

# Therapeutic Massage During Chemotherapy and/or Biotherapy Infusions: Patient Perceptions of Pain, Fatigue, Nausea, Anxiety, and Satisfaction

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**Background:** Patients with cancer commonly experience disease or treatment side effects, including pain, fatigue, nausea, and anxiety. An expanding body of literature supports the use of therapeutic massage (TM) as an adjunct to conventional therapies to manage these side effects.

**Objectives:** This article describes patients' perceptions of pain, fatigue, nausea, and anxiety and their overall satisfaction with TM provided concurrently with chemotherapy and/or biotherapy.

**Methods:** In an academic outpatient comprehensive cancer center, consenting patients were asked to identify massage site preference (hands and/or feet). The licensed massage therapist delivered TM for 20 minutes to patients concurrently receiving chemotherapy and/or biotherapy. Patients rated their pain, fatigue, nausea, and anxiety pre- and post-TM using a Likert-type scale. Qualitative and quantitative data related to patients' perceived value of TM were obtained postintervention.

**Findings:** Participants (N = 58) reported a statistically significant reduction in each of the following variables: pain, fatigue, nausea, and anxiety. Results demonstrated a high level of satisfaction with the TM received as part of their care. TM could be an effective strategy for nurses to use in holistic management of patients with cancer receiving chemotherapy and/or biotherapy, and it could help to minimize side effects related to disease and treatment.

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Patients with cancer commonly receive a variety of treatments, including chemotherapy and biotherapy drugs administered as single or multiple agents. Chemotherapy drugs frequently cause side effects, such as fatigue and nausea (Polovich, Olsen, & LeFebvre, 2014). Chemotherapy is a systemic therapy used to stop or slow the growth of rapidly dividing cancer cells (Polovich, Whitford, & Olsen, 2009). Side effects of chemotherapy include neutropenia, anemia, fatigue, thrombocytopenia, nausea and vomiting, alopecia, and reproductive dysfunction (Polovich et al., 2014).

Biotherapy is another type of systemic therapy used in treating certain cancers (Polovich et al., 2014). Using substances from living organisms to treat disease or attack specific cancer cells, biotherapy can "stimulate or suppress the immune system to help the body fight cancer, infection, and other diseases"

(National Cancer Institute [NCI], n.d., para. 1). Biotherapy can cause side effects and toxicities that are different than those caused by chemotherapy, and they include fever, chills, rigors, malaise, and capillary leak syndrome (Polovich et al., 2014). Managing side effects caused by systemic therapies is an important nursing intervention to help improve quality of life (King & Hinds, 2012).

Complementary treatments, such as therapeutic massage (TM), are safe, noninvasive methods that hold promise for decreasing adverse side effects from cancer treatment (Cassileth & Keefe, 2010). The National Center for Complementary and Integrative Health (NCCIH) generally employs the term *complementary health approaches* when discussing natural products and mind-body practices used for various health conditions. The use of complementary and alternative medicine

(CAM) therapies to address health issues has increased in popularity (Moraska, Pollini, Boulanger, Brooks, & Teitlebaum, 2010). Many individuals, along with healthcare providers and systems, are integrating complementary therapies, with origins outside of mainstream medicine, into existing treatment and health promotion strategies (NCCIH, 2015). For example, guided imagery and massage are regularly used in some hospitals to help with pain management (NCCIH, 2015).

Integrative oncology is defined as the synthesis of mainstream cancer care and evidence-based complementary health approaches (Cassileth & Keefe, 2010). Complementary health approaches, in conjunction with conventional treatment, have reduced side effects experienced by patients with cancer, promoted relaxation, and improved quality of life (Billhult, Bergbom, & Stener-Victorin, 2007; Cassileth, Heitzer, & Gubili, 2008; Deng et al., 2009; Krohn et al., 2011; Kutner et al., 2008; Listing et al., 2009; Post-White et al., 2003; Pruthi, Degnim, Bauer, DePompolo, & Nayar, 2009; Sturgeon, Wetta-Hall, Hart, Good, & Dakhil, 2009; Taylor et al., 2014; U.S. Department of Health and Human Services, 2005). A total of 4,139 cancer survivors surveyed on their use of complementary health approaches reported using prayer and spiritual practice (61%), relaxation (44%), faith and spiritual healing (42%), nutritional supplements and vitamins (40%), meditation (15%), and therapeutic massage (11%) as ways of managing cancer-related side effects (Gansler, Kaw, Crammer, & Smith, 2008).

Massage is a preventive and restorative therapy involving the systematic application of pressure to the skin, muscle, and connective tissue with the aim of improving blood and lymph circulation (Oyston & McGee, 2012; Russell, Sumler, Beinhorn, & Frenkel, 2008). The use of TM calms the body and the mind, inducing relaxation (Cassileth & Keefe, 2010). About 40% of patients with cancer in the United States use complementary health approaches (Gansler et al., 2008; Horneber et al., 2012). About 5%–11% of the U.S. population chose TM as a preferred CAM treatment (Moraska et al., 2010).

Pain, fatigue, nausea, and anxiety were chosen as study variables based on a review of multiple studies that support TM as an effective intervention for reducing side effects in patients with cancer. Myers, Walton, and Small (2008) conducted a systematic review of TM in patients with cancer. Results demonstrated that TM enhanced comfort; decreased side effects of anxiety, pain, nausea, depression, and fatigue; and improved quality of life (Myers et al., 2008). A pilot study reported that patients with breast cancer (N = 51) receiving

weekly TM (one 30-minute massage per week) for three consecutive weeks during chemotherapy and/or radiation therapy experienced reduced anxiety, pain, distress, and functionality and a moderate positive effect on sleep compared to pre-massage (Sturgeon et al., 2009). In a randomized, controlled trial, 39 women with breast cancer received five 20-minute sessions of massage concurrently with chemotherapy; the women in the intervention arm (n = 19) reported a statistically significant decrease (p = 0.025) in nausea compared to those in the control group (n = 20) (Billhult et al., 2007). During a multisite, randomized clinical trial involving patients with advanced-stage cancer, TM was found to be superior to simple touch for improving immediate pain and mood as defined by the Memorial Pain Assessment Card (ranging from 0 [worst mood] to 10 [best mood]) and by 60-second heart and respiratory rates (p < 0.001) (Kutner et al., 2008). A study of patients with breast cancer (N = 35) determined that TM was perceived by this population as effective in providing relaxation and stress relief (Pruthi et al., 2009). In addition, 34 of those patients perceived TM to be effective in reducing muscle tension (Pruthi et al., 2009). In a prospective, randomized study, patients with acute myelogenous leukemia who received TM (n = 10) had a statistically significant decrease (p < 0.001) in stress over time compared to the usual care group (n = 10) (Taylor et al., 2014).

Patient satisfaction has become an important indicator for measuring quality patient care and is a requirement of many accreditation agencies that monitor quality health care (Nguyen et al., 2014). Limited information is available in the literature

**TABLE 1. Massage Pressure Guidelines**

Level	Description of Massage Pressure	Characteristics of Patient With Cancer
1	Off the body, or light touch <ul style="list-style-type: none"> <li>• Energy technique or light touch</li> <li>• Skin contact</li> <li>• Nurturing; slow, full hand</li> <li>• As if lightly touching a ripe peach</li> </ul>	Patient in treatment and/or experiencing severe side effects (blood clot, bone metastasis, osteoporosis, bruising, edema, fatigue, fever, fragile, nausea, neuropathy, platelet count of less than 50,000, trauma)
2	Superficial muscle <ul style="list-style-type: none"> <li>• Contact with superficial muscle</li> <li>• Nurturing; slow, full hand</li> <li>• As if gently and slowly washing a plum</li> </ul>	Patient in treatment and/or experiencing moderate side effects (bone metastasis, osteoporosis, bruising risk, fatigue, lymphedema risk, neuropathy, platelet count of less than 100,000, skin fragility, trauma)
3	Slightly firm <ul style="list-style-type: none"> <li>• Slightly firm muscle contact</li> <li>• Inch forward</li> <li>• Not forceful</li> <li>• Not ambitious</li> <li>• As if massaging a tangerine</li> </ul>	Patient with improving side effects (increased energy, significantly recovered from treatment)
4	Firm, controlled <ul style="list-style-type: none"> <li>• Firm, controlled pressure</li> <li>• Goal oriented</li> <li>• As if squeezing a lime</li> </ul>	Patient who is fully recovered from cancer treatment (excellent bone and tissue health, no lymphedema risk, physically fit)
5	Heavy, forceful <ul style="list-style-type: none"> <li>• Heavy, forceful massage</li> <li>• Likely not appropriate for those who have been through cancer treatment</li> </ul>	Most people who have been through cancer treatment will have some residual side effects and are not candidates for heavy, forceful massage pressure.

*Note.* From *Medicine Hands: Massage Therapy for People With Cancer* (3rd ed., p. 101), by G. MacDonald, 2014, Forres, Scotland: Findhorn Press. Copyright 2014 by Gayle MacDonald. Adapted with permission.



**FIGURE 1. Licensed Massage Therapist Providing Therapeutic Massage to a Patient With Cancer During Chemotherapy Infusion**

Note. Photo courtesy of The Christ Hospital. Used with permission.

correlating patients' perceptions of value for TM and their satisfaction with care. Pruthi et al. (2009) measured whether patients (N = 35) derived value from their TM program, finding that 33 were very satisfied with TM and 2 were somewhat satisfied. Another study evaluated a TM program's impact on satisfaction of patients with breast cancer following surgery (N = 64) (Drackley & Bauer, 2012). Patients in the intervention group (n = 46) received TM, and, in an anonymous survey, all respondents said they were satisfied with their TM experience and would recommend TM to other patients undergoing surgery.

Therapeutic massage is recognized as a complementary health approach for supportive care in the population of patients with cancer (Cassileth & Keefe, 2010; Collinge, MacDonald, & Walton, 2012). The National Comprehensive Cancer Network ([NCCN], 2016) recommends nonpharmacologic, integrative interventions, including TM, to help relieve cancer-related fatigue and acute pain. In addition, the Society for Integrative Oncology recommends TM as part of a multimodal treatment approach for patients experiencing anxiety or pain (Deng et al., 2009). The purpose of the current study was to describe patients' perceptions of pain, fatigue, nausea, and anxiety and their overall satisfaction with TM provided concurrently with chemotherapy and/or biotherapy.

## Methods

### Setting and Sample

This study was conducted in the outpatient medical oncology clinic of The Christ Hospital, a 550-bed tertiary care academic comprehensive cancer center in Cincinnati, Ohio. Inclusion criteria for participants included an oncology diagnosis, an age of 18 years or older, and treatment consisting of outpatient chemotherapy and/or biotherapy. Eligible participants were awake and alert, and they were able to comprehend study procedures and give informed consent, as well as speak and understand

English. Participants were receiving cancer treatment on a variety of schedules, ranging from once a week to once every four weeks, depending on prescribed treatment.

Patients with a diagnosis of deep vein thrombosis during the past 30 days were excluded because mechanical compression (massage) of the thrombosed vein can contribute to fragmentation of the clot (Lee & Hsu, 2013). Patients were excluded if they were being treated with doxorubicin liposomal (Doxil®), capecitabine (Xeloda®), or 5-fluorouracil (Adrucil®) continuous infusion for more than 24 hours because these drugs have the potential to cause palmar-plantar erythrodysesthesia (PPE), or hand-foot syndrome. One strategy to prevent PPE symptoms is to decrease exposure of hands and feet to friction, including the avoidance of massage (Polovich et al., 2009). Patients with skin infections were also excluded to minimize risk of transmission to the licensed massage therapist (LMT).

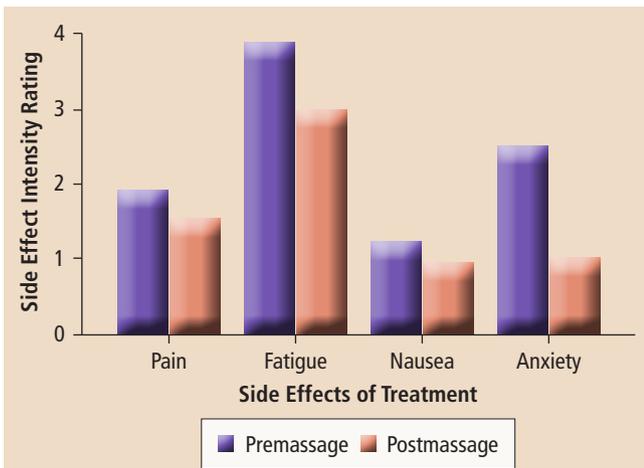
Institutional review board approval was obtained prior to this pilot study. The study was conducted from January to December 2010. Patients were recruited to participate via verbal invitations during routine outpatient medical oncology visits for chemotherapy and/or biotherapy infusion.

### Design

This descriptive, correlational pilot study used a five-point Likert-type scale to rate participants' perceptions of four side effects (i.e., pain, fatigue, nausea, and anxiety) before and about 20 minutes after TM. Following TM, satisfaction was assessed with a Likert-type scale ranging from 1 (strongly disagree) to 5 (strongly agree) and measuring participants' perception of the value of TM. Qualitative data were collected using open-ended questions regarding the overall experience of receiving TM during chemotherapy and/or biotherapy infusions as part of integrated cancer care therapy. Eligible participants had the option to receive TM during each chemotherapy and/or biotherapy visit. Some participants received TM during every visit, whereas others received TM during only one visit. Because several participants did not receive subsequent TM, only data from the initial TM visit were included in the data analysis.

**TABLE 2. Sample Characteristics (N = 58)**

Characteristic	$\bar{X}$	SD	Range
Age (years)	57.5	12.374	32–84
Characteristic	n		
<b>Cancer diagnosis</b>			
Breast	30		
Colon	6		
Brain	5		
Lung	4		
Chronic lymphocytic leukemia	4		
All other cancer diagnoses	9		
<b>Gender</b>			
Female	46		
Male	12		



TM—therapeutic massage

Note. The sample size for pre- and post-TM was 58 participants.

Note. The rating scale, ranging from 0 (no side effect) to 10 (worst ever side effect) indicates pre- and post-TM patient side effect intensity.

FIGURE 2. Mean Scores Pre- and Post-TM

## Therapeutic Massage Intervention

Participants received TM from an LMT nationally certified in oncology massage. Depending on patient preference, TM was performed in a private room or in a multiple-chair room with the curtain drawn. The amount and topic of conversation during TM varied and was determined by each patient. Each patient chose TM to feet and lower legs, hands and lower arms, or both. The LMT provided TM concurrently with the administration of antiemetics, chemotherapy, and/or biotherapy. Each TM session lasted about 20 minutes and included effleurage, a slow, full-hand, long flowing or gliding stroke following lotion application. For participants with lymph node removal, effleurage was performed toward the heart because this is the direction of lymph flow.

A hypoallergenic, unscented massage lotion was used for its ability to provide glide and reduce friction. This chosen massage lotion is also formulated for sensitive, fragile skin, which is common in the population of patients with cancer. The LMT modified the amount of pressure for patients, according to massage pressure guidelines (MacDonald, 2014) (see Table 1). During this study, only pressure levels 1 and 2 were used. Site restrictions included peripheral IVs below the elbow, skin rashes or open skin wounds, nail shedding, or bone metastasis in areas of massage. When necessary, the staff nurse moved blood pressure cuffs or pulse oximetry finger clips to opposite extremities.

The LMT wore gloves to minimize exposure to blood and body fluids and to decrease the risk of infection to potentially immune-compromised patients. Doing so is particularly important if the patient has wounds near the area being massaged (MacDonald, 2014) (see Figure 1).

## Procedures

The principal investigator (PI) performed an audit of the outpatient medical oncology schedule to identify patients who met inclusion criteria and were scheduled to receive chemo-

therapy and/or biotherapy on the day the LMT provided TM. The PI invited eligible patients to participate in the study and explained the study purpose and procedures. Informed consent was obtained from study participants.

Interprofessional collaboration occurred between the LMT and RN prior to TM. This communication offered an opportunity to review concerns related to patients scheduled to receive TM. As part of the premessage screening, each patient's platelet count and history of deep vein thrombosis and pulmonary embolism were assessed. Massage contraindications shared during this collaboration included the patient's emotional state, significant side effects related to chemotherapy and biotherapy, and time needed for RN to complete education and counseling for patients receiving their first chemotherapy and/or biotherapy treatment.

Electronic medical records were reviewed to collect demographic information and to screen inclusion and exclusion criteria. The Hand and Foot Massage Pre-Screening Tool consisted of six questions asked by the LMT prior to TM to determine appropriate modifications. Questions were as follows:

- Do you have blood clots or a history of blood clots?
- Has the cancer spread to your bones?
- Were your lymph nodes removed?
- Are you bruising easily?
- Do you have any tingling or sensitivity in your hands or feet?
- Do you have any open lesions or wounds on your hands, arms, or feet?

Prior to TM, participants were asked to rate the intensity of four side effects (pain, fatigue, nausea, and anxiety) using a visual analog scale (VAS) ranging from 0 (no side effect) to 10 (worst ever side effect). The LMT interviewed participants to determine preference for TM to hands, feet, or both. The LMT provided about 20 minutes of hand and/or foot massage.

After the TM intervention, participants rated the intensity of the four side effects using the same VAS. Participants were also asked to rate the following statement: "I think that oncology massage would be a valuable part of the care of cancer patients (at the hospital)" using a rating scale of 1 (strongly disagree) to 5 (strongly agree). Participants were encouraged to provide narrative descriptions of the TM experience with the following open-ended question: "How would you describe your experience receiving the massage therapy today?"

## Analysis

Data were entered into Microsoft® Excel and imported into SPSS®, version 17.0, for statistical analysis. Demographic characteristics (e.g., cancer diagnosis, age, gender) were analyzed using descriptive statistics. Mean, standard deviation, and paired sample t tests were performed to determine if significant differences existed between pre- and post-test scores for pain, fatigue, nausea, and anxiety. Patients' perceived value of TM as an indicator of overall satisfaction was analyzed as mean score. Content analysis was used to analyze open-ended questions for common themes. Qualitative data were coded according to common themes by the PI, and coded themes were then reviewed by the hospital's director of nursing research. A research assistant entered quantitative data into an electronic spreadsheet.

### Positive impact of massage

"That was wonderful! It's the most relaxing and energizing. It really soothes you!"

"I feel so relaxed now; it feels so good. . . . I feel like I'm at a spa; I get a good sense of well-being."

"[It has] a lot more value than just the massage—the sensitivity of the person. It had a four- [to] five-hour effect: euphoric, relaxed, happy, lovely."

"Very relaxing and calming. Something positive to look forward to while having chemotherapy."

"[Massage] is a really useful tool. . . . You don't realize how tense you get in the palms of the hands and feet."

### Distraction

"It takes your mind off this garbage."

"It was really enjoyable and relaxing. It takes your mind off of what you are really doing here."

### Holistic impact of massage

"I'm so relaxed [in] mind, body, [and] spirit. It's the whole thing; your body is not just cancer—it's the whole crap that goes with it."

"[I feel] more like a person. Touch is important."

### Side effect improvement

"My extremities tend to be cool; [my hands] are warm and toasty after the massage."

"I think it helps with the neuropathy."

"Less numbness and tingling, more movability, less stiffness, less swelling."

"She makes your legs feel like rubber and not a heavy weight."

"Very refreshing. My feet are tingling. It is nice [to get the massage] when getting your chemo and your feet get dry—it's nice to have the softness again. My nails were splitting. I could see the swelling go down in my ankles and feet."

### Impact on satisfaction with cancer center

"The . . . cancer center has been one of the most positive experiences possible. The staff and physical facility itself could not be better. Adding massage just makes it off-the-charts good. The love and positive energy is amazing."

"Very professional. Very well done. Upgrades the service."

"I think that it is absolutely wonderful that the hospital does this for the patients at no cost."

## FIGURE 3. Themes Related to Patient Satisfaction With Therapeutic Massage and Participant Examples

## Results

From January to December 2010, 58 participants were recruited to and participated in the study. Demographic characteristics are presented in Table 2. Participants who received about 20 minutes of TM reported significantly less pain ( $p < 0.002$ ), fatigue ( $p < 0.000$ ), and anxiety ( $p < 0.000$ ) compared to pre-TM levels. Nausea was also significantly reduced ( $p < 0.018$ ), but few patients reported nausea pre-TM ( $n = 15$ ). Patients who were receiving emetogenic chemotherapy received antiemetics, whereas patients receiving biotherapy did not. Demographic data were not collected on who did or did not receive antiemetics. Mean pain scores decreased from 1.95 pre- to 1.51 post-TM. The mean difference for pain scores from pre- to post-TM was 0.44 ( $t = 3.27$ ,  $p < 0.002$ ). Mean fatigue scores decreased from 3.88 pre- to 3.04 post-TM. The mean difference in fatigue scores from pre- to post-TM was 0.84 ( $t =$

3.89,  $p < 0.000$ ). Mean nausea scores decreased from 1.33 pre- to 0.78 post-TM. The mean difference in nausea scores from pre- to post-TM was 0.55 ( $t = 2.43$ ,  $p < 0.018$ ). Mean anxiety scores decreased from 2.56 pre- to 1.14 post-TM. The mean difference in anxiety scores from pre- to post-TM was 1.42 ( $t = 5.15$ ,  $p < 0.000$ ) (see Figure 2). An unexpected finding from this study was a patient-reported decrease in neuropathic pain after TM; this was an unsolicited finding and was reported by two patients.

Following TM, participants reported that it was a valuable part of their care. The mean score for patient satisfaction was 4.7 out of 5 post-TM ( $n = 57$ ). Qualitative comments and value descriptions of TM experience were thematically analyzed and coded. Themes were positive impact of massage, distraction, holistic impact of massage, side effect improvement, and impact on satisfaction with cancer center. Figure 3 provides additional details.

## Discussion

The findings from this study suggest that TM can be an effective strategy to decrease patients' perceptions of pain, fatigue, nausea, and anxiety during chemotherapy and/or biotherapy treatments. Oncology nurses are in a unique position to promote the use of complementary health approaches, including TM, as an adjunct to traditional pharmacologic interventions for side effect management.

Education and collaboration are essential components of a successful oncology massage program. Web-based resources can be used to educate the healthcare team, patients, and families regarding the availability and efficacy of TM for oncology patients (see Figure 4). Collaboration between the nursing and LMT teams is critical to the success of a safe, effective oncology massage therapy program.

Additional research is needed to examine TM as an intervention in a variety of hospital and community outpatient and inpatient oncology settings. Future studies should include larger sample sizes; involvement with similar groups; controls

### National Center for Complementary and Integrative Health

Patient handout "Massage Therapy for Health Purposes: What You Need to Know"; information about massage therapy for a variety of conditions, including cancer; evidence on the safety, effectiveness, and side effects of massage therapy  
<https://nccih.nih.gov>

### National Institutes of Health: News in Health

Patient handout "Massage Therapy: What You Knead to Know"  
<https://newsinhealth.nih.gov/issue/jul2012/feature2>

### Society for Oncology Massage

Patient handout "Massage During Cancer Treatment, Recovery, and Survivorship" (search for "Oncology Massage Flyer [blue]"); information about oncology massage for healthcare professionals, patients, family, and friends; online function to locate oncology massage therapists by city and state  
<http://s4om.org>

## FIGURE 4. Web-Based Educational Resources for Oncology Massage

for type of cancer, antiemetic use, and other variables; and randomized, controlled trials to compare groups receiving TM versus control groups.

An unexpected finding during this study was that some participants anecdotally reported a decrease in numbness and tingling in their hands and feet post-TM. The initial literature search of TM studies for patients with cancer identified pain, but not peripheral neuropathy, as a variable (Cassileth & Vickers, 2004; NCCN, 2016). When this pilot study was designed, peripheral neuropathy was not measured. Other researchers have reported massage therapy as a promising treatment for cancer-related neuropathic pain (Cassileth & Keefe, 2010).

Oncology nurses also may effectively manage the side effects experienced by patients with cancer, using nonpharmacologic interventions (e.g., CAM therapies) and traditional interventions. Interprofessional collaboration between nurses and LMTs provides an opportunity for improved patient outcomes. Study findings expand the body of nursing knowledge by offering additional evidence to support the use of TM as an intervention to potentially minimize disease or treatment-related side effects.

## Limitations

The limitations of this study include the small sample size (N = 58) in a single practice setting. Other limitations include the lack of a control group and failure to monitor the length of time of the therapeutic benefit from TM. When rating their side effects post-TM, some participants rated fatigue as higher than pre-TM and verbally reported that they felt very relaxed. Participants' understanding of the words "fatigue" and "relaxation" needed to be consistent, so these concepts should have been defined prior to the TM. Antiemetic use was not controlled in this sample, which may have confounded perceptions of nausea. Some participants received medications (diphenhydramine [Benadryl®], lorazepam [Ativan®]), which may have influenced perceived intensity of the study variables. In addition, TM was administered for an average of 20 minutes. Some participants received more or less time, which could have affected overall effect. In addition, the LMT involved in the study is a breast cancer survivor who discussed the experience of cancer as part of the conversation with some participants during the TM session. This shared cancer experience may have enhanced the overall therapeutic benefit of TM.

## Conclusion

A growing body of literature supports the role of TM as a therapeutic option to assist in managing side effects related to patients' cancer diagnosis and associated treatments. Results of this pilot study suggest that about 20 minutes of hand and/or foot TM performed during chemotherapy and/or biotherapy infusion significantly decreased patients' perceptions of pain, fatigue, nausea, and anxiety. Nausea was reduced to a lesser extent than other variables, which may reflect the success of antiemetic therapies in effectively managing this side effect. Study findings also reflected high overall patient satisfaction with hand and/or foot TM as a comprehensive part of an integrated outpatient oncology healthcare experience. During this study, no negative effects of TM were reported.

## Implications for Practice

- ▶ Understand that patients with cancer may experience multiple side effects related to disease or treatment, including pain, fatigue, nausea, and anxiety.
- ▶ Promote the use of complementary health approaches, such as therapeutic massage (TM), in combination with pharmacologic interventions to effectively manage side effects experienced by patients with cancer.
- ▶ Be informed about how TM can help to decrease side effects related to chemotherapy and biotherapy (e.g., pain, fatigue, nausea, anxiety) that are experienced by patients with cancer.

Themes extracted from qualitative data further support the use of TM among participants concurrently receiving cancer treatments. These findings include decreased physical side effects (e.g., pain, nausea, vomiting) and improved psychological state (e.g., decreased anxiety, depression, mood disturbances) (Billhult et al., 2007; Grealish, Lomasney, & Whiteman, 2000; Kutner et al., 2008; Listing et al., 2009; Myers et al., 2008), which correlate with the findings of the current study.

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