraged to participate in their loved one’s care; however, many family members feel anxious, depressed, and unsure about how to help patients.

Objectives
To determine (1) the feasibility of teaching family members a simple intervention combining hand massage with essential oils in a trauma intensive care unit and (2) an effect size for use in designing a more powerful trial.

Method
A quasi-experimental pilot study of the effect of a family-delivered touch treatment on anxiety and depression of family members of patients. Fifteen family members were assigned to a treatment group, and 15 family members were assigned to a control group. The treatment consisted of the application of hand massage with essential oils for 6 sessions. Each session lasted 5 minutes and was presented twice a day for 3 days.

Results
The 5-minute intervention was associated with positive change in anxiety and depression scores on the Hospital Anxiety and Depression Scale (HADS) among family members visiting patients. The magnitude of change (improvement) in anxiety scores within the group of treated family members was significantly greater than within family members in the control group.

Conclusion
Administering a brief hand massage using pleasant-smelling oils to patients in an intensive care unit may reduce anxiety of family members who administer the treatment. (American Journal of Critical Care. 2015;24:446-449)
Hospitalization can result in emotional distress for family members of patients. Highly stressed family members may adversely affect themselves, the patient, and hospital staff. It is important for nurses to recognize such stress and address the needs of patients’ family members. Institute of Medicine recommendations include the development of family interventions to reduce stress and promote mutually supportive family interactions. Teaching family members to provide care for an acutely ill patient promotes feelings of empowerment and closeness and may diminish family stress. Some evidence indicates that family members want to perform some patient care such as touching, encouraging, and assisting with daily living routines.

Purpose

The purpose of this pilot study was to assess the feasibility of teaching a simple intervention to family members of patients in a trauma intensive care unit (ICU). A secondary aim was to determine effect size of the intervention as a means of calculating power and sample size for future studies.

Background

Family-centered care (FCC) is an approach to delivering health care that emphasizes establishing and sustaining mutually beneficial partnerships between patients, their families, and health care providers. From the perspective of the FCC model, the patient and the patient’s family members are the unit of care. Nurses practicing within an FCC framework deliver emotional care to patients’ family members, and family members may participate in the care of patients. Complementary therapies delivered by family members may provide reasonable and efficient interventions for the emotional care of family members while simultaneously comforting patients.

Aromatherapy and massage are common complementary therapies. Aromatherapy involves the topical application of essential oils, and it is thought that people may derive emotional benefit from aromatherapy. For instance, Citrus bergamia, or bergamot oil, is thought to relieve symptoms of anxiety and depression. Massage involves manipulating muscle, joints, or skin by stroking or kneading and is frequently conducted by using oils. The combination of aromatherapy and light hand massage improves comfort and mood. The finding that many people are comforted when another gently strokes their skin with pleasant-smelling oil constitutes the rationale for asking family members to apply massage to patients’ hands. Scientific evidence of the effectiveness of aromatherapy and/or massage is scarce and typically weak, but interest in providing such therapy is growing among critical care nurses; therefore, research on these complementary therapies is important.

Methods

This quasi-experimental pilot study was approved by the institutional review board at Texas Health Resources and complied with ethical standards set forth in the Helsinki Declaration of 1975. During the process of obtaining written consent, conducted by the principal investigator (C.P.), potential participants (family members) were informed that the purpose of the study was to evaluate the effect of a massage intervention on their own feelings and that the intervention might help the patient feel better, too.

Sample

The convenience sample consisted of 30 persons. The first 15 persons who enrolled were assigned to a control group, and the second set of 15 participants were assigned to a treatment group. English-speaking, literate, adult family members of patients admitted to the trauma ICU were eligible to participate with the following exceptions. Bergamot oil is citrus based and the carrier oil is nut based; therefore, potential participants were excluded from the study if they or the patient were sensitive to citrus or nuts. Pregnant family members or family members of patients with injuries to both hands or catheters placed in both hands also were excluded.

About the Authors
Charlssea Prichard is manager of the trauma intensive care unit at Texas Health Harris Methodist Hospital, Fort Worth, Texas. Patricia Newcomb is a nurse scientist at Texas Health Resources, Fort Worth, Texas.

Corresponding author: Patricia Newcomb, RN, PhD, CPNP, Texas Health Resources, 701 5th Avenue, Fort Worth, TX 76104 (e-mail: PatriciaNewcomb@texashealth.org).
Measures

The Hospital Anxiety and Depression Scale (HADS)\textsuperscript{17} was administered to each participant. The HADS is a 14-item self-report screening that contains 2 subscales of 7 items each. One subscale (HADS-A) purports to measure anxiety and the other subscale (HADS-D) measures “depression.” The aspect of depression measured in the HADS is anhedonia, the loss of pleasure response.\textsuperscript{18} HADS items are answered on a 4-point response scale from 0 to 3, indicating frequency (eg, “seldom” to “very often”) or agreement (eg, “definitely” to “not at all”). The HADS takes about 2 to 5 minutes to complete, and instructions on the version used in this study were to report on how items “currently” describe participants’ feelings.

In a 2002 review of the literature regarding validity of the HADS, Bjelland et al\textsuperscript{19} reported that more than 700 papers had described HADS sensitivity, specificity, factor structure, discriminant validity, internal consistency, and agreement with other self-report measures for anxiety and depression. As a screening instrument, HADS has shown good sensitivity and specificity in samples of inpatients, primary care patients, and community members, and good evidence for validity and reliability has been documented. For instance, across 22 studies that reported internal consistency, Cronbach $\alpha$’s ranged from 0.68 to 0.93 for the HADS-A and 0.67 to 0.90 for the HADS-D. In studies that were large enough to appropriately use factor analysis, factors ranged from 2 to 3 and were theoretically consistent.

Procedure

Nursing staff in the trauma ICU encouraged participants to provide usual family care, such as caressing and talking to the patient. Participants were asked to visit their patient twice a day, for 3 consecutive days. The control group received no further instructions. The HADS tool was administered to all participants on the day of enrollment and again on the last study day (4 days later).

Treatment group participants were screened for nut or citrus sensitivity, and a patch test of the essential oil was performed on the patient and the participant.\textsuperscript{20} Each treatment participant received written instructions for hand massage and a bottle of 5% bergamot oil mixed in almond oil. Participants were taught to administer hand massage in compliance with the M Technique, a registered method of simple, structured touch that has been used on critically ill patients with positive effects.\textsuperscript{13} The M Technique uses repetitive stroking movements in a structured sequence.\textsuperscript{11} For this study, the technique was used on hands. Participants applied the intervention twice daily for 5 minutes per session for 3 consecutive days.

Results

Fifteen participants were assigned to the control group and 15 to the intervention group. All participants completed the study. Characteristics of the sample are described in Table 1, which shows the groups were nonequivalent in regard to anxiety scores before treatment (Mann-Whitney test result: $P = .03$). The HADS-A demonstrated acceptable test-retest reliability (Spearman-Brown coefficient = 0.90) and internal consistency (Cronbach $\alpha$, 0.87-0.91). The HADS-D also showed acceptable test-retest reliability (Spearman-Brown coefficient = 0.83) and internal consistency (Cronbach $\alpha$, 0.85-0.89).

Before the intervention, HADS-A scores ranged from 4 to 20 (mean, 12.73), and after the intervention, HADS-A scores ranged from 1 to 21 (mean, 10.6). Before the intervention, HADS-D scores ranged from 0 to 19 (mean, 9.47), and after the intervention, HADS-D scores ranged from 0 to 20 (mean, 8.03).

Mean change in scores was approximately normally distributed and raw scores were not normally distributed; therefore, the magnitudes of the mean changes in score rather than mean raw scores for anxiety and depression were compared between groups by means of a $t$ test.

As shown in Table 2, the mean change in anxiety scores was significantly greater for the treatment group than for the control group, and the change was in a positive direction. The effect of the intervention on this outcome was large ($d = 1.3$), that is, the mean change size in the treatment group was at the 90th percentile of the control group.\textsuperscript{21} The groups did not differ significantly with respect to change in HADS-D scores. Age was inversely related to the magnitude of change in anxiety scores ($r = -0.36$, $P < .05$); that is, younger participants were more likely than older participants to experience relief from anxiety.

Table 1
Sample attributes

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Total sample (N = 30)</th>
<th>Treatment group (n = 15)</th>
<th>Control group (n = 15)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean age, y</td>
<td>51</td>
<td>51</td>
<td>51</td>
</tr>
<tr>
<td>Female sex, %</td>
<td>80</td>
<td>87</td>
<td>73</td>
</tr>
<tr>
<td>White race, %</td>
<td>80</td>
<td>93</td>
<td>67</td>
</tr>
<tr>
<td>Identified as anxious on screening at enrollment, %</td>
<td>80</td>
<td>67</td>
<td>93</td>
</tr>
<tr>
<td>Identified as depressed on screening at enrollment, %</td>
<td>67</td>
<td>60</td>
<td>73</td>
</tr>
</tbody>
</table>

Younger participants were more likely to experience relief from anxiety than were older participants.
Table 2
Change in scores on Hospital Anxiety and Depression Scale over time in study

<table>
<thead>
<tr>
<th>Variable</th>
<th>Treatment group (n = 15)</th>
<th>Control group (n = 15)</th>
<th>t</th>
<th>P</th>
<th>95% CI</th>
<th>Effect size (Cohen d)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Score on anxiety subscale, mean (SD)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Before intervention</td>
<td>10.9 (4.2)</td>
<td>14.6 (4.5)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>After intervention</td>
<td>7.3 (5.0)</td>
<td>14.2 (5.0)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean change in anxiety score</td>
<td>3.87</td>
<td>0.4</td>
<td>-3.44</td>
<td>.002</td>
<td>-5.5 to -1.4</td>
<td>1.3</td>
</tr>
<tr>
<td>Score on depression subscale, mean (SD)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Before intervention</td>
<td>9.2 (5.5)</td>
<td>9.7 (4.0)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>After intervention</td>
<td>6.7 (4.4)</td>
<td>9.4 (5.4)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean change in depression score</td>
<td>2.5</td>
<td>0.3</td>
<td>-1.69</td>
<td>.10</td>
<td>-0.49 to 4.7</td>
<td>0.6</td>
</tr>
</tbody>
</table>

* Positive sign on change indicates change in desired direction (eg, less anxiety and less depression). Cutoff score is 8: scores greater than 8 indicate a positive screen for anxiety or depression.

Discussion

This study demonstrated that a brief, inexpensive, family-delivered touch/aroma intervention is feasible in an ICU. It is striking that even in this poorly powered pilot study, gentle hand massage with essential oils substantially influenced the anxiety level of the family member delivering the massage. Effects on depression (anhedonia) were not statistically significant, but attained a moderate effect size.

Many families were unable to visit daily, and the research team observed that males tended to be less interested in the intervention; therefore, research to discover acceptability of complementary therapies to different groups and to test such interventions with unrelated, but available persons such as volunteers would be of interest. Lack of randomization precludes strong claims regarding cause, but the large effect size of the intervention on anxiety scores indicates that a genuine randomized, controlled trial could be informative with a relatively small sample size. Larger quasi-experimental studies employing valid control strategies could also be useful.

FINANCIAL DISCLOSURES
None reported.

eLetters
Now that you’ve read the article, create or contribute to an online discussion on this topic. Visit www.ajcconline.org and click “Submit a response” in either the full-text or PDF view of the article.

REFERENCES
Benefit to Family Members of Delivering Hand Massage With Essential Oils to Critically Ill Patients
Charlsea Prichard and Patricia Newcomb

Am J Crit Care 2015;24 446-449 10.4037/ajcc2015767
©2015 American Association of Critical-Care Nurses
Published online http://ajcc.aacnjournals.org/

Personal use only. For copyright permission information:
http://ajcc.aacnjournals.org/cgi/external_ref?link_type=PERMISSIONDIRECT

Subscription Information
http://ajcc.aacnjournals.org/subscriptions/

Information for authors
http://ajcc.aacnjournals.org/misc/ifora.xhtml

Submit a manuscript
http://www.editorialmanager.com/ajcc

Email alerts
http://ajcc.aacnjournals.org/subscriptions/etoc.xhtml