POSITION STATEMENT PROPOSAL ON MASSAGE AND QUALITY OF LIFE FOR CANCER PATIENTS

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POSITION STATEMENT PROPOSAL ON MASSAGE AND QUALITY OF LIFE FOR CANCER PATIENTS

BACKGROUND INFORMATION

The Department of Health and Human Services directive *Healthy People 2020* indicates that quality of life is essential for public health.[1] Cancer is the 2nd leading cause of death in the United States and the emotional and physical effects of being diagnosed, treated, and living with cancer can greatly impact a patient's quality of life. A patient's quality of life can also affect their prognosis with the disease. Individuals with higher quality of life tend to have better health outcomes and greater survival rates.[2–4] Massage therapy has been shown to improve anxiety, depression, sleep, fatigue, nausea, and quality of life for those with cancer.[5–22] According to a meta-analysis by Chida and colleagues, stress-related psychosocial factors are associated with poorer quality of life and increased rates of mortality in cancer patients.[2] Antoni hypothesized that patients with higher quality of life may have slower tumor growth and better overall health outcomes.[4]

Massage therapy has been shown to be a significant integrative treatment, specifically research has shown that massage can: assist in relieving constipation,[6,23] improving sleep,[7,24] decreasing anxiety,[24,25] decreasing pain,[7,14,15,24,26] decreasing stress,[5,15,25] and improving health related quality of life.[5,8,24] One study indicates that in patients who are nauseated from receiving chemotherapy can reduce the nausea symptoms through the massage modality of acupressure.[27] For those patients who are receiving autologous bone marrow transplants and having symptoms of nausea, gentle massage can help relieve those symptoms.[21] Many oncology patients state they are less anxious in general when receiving regular massage; oncology patients currently in treatment report that massage eases anxiety before and during difficult procedures and interventions.[21,28] Oncology patients who receive massage therapy report less muscle tension pain, treatment-related pain, and cancer-related pain. Some state that massage helps reduce acute pain and at times massage therapy can relieve the pain completely.[21,22,29] Time after time, oncology patients in research studies report that massage therapy helps improve their vitality and reduce their feelings of fatigue.[17–20]

RATIONALE

Research indicates that massage therapy can improve the physiological and psychological effects of cancer and cancer treatment and that cancer patient's health related quality of life can also be ameliorated; therefore, cancer patients can benefit from utilizing and incorporating massage therapy given by professional massage therapists working within their scope of practice.

The position statement specifically supports all of AMTA's Core Values:

- We are a diverse and nurturing community working with integrity, respect and dignity.
- We believe in the benefits of massage.

The position statement supports the portions of Vision Statements of the AMTA, as follows:

- AMTA members are devoted to professionalism and excellence in massage therapy practice.
- Quality research is the foundation for evidence-informed massage therapy education and practice.
- AMTA promotes its members as the highest quality professionals in massage therapy.

- Massage therapy is easily accessible.
- Massage therapy is a vital component of health care and wellness.

The position statement supports the portions of Goals and Objectives of the AMTA, as follows:

ADVOCACY AND INFLUENCE

Goal: The health care and wellness industry accepts the value of massage therapy.

Objective: Increase understanding of the benefits of massage therapy through education of the health care and wellness industry.

INDUSTRY RELATIONSHIPS

Goal: AMTA is a respected leader within the health care and wellness industry.

Objective: Increase collaboration between AMTA, its members and other health care and wellness industry leaders.

RESEARCH

Goal: AMTA members are aware of the importance of scientific research to the massage therapy industry.

Objective: Increase the opportunities for members to access massage therapy scientific research through AMTA sources.

POSITION STATEMENT

It is the position of the American Massage Therapy Association (AMTA) that massage therapy can improve health related quality of life for cancer patients.

REFERENCES

1. USA Department of Health and Human Services. *Healthy People 2020*. Office of Disease Prevention and Health Promtion; 2010. Available at: www.healthypeople.gov.

2. Chida Y, Hamer M, Wardle J, Steptoe A. Do stress-related psychosocial factors contribute to cancer incidence and survival? *Nat. Clin. Pract. Oncol.* 2008;5(8):466–475. doi:10.1038/ncponc1134.

A substantial body of research has investigated the associations between stress-related psychosocial factors and cancer outcomes. Previous narrative reviews have been inconclusive. In this Review, we evaluated longitudinal associations between stress and cancer using meta-analytic methods. The results of 165 studies indicate that stress-related psychosocial factors are associated with higher cancer incidence in initially healthy populations ($P = 0.005$); in addition, poorer survival in patients with diagnosed cancer was noted in 330 studies ($P < 0.001$), and higher cancer mortality was seen in 53 studies ($P < 0.001$). Subgroup meta-analyses demonstrate that stressful life experiences are related to poorer cancer survival and higher mortality but not to an increased incidence. Stress-prone personality or unfavorable coping styles and negative emotional responses or poor quality of life were related to higher cancer incidence, poorer cancer survival and higher cancer mortality. Site-specific analyses indicate that psychosocial factors are associated with a higher incidence of lung cancer and poorer survival in patients with breast,

lung, head and neck, hepatobiliary, and lymphoid or hematopoietic cancers. These analyses suggest that stress-related psychosocial factors have an adverse effect on cancer incidence and survival, although there is evidence of publication bias and results should be interpreted with caution.

3. Yellen SB, Cella DF. Someone to live for: social well-being, parenthood status, and decision-making in oncology. *J. Clin. Oncol. Off. J. Am. Soc. Clin. Oncol.* 1995;13(5):1255–1264.

PURPOSE: Little is known about the influence of social factors on treatment preferences and desire for aggressive cancer therapy. The present study assessed subjective and objective social indicators in patient preferences for treatment.

METHODS: Cancer patients (N = 296) with diverse diagnoses and stages read sets of hypothetical vignettes describing patients with early-stage and advanced disease. In the first set, patients made decisions about treatment acceptance given varying levels of either increasing cure or extending survival. In the second set, the point at which patients shifted preferences from mild to severe treatment to improve likelihood of 1-year survival (switch point) was the dependent measure. We assessed the impact of quality-of-life (QL) domains measured by the Functional Assessment of Cancer Therapy-General (FACT-G), having children, marital status, and living arrangements on treatment preferences and switch points.

RESULTS: The Social Well-Being (SWB) subscale of the FACT-G predicted both treatment acceptance (P = .007) and switch point (P = .043) in the advanced-disease vignettes, with lower SWB associated with less aggressive preferences. Children living at home was likewise associated with more aggressive intent both in treatment preferences (P = .003, advanced-disease vignette) and switch point (P < .001 and P = .001 for early- and advanced-disease vignettes, respectively). Living with others predicted more aggressive intent in the advanced-disease vignette (P = .03). Marital status did not predict either treatment acceptance or switch point.

CONCLUSION: Positive social well-being, as well as having children living at home, predicted patient willingness to accept aggressive treatment. Willingness to receive aggressive treatment may explain or mediate previously reported salutory effects of social support on cancer outcomes.

4. Antoni MH. Psychosocial intervention effects on adaptation, disease course and biobehavioral processes in cancer. *Brain. Behav. Immun.* 2013;30 Suppl:S88–98. doi:10.1016/j.bbi.2012.05.009.

A diagnosis of cancer and subsequent treatments place demands on psychological adaptation. Behavioral research suggests the importance of cognitive, behavioral, and social factors in facilitating adaptation during active treatment and throughout cancer survivorship, which forms the rationale for the use of many psychosocial interventions in cancer patients. This cancer experience may also affect physiological adaptation systems (e.g., neuroendocrine) in parallel with psychological adaptation changes (negative affect). Changes in adaptation may alter tumor

growth-promoting processes (increased angiogenesis, migration and invasion, and inflammation) and tumor defense processes (decreased cellular immunity) relevant for cancer progression and the quality of life of cancer patients. Some evidence suggests that psychosocial intervention can improve psychological and physiological adaptation indicators in cancer patients. However, less is known about whether these interventions can influence tumor activity and tumor growth-promoting processes and whether changes in these processes could explain the psychosocial intervention effects on recurrence and survival documented to date. Documenting that psychosocial interventions can modulate molecular activities (e.g., transcriptional indicators of cell signaling) that govern tumor promoting and tumor defense processes on the one hand, and clinical disease course on the other is a key challenge for biobehavioral oncology research. This mini-review will summarize current knowledge on psychological and physiological adaptation processes affected throughout the stress of the cancer experience, and the effects of psychosocial interventions on psychological adaptation, cancer disease progression, and changes in stress-related biobehavioral processes that may mediate intervention effects on clinical cancer outcomes. Very recent intervention work in breast cancer will be used to illuminate emerging trends in molecular probes of interest in the hope of highlighting future paths that could move the field of biobehavioral oncology intervention research forward.

5. Keir ST. Effect of massage therapy on stress levels and quality of life in brain tumor patients--observations from a pilot study. *Support. Care Cancer Off. J. Multinatl. Assoc. Support. Care Cancer*. 2011;19(5):711–715. doi:10.1007/s00520-010-1032-5.

BACKGROUND: Patients with brain tumors report experiencing elevated levels of stress across the disease continuum. Massage therapy is a commonly used complementary therapy and is employed in cancer care to reduce psychological stress and to improve quality of life (QoL). The purpose of this pilot study was to obtain a preliminary assessment of the efficacy of massage therapy on patient reported psychological outcomes and QoL.

MATERIALS AND METHODS: The design of the study was a prospective, single-arm intervention. Participants were newly diagnosed primary brain tumor patients who reported experiencing stress and who received a total of eight massages over a period of 4 weeks. Participants completed the Perceived Stress Scale (PSS-10) and the Functional Assessment of Cancer Therapy-Brain to assess their stress level and QoL.

RESULTS: As a group, levels of stress dropped significantly between weeks 2 and 3 ($M = 12.3$, $SD = 3.09$, $P \leq 0.010$). A trend for the reduction in stress continued through week 4 ($P \leq 0.063$). At the end of week 4, PSS-10 scores of all participants were below the threshold for being considered stressed. By the end of the intervention, participants reported significant improvements in three test domains, emotional well-being, additional brain tumor concerns, and social/family well-being.

CONCLUSION: This study indicates that participation in a massage therapy program is both feasible and acceptable to newly diagnosed brain tumor patients experiencing stress. Furthermore, participants in this study reported improvements in stress and their QoL while

receiving massage therapy.

6. Lai TKT, Cheung MC, Lo CK, et al. Effectiveness of aroma massage on advanced cancer patients with constipation: a pilot study. *Complement. Ther. Clin. Pr.* 2011;17(1):37–43. doi:10.1016/j.ctcp.2010.02.004.

PURPOSE: The purpose of this study was to verify the effect of aroma massage on constipation in advanced cancer patients.

METHODS: This study employed a randomized control group pre- and post test design and included an aroma massage group, plain massage group, and control group. To evaluate the effect of aromatherapy, the degree of constipation was measured using a constipation assessment scale, severity level of constipation and the frequency of bowel movements. Data was analyzed by repeated measures of Mann-Whitney U test, Wilcoxon signed ranks test, Spearman's rho and ANOVA using SPSS program.

RESULTS: The score of the constipation assessment scale of the aroma massage group was significantly lower than the control group. Apart from the improvement in bowel movements, the results showed significantly improved quality of life in physical and support domains of the aroma massage group.

CONCLUSION: The findings of this study suggest aroma massage can help to relieve constipation in patients with advanced cancer.

7. Jane S-W, Chen S-L, Wilkie DJ, et al. Effects of massage on pain, mood status, relaxation, and sleep in Taiwanese patients with metastatic bone pain: a randomized clinical trial. *Pain*. 2011;152(10):2432–2442. doi:10.1016/j.pain.2011.06.021.

To date, patients with bony metastases were only a small fraction of the samples studied, or they were entirely excluded. Patients with metastatic cancers, such as bone metastases, are more likely to report pain, compared to patients without metastatic cancer (50-74% and 15%, respectively). Their cancer pain results in substantial morbidity and disrupted quality of life in 34-45% of cancer patients. Massage therapy (MT) appears to have positive effects in patients with cancer; however, the benefits of MT, specifically in patients with metastatic bone pain, remains unknown. The purpose of this randomized clinical trial was to compare the efficacy of MT to a social attention control condition on pain intensity, mood status, muscle relaxation, and sleep quality in a sample (n=72) of Taiwanese cancer patients with bone metastases. In this investigation, MT was shown to have beneficial within- or between-subjects effects on pain, mood, muscle relaxation, and sleep quality. Results from repeated-measures analysis of covariance demonstrated that massage resulted in a linear trend of improvements in mood and relaxation over time. More importantly, the reduction in pain with massage was both statistically

and clinically significant, and the massage-related effects on relaxation were sustained for at least 16-18 hours postintervention. Furthermore, massage-related effects on sleep were associated with within-subjects effects. Future studies are suggested with increased sample sizes, a longer interventional period duration, and an objective and sensitive measure of sleep. Overall, results from this study support employing MT as an adjuvant to other therapies in improving bone pain management.

8. Sturgeon M, Wetta-Hall R, Hart T, Good M, Dakhil S. Effects of therapeutic massage on the quality of life among patients with breast cancer during treatment. *J. Altern. Complement. Med. New York N*. 2009;15(4):373–380. doi:10.1089/acm.2008.0399.

OBJECTIVE: Therapeutic massage has demonstrated positive physical and emotional benefits to offset the effects of treatments associated with breast cancer. The goal of this study was to assess the impact of therapeutic massage on the quality of life of patients undergoing treatment for breast cancer.

DESIGN: Using a pre/post intervention assessment design, this prospective, convenience sample pilot study measured anxiety, pain, nausea, sleep quality, and quality of life. Treatment consisted of one 30-minute treatment per week for 3 consecutive weeks.

OUTCOME MEASURES: Instruments selected for this study were used in previous massage therapy studies to measure quality of life/health status and have documented validity and reliability.

RESULTS: Participants experienced a reduction in several quality of life symptom concerns after only 3 weeks of massage therapy. Respondents' cumulative pre- and post-massage mean for state anxiety, sleep quality, and quality of life/functioning showed significant improvement. Among study participants, there was variability in reported episodes of nausea, vomiting, and retching; although participants reported decreased pain and distress, changes were non-significant.

CONCLUSIONS: Therapeutic massage shows potential benefits for ameliorating the effects of breast cancer treatment by reducing side affects of chemotherapy and radiation and improving perceived quality of life and overall functioning.

9. Gross AH, Cromwell J, Fonteyn M, Matulonis UA, Hayman LL. Hopelessness and Complementary Therapy Use in Patients With Ovarian Cancer. *Cancer Nurs.* 2012. doi:10.1097/NCC.0b013e31826f3bc4.

BACKGROUND:: Hopelessness negatively affects ovarian cancer patients' quality of life (QOL). Research validating the effects of complementary and alternative medicine (CAM) use on QOL and hope is scarce, even though QOL and hope are reasons that patients cite for using CAM therapy. Clinicians need effective, evidence-based interventions to improve QOL and reduce hopelessness.

OBJECTIVE:: The objectives of this study were to examine factors influencing hopelessness in patients with newly diagnosed disease, long-term survivors, and patients experiencing ovarian cancer recurrence and to examine the effects of CAM on hopelessness in the same population.

METHODS:: Surveys of ovarian cancer patients (N = 219) undergoing treatment at a comprehensive cancer center in the United States were analyzed. Descriptive, correlation, and multivariate analyses described variables and demonstrated the effects of sociodemographics, disease state, psychological distress, QOL, CAM use, and faith on hopelessness.

RESULTS:: Patients ages 65 years or older (-0.95, P = .03), with strong faith (-0.28, P = .00), and good QOL (0.11, P = .00) directly reduced hopelessness scores (mean, 3.37). Massage therapy substantially reduced hopelessness scores (-1.07, P = .02); holding age constant, employed patients were twice as likely to use massage (odds ratio, 2.09; P = .04). Patients who had newly diagnosed and recurrent ovarian cancer were more hopeless because of greater distress from symptoms and adverse effects of treatment.

CONCLUSION:: Patients who used massage therapy were significantly less hopeless, as were those with strong faith and well-controlled disease symptoms and treatment for adverse effects.

IMPLICATIONS FOR PRACTICE:: Support of spiritual needs and symptom management are important interventions to prevent and/or reduce hopelessness, especially for patients with newly diagnosed and recurrent ovarian cancer. Further research testing the positive effect of massage interventions on hopelessness is needed.

10. Collinge W, Kahn J, Walton T, et al. Touch, Caring, and Cancer: randomized controlled trial of a multimedia caregiver education program. *Support. Care Cancer*. 2012. doi:10.1007/s00520-012-1682-6.

PURPOSE: A randomized controlled trial was conducted to evaluate outcomes of a multimedia instructional program for family caregivers in simple touch-based techniques to provide comfort to cancer patients at home.

METHODS: A multilingual 78-min DVD and 66-page manual were produced for homebased instruction. Content addresses attitudes and communication about touch in cancer, psychological preparation for giving and receiving touch, safety precautions, massage techniques for comfort and relaxation, acupressure for specific cancer-related symptoms, and practice in the home setting. Materials were produced in English, Spanish, and Chinese versions. A community-based multiethnic sample of 97 adult patient/caregiver dyads was randomized to experimental (massage) or attention control (reading) groups for 4 weeks. Massage dyads received the program and instructions to practice at least three times per week, while control caregivers read to their patients for the same frequency. Self-report instruments assessed change in symptom severity, quality of life, perceived stress, and caregiver attitudes.

RESULTS: Significant reductions in all symptoms occurred for patients after both activities: 12-

28 % reductions after reading vs. 29-44 % after massage. Massage caregivers showed significant gains in confidence, comfort, and self-efficacy using touch and massage as forms of caregiving.

CONCLUSIONS: Multimedia instruction in touch and massage methods may offer family members a viable means of enhancing self-efficacy and satisfaction in caregiving while decreasing patient pain, depression, and other symptoms. Family members may be able to learn and apply safe and simple methods that increase patient comfort and reduce distress.

11. Myers CD, Walton T, Bratsman L, Wilson J, Small B. Massage modalities and symptoms reported by cancer patients: narrative review. *J. Soc. Integr. Oncol.* 2008;6(1):19–28.

The results of several studies on the use of massage therapies for cancer patients have been published in the peer-reviewed literature over the past 20 years. The current article provides a summary and critique of published studies in which patient-reported symptom ratings were assessed in relation to massage. Twenty-two studies are discussed. Most studies were on Swedish massage, followed by aromatherapy massage, foot reflexology, and acupressure. Symptoms assessed as outcomes included pain, fatigue, anxiety, nausea, and depression. Study designs included uncontrolled observational studies, crossover designs, and quasiexperimental and randomized controlled studies. Several studies included methodologic limitations such as small sample sizes, lack of blinded assessment, lack of accounting for subject attrition in statistical analyses, and other limitations. The results of the studies reviewed are mixed and vary as a function of several study characteristics. The most consistent symptom reduction was anxiety reduction. Additional well-designed studies are needed. Several recommendations are offered for future studies.

12. Toth M, Marcantonio ER, Davis RB, Walton T, Kahn JR, Phillips RS. Massage Therapy for Patients with Metastatic Cancer: A Pilot Randomized Controlled Trial. *J. Altern. Complement. Med. New York N.* 2013. doi:10.1089/acm.2012.0466.

Abstract Objectives: The study objectives were to determine the feasibility and effects of providing therapeutic massage at home for patients with metastatic cancer. Design: This was a randomized controlled trial. Settings/location: Patients were enrolled at Oncology Clinics at a large urban academic medical center; massage therapy was provided in patients' homes. Subjects: Subjects were patients with metastatic cancer. Interventions: There were three interventions: massage therapy, no-touch intervention, and usual care. Outcome measures: Primary outcomes were pain, anxiety, and alertness; secondary outcomes were quality of life and sleep. Results: In this study, it was possible to provide interventions for all patients at home by professional massage therapists. The mean number of massage therapy sessions per patient was 2.8. A significant improvement was found in the quality of life of the patients who received massage therapy after 1-week follow-up, which was not observed in either the No Touch control or the Usual Care control groups, but the difference was not sustained at 1 month. There were trends toward improvement in pain and sleep of the patients after therapeutic massage but not in patients in the control groups. There were no serious adverse events related to the interventions. Conclusions: The study results showed that it is feasible to provide therapeutic massage at home

for patients with advanced cancer, and to randomize patients to a no-touch intervention. Providing therapeutic massage improves the quality of life at the end of life for patients and may be associated with further beneficial effects, such as improvement in pain and sleep quality. Larger randomized controlled trials are needed to substantiate these findings.

13. Listing M, Reisshauer A, Krohn M, et al. Massage therapy reduces physical discomfort and improves mood disturbances in women with breast cancer. *Psychooncology.* 2009;18(12):1290–1299. doi:10.1002/pon.1508.

BACKGROUND. A randomized controlled trial was conducted to investigate the efficacy of classical massage treatment in reducing breast cancer-related symptoms and in improving mood disturbances.

METHODS. Women diagnosed with primary breast cancer were randomized into an intervention group and a control group. For a period of 5 weeks, the intervention group received bi-weekly 30-min classical massages in the back and head-neck areas. The control group received no additional treatment to their routine healthcare. To evaluate treatment efficacy, the following validated questionnaires were administrated at baseline (T1), at the end of the intervention (T2), and at a followup at 11 weeks (T3): the Short Form-8 Health Survey, the European Organization of Research and Treatment of Cancer quality of life questionnaire breast module (EORTC QLQ-BR23), the Giessen Complaints Inventory (GBB), and the Berlin Mood Questionnaire (BSF).

RESULTS. Eighty-six eligible women (mean age: 59 years) were enrolled in the study. A significantly higher reduction of physical discomfort was found in the intervention group compared with the control group at T2 ($p=0.001$) and at T3 ($p=0.038$). A decrease in fatigue was also observed. Women in the intervention group reported significantly lower mood disturbances at T2 ($p<0.01$) but not at T3. The effect of treatment on mood disturbances was significantly higher if a patient was treated continuously by the same masseur.

CONCLUSION. Classical massage seems to be an effective adjuvant treatment for reducing physical discomfort and fatigue, and improving mood disturbances in women with early stage breast cancer.

14. Kutner JS, Smith MC, Corbin L, et al. Massage therapy versus simple touch to improve pain and mood in patients with advanced cancer: a randomized trial. *Ann. Intern. Med.* 2008;149(6):369–379.

BACKGROUND: Small studies of variable quality suggest that massage therapy may relieve pain and other symptoms.

OBJECTIVE: To evaluate the efficacy of massage for decreasing pain and symptom distress and improving quality of life among persons with advanced cancer.

DESIGN: Multisite, randomized clinical trial.

SETTING: Population-based Palliative Care Research Network.

PATIENTS: 380 adults with advanced cancer who were experiencing moderate-to-severe pain; 90% were enrolled in hospice.

INTERVENTION: Six 30-minute massage or simple-touch sessions over 2 weeks
MEASUREMENTS: Primary outcomes were immediate (Memorial Pain Assessment Card, 0- to 10-point scale) and sustained (Brief Pain Inventory [BPI], 0- to 10-point scale) change in pain. Secondary outcomes were immediate change in mood (Memorial Pain Assessment Card) and 60-second heart and respiratory rates and sustained change in quality of life (McGill Quality of Life Questionnaire, 0- to 10-point scale), symptom distress (Memorial Symptom Assessment Scale, 0- to 4-point scale), and analgesic medication use (parenteral morphine equivalents [mg/d]). Immediate outcomes were obtained just before and after each treatment session. Sustained outcomes were obtained at baseline and weekly for 3 weeks.

RESULTS: 298 persons were included in the immediate outcome analysis and 348 in the sustained outcome analysis. A total of 82 persons did not receive any allocated study treatments (37 massage patients, 45 control participants). Both groups demonstrated immediate improvement in pain (massage, -1.87 points [95% CI, -2.07 to -1.67 points]; control, -0.97 point [CI, -1.18 to -0.76 points]) and mood (massage, 1.58 points [CI, 1.40 to 1.76 points]; control, 0.97 point [CI, 0.78 to 1.16 points]). Massage was superior for both immediate pain and mood (mean difference, 0.90 and 0.61 points, respectively; $P < 0.001$). No between-group mean differences occurred over time in sustained pain (BPI mean pain, 0.07 point [CI, -0.23 to 0.37 points]; BPI worst pain, -0.14 point [CI, -0.59 to 0.31 points]), quality of life (McGill Quality of Life Questionnaire overall, 0.08 point [CI, -0.37 to 0.53 points]), symptom distress (Memorial Symptom Assessment Scale global distress index, -0.002 point [CI, -0.12 to 0.12 points]), or analgesic medication use (parenteral morphine equivalents, -0.10 mg/d [CI, -0.25 to 0.05 mg/d]).

LIMITATIONS: The immediate outcome measures were obtained by unblinded study therapists, possibly leading to reporting bias and the overestimation of a beneficial effect. The generalizability to all patients with advanced cancer is uncertain. The differential beneficial effect of massage therapy over simple touch is not conclusive without a usual care control group.

CONCLUSION: Massage may have immediately beneficial effects on pain and mood among patients with advanced cancer. Given the lack of sustained effects and the observed improvements in both study groups, the potential benefits of attention and simple touch should also be considered in this patient population.

15. Dryden, T and Moyer, C. eds. *Massage therapy: integrating research and practice*. Champaign, IL: Human Kinetics; 2012.

16. Collinge W, MacDonald G, Walton T. Massage in supportive cancer care. *Semin. Oncol. Nurs.* 2012;28(1):45–54. doi:10.1016/j.soncn.2011.11.005.

OBJECTIVE: To review recent findings on the utilization of massage by cancer patients, including evidence of effects in supportive and palliative cancer care, current understanding of safety considerations and adaptations needed, education of professional and family caregivers to provide this form of support, and guidelines for oncology nurses in referring patients.

DATA SOURCES: Journal articles, government and special health reports, book chapters, and web-based resources.

CONCLUSION: The massage profession and the disciplines of clinical oncology have experienced a rapprochement in recent decades over questions of safety and efficacy. However, there is now significant recognition of the potential contributions of massage in supportive care, as well as greater understanding of the modifications needed in offering massage to cancer patients.

IMPLICATIONS FOR NURSING PRACTICE: Massage offers significant potential for benefiting quality of life when applied with proper understanding of the adaptations needed to accommodate the needs and vulnerabilities of cancer patients.

17. Fernández-Lao C, Cantarero-Villanueva I, Díaz-Rodríguez L, Cuesta-Vargas AI, Fernández-Delas-Peñas C, Arroyo-Morales M. Attitudes towards massage modify effects of manual therapy in breast cancer survivors: a randomised clinical trial with crossover design. *Eur. J. Cancer Care (Engl.)*. 2012;21(2):233–241. doi:10.1111/j.1365-2354.2011.01306.x.

Our aims were to investigate the immediate effect of myofascial release on heart rate variability and mood state, and the influence of attitude towards massage in breast cancer survivors with cancer-related fatigue. Twenty breast cancer survivors reporting moderate to high cancer-related fatigue participated in this crossover study. All patients presented to the laboratory at the same time of the day on two occasions separated by a 2-week interval. At each session, they received either a massage intervention or control intervention. Holter electrocardiogram recordings and Profile of Mood States questionnaire (six domains: tension-anxiety, depression-dejection, anger-hostility, vigour, fatigue, confusion) were obtained before and immediately after each intervention. The attitude towards massage scale was collected before the first session in all breast cancer survivors. The results showed a significant session × time interaction for standard deviation of the normal-to-normal interval (SDNN) ($F= 5.063$, $P= 0.039$), square root of mean squared differences of successive normal-to-normal intervals (RMSSD) ($F= 8.273$, $P= 0.010$), high-frequency component (HF) ($F= 7.571$, $P= 0.013$), but not for index heart rate variability ($F= 3.451$, $P= 0.080$), low-frequency component (LF) ($F= 0.014$, $P= 0.997$) and ratio LF/HF ($F= 3.680$, $P= 0.072$): significant increases in SDNN, RMSSD and HF domain ($P < 0.05$) were observed after the manual therapy intervention, with no changes after placebo ($P > 0.6$). No influence of the attitude scale on heart rate variability results was found. A significant session × time interaction was also found for fatigue ($F= 5.101$, $P= 0.036$) and disturbance of mood ($F= 6.690$, $P= 0.018$) scales of the Profile of Mood States: patients showed a significant decrease in fatigue and disturbance of mood ($P < 0.001$) after manual therapy, with no changes after placebo ($P > 0.50$). A significant influence of the attitude scale was observed in tension-anxiety, depression-dejection and anger-hostility scales. This controlled trial suggests that massage leads

to an immediate increase of heart rate variability and an improvement in mood in breast cancer survivors with cancer-related fatigue. Further, the positive impact of massage on cancer-related fatigue is modulated by the attitude of the patient towards massage.

18. Pruthi S, Degnim AC, Bauer BA, DePompolo RW, Nayar V. Value of massage therapy for patients in a breast clinic. *Clin. J. Oncol. Nurs.* 2009;13(4):422–425. doi:10.1188/09.CJON.422-425.

This article examines interest in massage therapy and other forms of complementary and alternative medicine among patients with breast disease. Surveys were mailed to 63 patients who had a breast abnormality or a recent diagnosis of breast cancer and received complimentary massage therapy at Mayo Clinic in Rochester, MN, from February to April 2005. Thirty-five patients responded (56% response rate). All participants felt that massage therapy was effective in helping them relax, and 34 felt that it was very or somewhat effective in reducing muscle tension. More than 75% 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 this study was small, the findings show that massage therapy may help patients with breast disease relax and feel better overall.

19. Ernst E. Massage therapy for cancer palliation and supportive care: a systematic review of randomised clinical trials. *Support. Care Cancer Off. J. Multinatl. Assoc. Support. Care Cancer*. 2009;17(4):333–337. doi:10.1007/s00520-008-0569-z.

INTRODUCTION: Massage is a popular adjunct to cancer palliation. This systematic review is aimed at critically evaluating all available randomised clinical trials of massage in cancer palliation.

MATERIALS AND METHODS: Six databases were searched to identify all trials of classical massage for cancer patients. Studies of other types of massage, e.g. reflexology, aromatherapy, were excluded. Fourteen trials met all inclusion criteria.

DISCUSSION: Collectively, they suggest that massage can alleviate a wide range of symptoms: pain, nausea, anxiety, depression, anger, stress and fatigue. However, the methodological quality of the included studies was poor, a fact that prevents definitive conclusions.

CONCLUSION: The evidence is, therefore, encouraging but not compelling. The subject seems to warrant further investigations which avoid the limitations of previous studies.

20. Currin J, Meister EA. A hospital-based intervention using massage to reduce distress among oncology patients. *Cancer Nurs.* 2008;31(3):214–221. doi:10.1097/01.NCC.0000305725.65345.f3.

The objective of this study was to assess the impact of a Swedish massage intervention on oncology patients' perceived level of distress. Each patient's distress level was measured using 4

distinct dimensions: pain, physical discomfort, emotional discomfort, and fatigue. A total of 251 oncology patients volunteered to participate in this nonrandomized single-group pre- and post design study for over a 3-year period at a university hospital setting in southeastern Georgia. The analysis found a statistically significant reduction in patient-reported distress for all 4 measures: pain (F = 638.208, P = .000), physical discomfort (F = 742.575, P = .000), emotional discomfort (F = 512.000, P = .000), and fatigue (F = 597.976, P = .000). This reduction in patient distress was observed regardless of gender, age, ethnicity, or cancer type. These results lend support for the inclusion of a complementary massage therapy program for hospitalized oncology patients as a means of enhancing their course of treatment.

21. Ahles TA, Tope DM, Pinkson B, et al. Massage therapy for patients undergoing autologous bone marrow transplantation. *J. Pain Symptom Manage.* 1999;18(3):157–163.

The purpose of the current study was to examine the impact of massage therapy on psychological, physical, and psychophysiological measures in patients undergoing autologous bone marrow transplantation (BMT). Patients scheduled to undergo BMT were randomly assigned to receive either (a) massage therapy, consisting of 20-minute sessions of shoulder, neck, head, and facial massage, or (b) standard treatment. Overall effects of massage therapy on anxiety, depression, and mood were assessed pretreatment, midtreatment, and prior to discharge using the State-Trait Anxiety Inventory, Beck Depression Inventory, and Brief Profile of Mood States, respectively. The immediate effects of massage were measured via the State Anxiety Inventory, Numerical Scales of Distress, Fatigue, Nausea, and Pain and indices of psychophysiological arousal (heart rate, blood pressure, and respiration rate), collected prior to and following patients' first, fifth, and final massage (on Days--7, midtreatment, and predischarge). Analysis of the data evaluating the immediate effects of massage showed that patients in the massage therapy group demonstrated significantly larger reductions in distress, fatigue, nausea, and State Anxiety than the standard treatment group at Day-7, in State Anxiety at midtreatment, and in fatigue at the predischarge assessment. The overall measures of psychological symptoms measured at pretreatment, midtreatment, and prior to discharge showed no overall group differences, although the massage group scored significantly lower on the State Anxiety Inventory than the standard care group at the midtreatment assessment. The two groups together showed significant declines through time on scores from the Profile of Mood States and State and Trait Anxiety Inventories.

22. Grealish L, Lomasney A, Whiteman B. Foot massage. A nursing intervention to modify the distressing symptoms of pain and nausea in patients hospitalized with cancer. *Cancer Nurs.* 2000;23(3):237–243.

This article describes the findings of an empirical study on the use of foot massage as a nursing intervention in patients hospitalized with cancer. The study was developed from the earlier work of Ferrell-Torry and Glick (1992). In a sample of 87 subjects, a 10-minute foot massage (5 minutes per foot) was found to have a significant immediate effect on the perceptions of pain, nausea, and relaxation when measured with a visual analog scale. The use of foot massage as a complementary method is recommended as a relatively simple nursing intervention for patients experiencing nausea or pain related to the cancer experience. Further research into its

effectiveness in the management of these symptoms by the family at home is warranted.

23. Lämås K, Lindholm L, Engström B, Jacobsson C. Abdominal massage for people with constipation: a cost utility analysis. *J. Adv. Nurs.* 2010;66(8):1719–1729. doi:10.1111/j.1365-2648.2010.05339.x.

AIM: This paper is a report of a study conducted to evaluate change in health-related quality of life for people with constipation receiving abdominal massage and to estimate the cost-effectiveness of two alternative scenarios developed from the original trial.

BACKGROUND: Constipation is a common problem and is associated with decrease in quality of life. Abdominal massage appears to decrease the severity of gastrointestinal symptoms, but its impact on health-related quality of life has not been assessed.

METHODS: A randomized controlled trial including 60 participants was conducted in Sweden between 2005 and 2007. The control group continued using laxatives as before and the intervention group received additional abdominal massage. Health-related quality of life was assessed using the EQ-5D and analyzed with linear regression. Two scenarios were outlined to conduct a cost utility analysis. In the self-massage scenario patients learned to give self-massage, and in the professional massage scenario patients in hospital received abdominal massage from an Enrolled Nurse.

RESULTS: Linear regression analysis showed that health-related quality of life was statistically significantly increased after 8 weeks of abdominal massage. About 40% were estimated to receive good effect. For 'self-massage', the cost per quality adjusted life year was euro75,000 for the first 16 weeks. For every additional week of abdominal massage, the average dropped and eventually approached euro8300. For 'professional massage', the cost per quality adjusted life year was euro60,000 and eventually dropped to euro28,000.

CONCLUSION: Abdominal massage may be cost-effective in the long-term and it is relevant to consider it when managing constipation. A crucial aspect will be to identify those who will benefit.

24. Castro-Sánchez AM, Matarán-Peñarrocha GA, Granero-Molina J, Aguilera-Manrique G, Quesada-Rubio JM, Moreno-Lorenzo C. Benefits of Massage-Myofascial Release Therapy on Pain, Anxiety, Quality of Sleep, Depression, and Quality of Life in Patients with Fibromyalgia. *Evid. Based Complement. Alternat. Med.* 2011;2011:1–9. doi:10.1155/2011/561753.

Fibromyalgia is a chronic syndrome characterized by generalized pain, joint rigidity, intense fatigue, sleep alterations, headache, spastic colon, craniomandibular dysfunction, anxiety, and depression. The purpose of the present study was to determine whether massage-myofascial release therapy can improve pain, anxiety, quality of sleep, depression, and quality of life in patients with fibromyalgia. A randomized controlled clinical trial was performed. Seventy-four fibromyalgia patients were randomly assigned to experimental (massage-myofascial release

therapy) and placebo (sham treatment with disconnected magnotherapy device) groups. The intervention period was 20 weeks. Pain, anxiety, quality of sleep, depression, and quality of life were determined at baseline, after the last treatment session, and at 1 month and 6 months. Immediately after treatment and at 1 month, anxiety levels, quality of sleep, pain, and quality of life were improved in the experimental group over the placebo group. However, at 6 months postintervention, there were only significant differences in the quality of sleep index. Myofascial release techniques improved pain and quality of life in patients with fibromyalgia.

25. Garner B, Phillips LJ, Schmidt H-M, et al. Pilot study evaluating the effect of massage therapy on stress, anxiety and aggression in a young adult psychiatric inpatient unit. *Aust. N. Z. J. Psychiatry*. 2008;42(5):414–422. doi:10.1080/00048670801961131.

OBJECTIVE: The aim of the present pilot study was to examine the effectiveness of a relaxation massage therapy programme in reducing stress, anxiety and aggression on a young adult psychiatric inpatient unit.

METHOD: This was a prospective, non-randomized intervention study comparing treatment as usual (TAU) with TAU plus massage therapy intervention (MT) over consecutive 7 week blocks (May-August 2006). MT consisted of a 20 min massage therapy session offered daily to patients during their period of hospitalization. The Kennedy Nurses' Observational Scale for Inpatient Evaluation (NOSIE), the Symptom Checklist-90-Revised (SCL-90-R), the State-Trait Anxiety Inventory (STAI) and stress hormone (saliva cortisol) levels were used to measure patient outcomes at admission and discharge from the unit. The Staff Observation Aggression Scale-Revised (SOAS-R) was used to monitor the frequency and severity of aggressive incidents on the unit.

RESULTS: There was a significant reduction in self-reported anxiety ($p < 0.001$), resting heart rate ($p < 0.05$) and cortisol levels ($p < 0.05$) immediately following the initial and final massage therapy sessions. Significant improvements in hostility ($p = 0.007$) and depression scores ($p < 0.001$) on the SCL-90-R were observed in both treatment groups. There was no group x time interaction on any of the measures. Poor reliability of staff-reported incidents on the SOAS-R limited the validity of results in this domain.

CONCLUSIONS: Massage therapy had immediate beneficial effects on anxiety-related measures and may be a useful de-escalating tool for reducing stress and anxiety in acutely hospitalized psychiatric patients. Study limitations preclude any definite conclusions on the effect of massage therapy on aggressive incidents in an acute psychiatric setting. Randomized controlled trials are warranted.

26. Frey Law LA, Evans S, Knudtson J, Nus S, Scholl K, Sluka KA. Massage reduces pain perception and hyperalgesia in experimental muscle pain: a randomized, controlled trial. *J. Pain Off. J. Am. Pain Soc.* 2008;9(8):714–721. doi:10.1016/j.jpain.2008.03.009.

Massage is a common conservative intervention used to treat myalgia. Although subjective

reports have supported the premise that massage decreases pain, few studies have systematically investigated the dose response characteristics of massage relative to a control group. The purpose of this study was to perform a double-blinded, randomized controlled trial of the effects of massage on mechanical hyperalgesia (pressure pain thresholds, PPT) and perceived pain using delayed onset muscle soreness (DOMS) as an endogenous model of myalgia. Participants were randomly assigned to a no-treatment control, superficial touch, or deep-tissue massage group. Eccentric wrist extension exercises were performed at visit 1 to induce DOMS 48 hours later at visit 2. Pain, assessed using visual analog scales (VAS), and PPTs were measured at baseline, after exercise, before treatment, and after treatment. Deep massage decreased pain (48.4% DOMS reversal) during muscle stretch. Mechanical hyperalgesia was reduced (27.5% reversal) after both the deep massage and superficial touch groups relative to control (increased hyperalgesia by 38.4%). Resting pain did not vary between treatment groups. PERSPECTIVE: This randomized, controlled trial suggests that massage is capable of reducing myalgia symptoms by approximately 25% to 50%, varying with assessment technique. Thus, potential analgesia may depend on the pain assessment used. This information may assist clinicians in determining conservative treatment options for patients with myalgia.

27. Dibble SL, Chapman J, Mack KA, Shih AS. Acupressure for nausea: results of a pilot study. *Oncol. Nurs. Forum*. 2000;27(1):41–47.

PURPOSE/OBJECTIVES: To compare differences in nausea experience and intensity in women undergoing chemotherapy for breast cancer between those receiving usual care plus acupressure training and treatment and those receiving only usual care.

DESIGN: Single-cycle, randomized clinical trial.

SETTING: Outpatient oncology clinic in a major teaching medical center and a private outpatient oncology practice.

SAMPLE: Seventeen women participated in the study. The typical participant was 49.5 years old (SD = 6.0), Caucasian (59%), not married/partnered (76%), on disability (53%), born a U.S. citizen (76%), and heterosexual (88%); lived alone (59%); had at least graduated from high school (100%); and had an annual personal income of $50,000 or greater (65%).

METHODS: The intervention included finger acupressure bilaterally at P6 and ST36, acupressure points located on the forearm and by the knee. Baseline and poststudy questionnaires plus a daily log were used to collect data.

MAIN RESEARCH VARIABLES: Nausea experience measured by the Rhodes inventory of Nausea, Vomiting, and Retching and nausea intensity.

FINDINGS: Significant differences existed between the two groups in regard to nausea experience ($p < 0.01$) and nausea intensity ($p < 0.04$) during the first 10 days of the chemotherapy cycle, with the acupressure group reporting less intensity and experience of nausea.

CONCLUSIONS: Finger acupressure may decrease nausea among women undergoing chemotherapy for breast cancer.

IMPLICATIONS FOR NURSING PRACTICE: This study must be replicated prior to advising patients about the efficacy of acupressure for the treatment of nausea.

28. Rich, G. ed. *Massage therapy: the evidence for practice*. Edinburgh ; New York: Mosby; 2002.

29. Wilkie DJ, Kampbell J, Cutshall S, et al. Effects of massage on pain intensity, analgesics and quality of life in patients with cancer pain: a pilot study of a randomized clinical trial conducted within hospice care delivery. *Hosp. J.* 2000;15(3):31–53.

This randomized controlled clinical trial examined the effects of massage on perceived pain intensity (PI), prescribed intramuscular/ly (im) morphine equivalent doses (IMMSEQ), hospital admissions, and quality of life (QoL). Of 173 hospice patients with terminal cancer, 29 (aged 30–85 yrs) completed the 3-wk pilot study. 14 Ss (controls) were assigned to usual hospice care and 15 Ss were assigned to usual hospice care with massage interventions consisting of 4, twice-weekly massages. Baseline and outcome measurements were obtained before the 1st and after the 4th massages. PI, pulse rate, and respiratory rate were significantly reduced immediately after the massages. At study entry, the massage group reported higher PI which decreased by 42% compared to a 25% reduction in the control group. IMMSEQ doses were stable or decreased for 8 Ss in each group and increased for 8 massage and 6 control group Ss. One massage group and two control group Ss were hospitalized. All initial QoL scores were higher in the massage group than in the control group, but only current QoL was statistically significant. Both groups reported improved global QoL. The control group reported slight improvement in current QoL and satisfaction with QoL whereas these 2 aspects of QoL declined in the massage group.