



# Effect of Massage Therapy for Postsurgical Mastectomy Recipients

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This quality improvement pilot study evaluated the effect of massage therapy on pain, anxiety, and overall well-being in women who received mastectomies at a busy hospital practice. Participants reported a significant reduction in pain, stress, and muscle tension, as well as an increase in relaxation. Oncology nurses should consider the feasibility of massage therapy as a valuable nonpharmacologic pain management strategy.

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Excluding cancers of the skin, breast cancer is the most common malignancy among women, accounting for almost one in three cancers diagnosed in American women (American Cancer Society [ACS], 2011). In 2011, an estimated 230,480 new cases of invasive breast cancer and 57,650 additional cases of in situ breast cancer were diagnosed among women (ACS, 2011). The decline in breast cancer mortality has been attributed to improvements in breast cancer treatment and early detection.

Most women with breast cancer will undergo some type of surgery such as biopsy, lumpectomy, mastectomy (simple, total, or modified), and possible reconstruction. Patients often also require other treatments such as radiation therapy, chemotherapy, and/or hormone therapy (ACS, 2011). About 40% of all patients diagnosed with invasive breast cancer

ultimately undergo a mastectomy, and an estimated 85,000–90,000 mastectomies are performed annually in the United States (Katipamula et al., 2009).

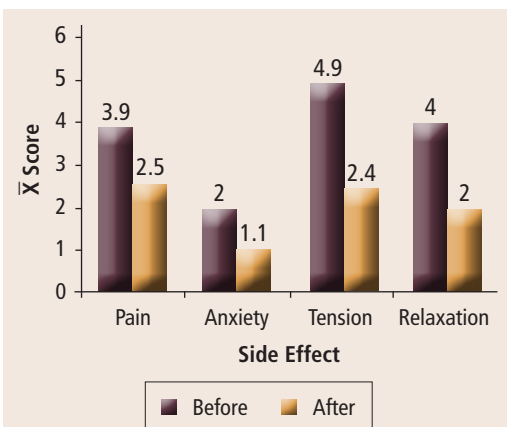
Postoperative pain, anxiety, fatigue, muscle tension, lymphedema, and nausea are among the challenges facing patients following mastectomy. Many Americans are using integrative medicine such as massage therapy to complement traditional health care (Barnes, Bloom, & Nahin, 2008). Massage therapy is used specifically to target common postoperative side effects such as pain, anxiety, fatigue, and muscle tension. In addition, massage therapy accounts for 44% of all complementary and alternative medicine services offered to patients in hospital settings (Health Forum, 2011).

A 2005 survey completed by the Mayo Clinic Breast Clinic in Rochester, MN,

examined interest in massage therapy and other forms of integrative medicine among patients with breast disease. Surveys were mailed to 63 patients who had breast abnormalities or a recent diagnosis of breast cancer and had received massage therapy from February to April 2005. Thirty-five patients responded (56% response rate); all felt that massage therapy was effective in helping to reduce stress, and 34 believed it was very or somewhat effective in reducing muscle tension. In addition, 29 (83%) reported that massage therapy was effective in reducing fatigue, creating a general feeling of wellness, and improving sleep quality and their ability to think clearly. Although the study was small, the findings demonstrated that massage therapy may help patients with breast disease reduce stress and feel better overall (Pruthi, Degnim, Bauer, DePompolo, & Nayar, 2009). As a result, the current pilot study aimed to evaluate (a) the effect of incorporating massage therapy into a busy breast surgical hospital practice and (b) the feasibility of a fee-for-service model.

## Methods

This project was conducted from March 1 to May 31, 2010. Integrative massage therapy was offered to mastectomy recipients from three surgical services on postoperative day 1 by a certified massage therapist with a physical therapy background. Each massage session was performed by the same therapist for consistency. Prior to initiation of the pilot, the massage therapist spent a day observing breast surgery in the operating room to gain a better understanding of the extent



N = 46

Note. Patients completed a visual analog scale ranging from 0 (none) to 10 (most severe or worst) for pain, anxiety, and tension. Relaxation was rated from 0 (most relaxed) to 10 (not relaxed at all).

**FIGURE 1. Patient-Reported Outcomes Before and After Massage Therapy**

of surgery involved with mastectomies and axillary dissections. The massage therapy was conducted at the patient's bedside. Each session consisted of a brief introduction to the pilot program, including a brochure outlining the potential benefits of massage therapy and what to expect during the session. Patients were informed that a fee of \$1 per minute of massage therapy would be charged to them via their hospital bill and that their insurance probably would not cover this service. If patients chose not to participate, the reason given was documented.

## Participants

All postsurgical mastectomy recipients (N = 64) were approached the morning following their mastectomy during the pilot period. All participants were women, with a mean age of 57.6 years (range = 26–86). All women had undergone unilateral or bilateral mastectomy surgery, and more than 50% also underwent immediate reconstruction or axillary lymph node dissection.

## Massage Technique

Simple measures were taken to facilitate a smooth and uninterrupted massage experience for each woman. A sign was hung at the patient's door alerting other staff to minimize interruptions, lighting was dimmed, and relaxing music was played if the woman desired it. The session was

individualized for each patient, including appropriate postsurgical positioning that accounted for the recent procedure. A manual massage was administered to the area of the woman's choice: neck and shoulder massage in sitting position at the bedside with upper extremities supported on one to two pillows, hand massage in sitting or supine position, or foot massage in supine position.

The duration of the massage varied depending on patient tolerance and was determined by assessment by the therapist and feedback from the patient. An unscented, organic massage lotion was used for glide and for minimizing friction. Techniques performed by the massage therapist required occasional modifications to accommodate surgical drains and the presence of a breast binder placed following surgery. Areas where surgical drains were present, generally in the subaxillary lateral trunk, were avoided. If a breast binder was present and the patient requested massage to her neck and back in a sitting position, the breast binder was folded down gently on the back to allow for massage without disrupting the front of the binder on the anterior chest wall incision.

## Data Collection

A brief assessment was performed for patients who were interested in par-

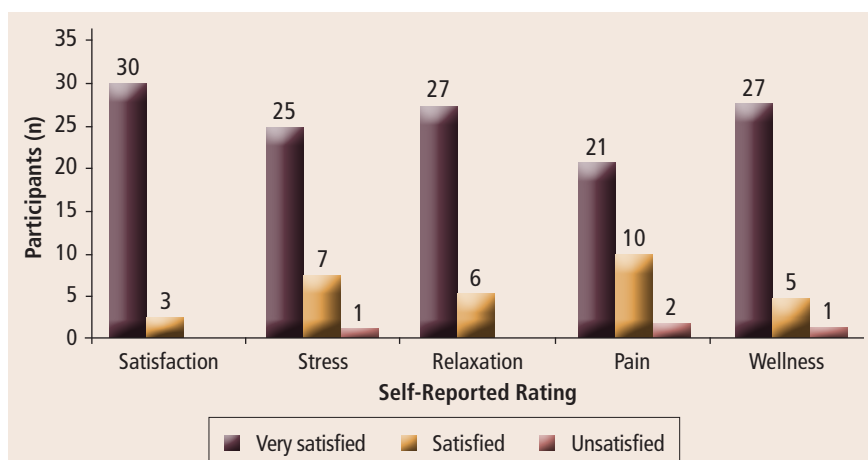
ticipating. The assessment included pretreatment pain, anxiety, and muscle tension scores using a visual analog scale ranging from 0 (none) to 10 (most severe or worst); relaxation also was rated from 0 (most relaxed) to 10 (not relaxed at all). Immediately following the massage session, a post-treatment assessment was conducted. Patients reported measures of pain, anxiety, muscle tension, and relaxation using the same visual analog scale. Patients also completed an anonymous survey following massage therapy but prior to hospital dismissal. The survey included five questions regarding satisfaction, stress, relaxation, pain, and overall well-being in a Likert-type scale format ranging from very unsatisfied to very satisfied.

## Statistical Analysis

Means for continuous variables and frequency (percentage) for categorical variables were used to characterize the survey results. Paired t test and Wilcoxon signed-rank test were used to compare pre- and postmassage scores on pain, anxiety, muscle tension, and relaxation. Any p value lower than 0.05 (two-sided) was considered statistically significant. All analyses were performed with JMP®, version 9.

## Results

Forty-six patients (72%) elected to have massage. Eighteen patients declined because of cost (n = 2), too ill (n = 3),



N = 33

Note. Patients rated items on a Likert-type scale ranging from very unsatisfied to very satisfied.

**FIGURE 2. Patient Survey Results After Massage Therapy**

not interested ( $n = 11$ ), or dismissal ( $n = 2$ ). The mean duration of therapy was 23 minutes (range = 8–45). Patient-reported outcomes showed decreases in pain, anxiety, and tension and increases in relaxation immediately after the massage ( $p < 0.001$  for all using paired  $t$  test and signed-rank test) (see Figure 1). In addition, patients reported massage as very or somewhat effective in stress relief, relaxation, and pain relief (see Figure 2). In terms of general feelings of wellness, 27 women reported massage as very effective. Patient comments on the survey regarding the experience were positive overall (see Figure 3). Thirty-three women returned postmassage surveys; 30 (91%) were very satisfied, 3 (9%) were satisfied, and all would recommend postoperative massage to other surgical recipients. Review of the billing process from the duration of the pilot has shown that all patients have paid for the services themselves because insurance declined coverage. The nursing staff found that massage therapy did not disrupt the flow of patient care and commented that patients appreciated the option of a postoperative massage. Nurses also noted anecdotally that patients benefited from the service.

## Discussion

The results of this quality improvement pilot study suggest that massage therapy can complement surgical therapy and assist with pain, anxiety, tension, and relaxation and improve overall well-being in the postoperative setting. The study also demonstrates the feasibility of integrating a massage therapy program into a busy surgical hospital unit for postoperative breast surgery recipients. Finally, review of billing data and patient interest in participation indicated that a fee-for-service model is feasible.

The preliminary findings have several important implications. First, breast surgery is common. At the authors' institution, the number of patients undergoing mastectomy was 449 in 2009 and 423 in 2010. Common symptoms noted by patients following surgery are pain, muscle tension, anxiety, fatigue, lymphedema, and nausea. The current study suggests that massage therapy, a relatively safe, noninvasive, and readily available therapy, can help to address

most of those common postoperative challenges. One aspect not evaluated in this study is the potential decrease in medications from the use of massage as an adjunct to reduce postoperative pain, tension, and anxiety.

The data also demonstrate that offering a service such as massage therapy can be successfully incorporated into a busy postoperative schedule. The fact that participants were willing to pay for the service further emphasizes the value they placed on the therapy and suggests that a fee-for-service model might be a possible mechanism for making such services more widely available.

## Limitations

This pilot study's chief limitations were the small sample size and nonrandomized design. Participants were given a brochure outlining potential benefits before the massage, which may have led to some suggestive reasoning to patients and biased the results. However, the team has conducted several randomized hospital-based massage therapy research studies with patients undergoing other types of surgery and has reported similar outcomes (Bauer et al., 2009; Cutshall et al., 2009). Therefore, although the sample size was small, the similar results suggest the validity of the current findings. Another concern relates to the generalizability of the data to other patient populations. Future studies should include other populations to determine the applicability of the findings to other patient groups. Finally, because of cost constraints, outcome measures were collected by the therapist, raising the possibility of bias. Again, however, the outcomes are in accordance with prior work done at the same institution in which all outcome measures were collected by study coordinators blinded to the intervention.

## Conclusion

This pilot study's results suggest that massage therapy can be integrated successfully into the postoperative care of breast surgery recipients. In addition, nursing staff found benefits in offering massage therapy to their patients. Nursing staff may consider massage therapy as a valuable nonpharmacologic pain manage-



FIGURE 3. Patient Comments After Massage Therapy

ment strategy, an adjunct for symptom management, and an additional option to improve the overall patient experience.

The special needs of this population combined with the results led the author's hospital practice committee to endorse moving forward with a fee-for-service model for inpatient massage therapy through the institution. The authors plan to monitor the outcomes associated with the expanded availability of massage therapy in the hospital setting and report those results in the future.

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