



The Effects of Massage Therapy on Symptom Management among Patients with Cancer: A Systematic Review

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Authors' contributions

This work was carried out in collaboration among all authors. Authors AA, KA and MAQ designed the review, performed databases search, data extraction and summarization of the articles. Authors AA and MAQ wrote the first draft of the manuscript. Authors AA, KA and MAQ read and revised the manuscript. All authors read and approved the final manuscript.

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ABSTRACT

Aims: To review the literature about the effects and benefits of massage therapy on symptom management among patients with cancer.

Methodology: Systematic literature review approach was adopted. The search was conducted in several databases including EBSCO & CINHAL, PubMed, Google Scholar and MEDLINE. The keywords included "massage therapy", "cancer", "chemotherapy", "pain" and "palliative care". Data were extracted and reviewed by the researchers independently. Data were collected included the authors' names, settings, goals of the study, type of study, methods, sample, and the main findings. Nine articles met the inclusion criteria and were included.

Results: The studies were conducted in different regions of the world. The sample size ranged from 24 to 711 participants. Four of the nine studies used a randomized controlled design. Massage therapy found to reduce the severity of several symptoms among cancer patients and improve patients' wellbeing.

Conclusion: Based on the results of this review, it can be concluded that the use of massage

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therapy, as a non-pharmacological intervention, has benefits for patients with cancer. Massage therapy appeared to be effective in symptom management of pain, anxiety, fatigue, nausea and vomiting in cancer patients. No adverse effects of massage therapy have been reported.

Keywords: Massage therapy; cancer; symptom management; adult.

1. INTRODUCTION

Cancer is one of the major health problems worldwide [1]. According to the World Health Organization (WHO), cancer is the second leading cause of death globally, with an estimated 9.6 million deaths in 2018 [2]. At the global level, one in six people dies from cancer [2]. Cancers result from DNA gene mutations that are induced by physical, chemical, or biological carcinogens [3]. There are many types of cancers that share similarities and differences in symptoms, diagnosis, and treatment [3]. The daily lives of cancer patients are affected in many respects such as financial status, ability to work, family life, mood, relationships with others, sleep, and quality of life [4-6]. Cancer patients deal with different problems at the individual, family, and social levels [7,8]. Moreover, cancer patients may also suffer from physical and psychological complications caused by the disease process and methods of treatment [3,9]. These symptoms adversely affect patients' adherence, progression, and healing process, and therefore, it is necessary to manage and alleviate them [9]. Cancer treatments include surgery, chemotherapy, hormonal therapy, radiotherapy, immunotherapy and biological therapy. Depending on the type of cancer, one or more of these treatments are prescribed [3,10]. However, previous studies showed that cancer patients experienced several symptoms throughout the trajectory of cancer treatment [6,11-14]. These symptoms include but not limited to fatigue, pain, stress, anxiety, depression, constipation, dyspnea, nausea, vomiting, and diarrhea [6,11-13,15,16]. These symptoms could be gathered into clusters such as psychological, pain, gastro intestinal and treatment related clusters [11]. It is well known that symptoms would cause high level of distress, interference with living activities, deteriorate quality of life for cancer patients and also increase the burden on their families as well [5,17,18]. Hence, symptoms management with pharmacological and non-pharmacological interventions should be implemented to improve cancer patients' quality of life and reduce symptom related suffering [11,17,19].

In addition to pharmacological therapies, various non-pharmacological therapies have been used for cancer symptom management. For example, massage therapy has been found efficient in reducing some chemotherapy-related side effects such: fatigue, nausea, and vomiting [20,21]. The massage can be therapeutic and prophylactic, as it can rehabilitate and decrease muscle tension. Massage therapy improves symptoms of pain, fatigue, anxiety, well-being, and sleep [21]. It empowers patients to have greater control over their treatment decisions [21]. Therefore, the aim of this study was to review the literature about the effects and benefits of massage therapy on symptom management among patients with cancer.

2. MATERIALS AND METHODS

2.1 Search Strategy

The search was conducted in several databases including EBSCO & CINHALL, PubMed, Google Scholar, and MEDLINE. The keywords included "massage therapy", "cancer", "chemotherapy", "pain", and "palliative care".

2.1.1 Inclusion and exclusion criteria

Papers published between 2013 and 2019 were obtained, and their reference lists were scrutinized to identify secondary references. Of these published within the same 7-year period were also included. Those published in the English language that addressed the effect of massage therapy on cancer patients' symptom were included in the review. Review articles, comments, editorials, letters, books, and thesis reports were excluded from this study.

2.2 Search Outcome

The literature search yielded 300 titles for review. The titles and summaries of these articles were presented according to the listing criteria. Nine articles met the inclusion criteria and were included. The studies were conducted in different regions of the world. Fig. 1 the flow chart was used in researching the literature and selecting relevant references.

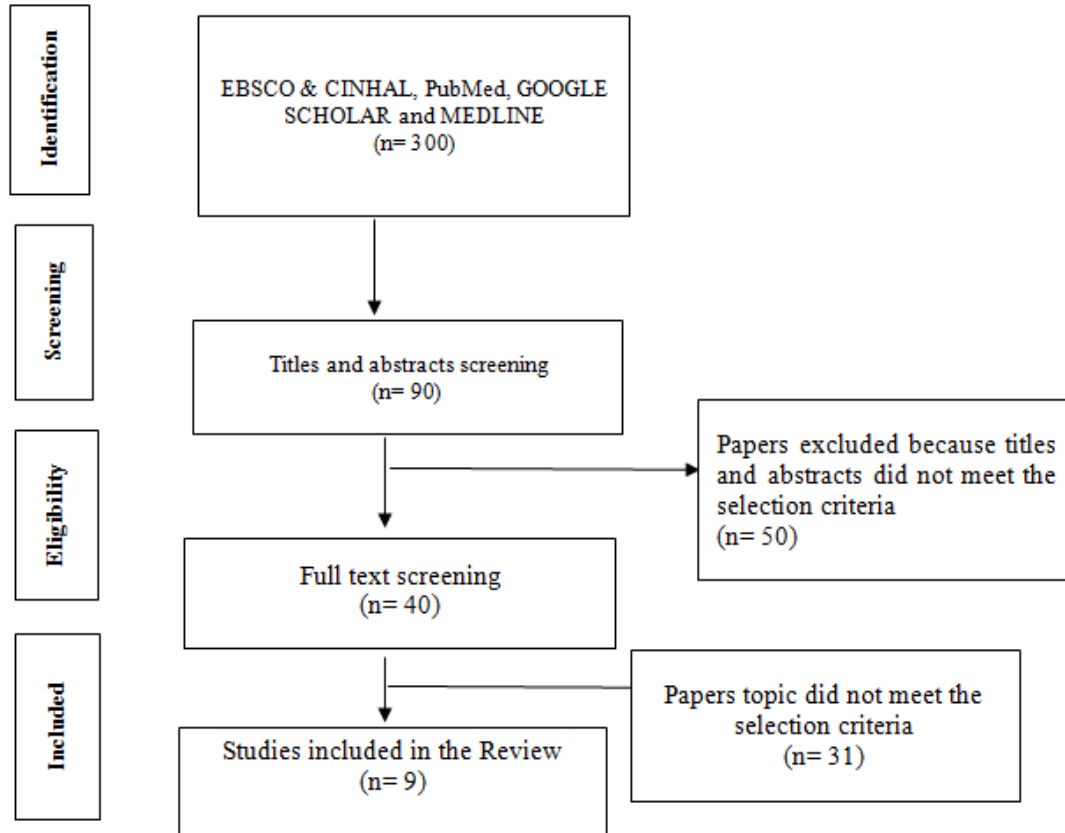


Fig. 1. A flow chart of researching literature and selecting relevant literature

2.3 Data Extraction

Data were extracted and reviewed by the researchers independently. Collected data included the authors' names, settings, goals of the study, type of study, methods, sample, and results, as shown in Table 1.

3. RESULTS AND DISCUSSION

3.1 Design of the Study

Four of the nine studies used a randomized controlled design [22-25], two used a quasi-experimental design [26,27], and three used pre-test post-test design [28-30].

3.2 Sampling and Sample Size of the Studies

Random sampling was the most common method used for employing participants. All the

nine studies used validated tools. The sample size (s) ranged from 24 to 711 participants (Table 1).

3.3 Data Collection Instruments

The most commonly used data collection tool to evaluate symptoms was the visual analog scale (VAS); including pain, anxiety, and nausea [24-27,30]. The other validated instruments used included Pittsburgh Sleep Quality Index (PSQI) to measure the sleep quality [23], the Edmonton Symptom Assessment System Revised (ESAS-r) to evaluate the effectiveness of healing touch and oncology massage [28], the Multidimensional Fatigue Inventory Tool (MFI) and the secondary NIH PROMIS Fatigue Scale to assess the effectiveness of Swedish massage therapy [22]. To assess the effect of massage therapy on pain, fatigue, anxiety, nausea and satisfaction, a Likert-type scale was used [29].

Table 1. Reviewed articles on the effect of massage therapy on cancer patients undergoing chemotherapy

Author / (year)	Country	Purpose	Design	Instrument	Sample size	Results
[27]	Turkey	Assessment of the effects of massage therapy on chemotherapy induced nausea and vomiting.	Quasi-experimental	Visual Analogue Scale (VAS)	75	The severity of nausea and vomiting was significantly reduced in the massage group than patients in the control group.
[28]	USA	To assess the efficacy of healing touch (HT) and oncology massage (OM) treatments on pain among patients with cancer.	Pre-post test	Edmonton Symptom Assessment System Revised (ESAS-r) scale	572	Both HT and OM provided prompt decrease to pain and deemed to be effective in pain treatment.
[22]	USA	Evaluating the Swedish massage therapy (SMT) versus an active control condition (light touch [LT]) and waitlist control (WLC) on persistent CRF in breast cancer survivors.	Randomized Controlled Trial (RCT)	The Multidimensional Fatigue Inventory	66	Massage resulted in providing clinically significant reduction in the severity of cancer related fatigue.
[26]	USA	Evaluating the effects of massage therapy on symptoms experience by cancer patients on chemotherapy	Quasi-experimental	VAS	40	Massage therapy produced significant reduction in the level of the following symptoms: fatigue, anxiety, muscle discomfort, nervousness, and stress. Massage therapy improved patients feeling of energy, relaxation, calmness, and emotional well-being.
[30]	USA	To determine how effective the effleurage hand massage in relieving anxiety and pain in cancer patients receiving chemotherapy.	Pre-post test	VAS for pain and anxiety.	24	This intervention effectively decreased anxiety and pain experienced by patients with cancer.
[29]	USA	To evaluate the effect of massage therapy on pain, fatigue, anxiety, nausea, and satisfaction with massage.	Pre-post test	Likert-type scale	58	A statistically significant reduction occurred in pain, fatigue, nausea, and anxiety after applying massage therapy for patients and they reported a high level of satisfaction.

Author / (year)	Country	Purpose	Design	Instrument	Sample size	Results
[23]	Iran	To determine the effect of massage therapy on the quality of sleep in patients with breast cancer.	RCT	Pittsburgh Sleep Quality Index (PSQI)	57	Statistically significant differences in mean sleep quality were observed after intervention between the control and case groups with the group of treatment having better sleep quality.
[24]	USA	Evaluate the effects of providing therapeutic massage to metastatic cancer patients.	RCT	Visual Analogue Scale (VAS).	711	The therapeutic massage reduced pain and improved the quality of sleep.
[25]	Iran	To evaluate effect of massage therapy on chemotherapy induced nausea and vomiting.	RCT	Visual Analogue Scale (VAS) and BARF scales.	70	Massage therapy decreases nausea and vomiting caused by chemotherapy.

3.4 Effects of Massage Therapy

Five of the studies examined the effect of massage therapy on pain and concluded that massage therapy could reduce pain levels in cancer patients [24,26,28-30]. For example, the pre-massage pain (M = 4.4, SD= 2.2) was significantly reduced after massage application (M = 2.0, SD= 1.8) (Gentile et al., 2018). Likewise, Gensic and others found that effleurage hand massage therapy significantly reduced pain and anxiety as evidenced by reduction in systolic blood pressure (z = -1.66, P <0.05), heart rate (z = -3.902, P <0.001), VAS-A (z = -3.91, P <0.001), and VAS - P (z = -3.49, P <0.001) [30]. In their mixed-method study, Robison and colleagues found that massage therapy promoted overall pain improvements and led to a high level of satisfaction. Additionally, the therapy significantly reduced fatigue, nausea, and anxiety [29]. Consistently, Cultshall's study found that massage therapy significantly improved fatigue, pain, anxiety, muscle discomfort, nervousness, stress, happiness, energy, relaxation, calmness, and emotional well-being [26].

Two studies examined the effect of massage therapy on sleep quality. Both studies found that massage therapy enhanced the quality of sleep among cancer patients [23,24]. Two other studies evaluated the effect of massage therapy on chemotherapy-related nausea and vomiting. Both studies reported that massage therapy could decrease nausea and vomiting episodes in cancer patients undergoing chemotherapy [25,27]. Finally, one study examined the effect of weekly Swedish Massage Therapy (SMT) on Cancer-Related Fatigue (CRF). The study concluded that SMT significantly reduced CRF among patients with breast cancer [22].

4. LIMITATIONS

The review included only studies published in English. Studies published in other languages may support or contradict the findings of the included studies. Other limitations included the convenience sampling used in most studies, implementation in a single setting, using small samples in some studies.

5. CONCLUSION

Based on the results of this review, it can be concluded that the use of massage therapy, as a non-pharmacological intervention, has benefits

for patients with cancer. Massage therapy appeared to be effective in symptom management of pain, anxiety, fatigue, nausea and vomiting in cancer patients undergoing chemotherapy. No adverse effects of massage therapy have been reported. Healthcare managers and clinicians should consider training healthcare staff on providing massage therapy to cancer patients to improve patient outcomes. Finally, further rigor studies to produce evidence-based practices on safe and effective massage therapy are highly needed.

CONSENT

It is not applicable.

ETHICAL APPROVAL

It is not applicable.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. Siegel R, Naishadham D, Jemal A. Cancer statistics, 2012. CA: A Cancer Journal for Clinicians. 2012;62(1):10-29.
2. World Health Organization. Cancer fact sheet; 2018. [Serial Online] Available:<http://www.who.int/mediacentre/factsheets/fs297/en/> (Cited. 2018;19.f)
3. Yarbro CH, Wujcik D, Gobel BH. Cancer nursing: Principles and practice. Jones & Bartlett Publishers; 2010.
4. Sadeghi R, Heidarnia MA, Zaghari Tafreshi M, Rassouli M, Soori H. Applying acupuncture for pain relief: Qualitative study. Complementary Medicine Journal of Faculty of Nursing & Midwifery. 2012;2(3):266-78.
5. Al Qadire M, Aloush S, Alkhalaileh M, Qandeel H, Al-Sabbah A. Burden among parents of children with cancer in Jordan: Prevalence and predictors. Cancer Nursing; 2019.
6. Al Qadire M, Al Khalaileh M. Prevalence of symptoms and quality of life among Jordanian cancer patients. Clinical Nursing Research. 2016;25(2):174-91.
7. Rassouli M, Sajjadi M. Palliative care in Iran: Moving toward the development of palliative care for cancer. American

- Journal of Hospice and Palliative Medicine®. 2016;33(3):240-4.
8. Al Qadire M, Al-Sheikh H, Suliman M, Tawalbeh LI, Albashtawy M, Al-Radwan M, et al. Predictors of anxiety and depression among parents of children with cancer in Jordan. *Psycho-oncology*. 2018;1(3).
 9. Anderson JG, Taylor AG. Biofield therapies and cancer pain. *Clinical Journal of Oncology Nursing*. 2012;16(1).
 10. Price P, Sikora K. *Treatment of cancer*. CRC Press; 2014.
 11. Al Qadire M, Shamieh O, Abdullah S, Albadainah F. Symptom clusters' content, stability and correlation with the quality of life in a heterogeneous group of cancer patients: A large-scale longitudinal study. *Clinical Nursing Research*. 2020; 1054773820933449.
 12. Kokkonen K, Tasmuth T, Lehto JT, Kautiainen H, Elme A, Jääskeläinen A-S, et al. Cancer patients' symptom burden and health-related quality of life (HRQoL) at tertiary cancer center from 2006 to 2013: A cross-sectional study. *Anticancer Research*. 2019;39(1):271-7.
 13. Wu HJ, Tai CJ, Tai CJ, Chien LY. Symptom severity, symptom interference and use of complementary and alternative medicine among survivors of colorectal and breast cancer after curative treatment in Taiwan. *European Journal of Cancer Care*. 2019;28(1):e12925.
 14. Al Qadire M. Chemotherapy-induced nausea and vomiting: Incidence and management in Jordan. *Clinical Nursing Research*. 2018;27(6):730-42.
 15. Jhamb M, Abdel-Kader K, Yabes J, Wang Y, Weisbord SD, Unruh M, et al. Comparison of fatigue, pain and depression in patients with advanced kidney disease and cancer—symptom burden and clusters. *Journal of Pain and Symptom Management*. 2019;57(3):566-75.e3.
 16. Abu-Taha OM, Al Qadire MI, Maharmeh M, Alyami MS. Assessment of cancer-related fatigue among Jordanian patients: A cross-sectional survey. *British Journal of Nursing*. 2020;29(2):111-7.
 17. Chow S, Wan BA, Pidduck W, Zhang L, DeAngelis C, Chan S, et al. Symptoms predictive of overall quality of life using the edmonton symptom assessment scale in breast cancer patients receiving radiotherapy. *Clinical Breast Cancer*. 2019;19(6):405-10.
 18. Avis NE, Levine B, Marshall SA, Ip EH. Longitudinal examination of symptom profiles among breast cancer survivors. *Journal of Pain and Symptom Management*. 2017;53(4):703-10.
 19. Vanbutsele G, Van Belle S, Surmont V, De Laat M, Colman R, Eecloo K, et al. The effect of early and systematic integration of palliative care in oncology on quality of life and health care use near the end of life: A randomised controlled trial. *European Journal of Cancer*. 2020;124:186-93.
 20. Billhult A, Määttä S. Light pressure massage for patients with severe anxiety. *Complementary Therapies in Clinical Practice*. 2009;15(2):96-101.
 21. Lopez G, Liu W, Milbury K, Spelman A, Wei Q, Bruera E, et al. The effects of oncology massage on symptom self-report for cancer patients and their caregivers. *Supportive Care in Cancer*. 2017;25(12):3645-50.
 22. Kinkead B, Schettler PJ, Larson ER, Carroll D, Sharenko M, Nettles J, et al. Massage therapy decreases cancer-related fatigue: Results from a randomized early phase trial. *Cancer*. 2018;124(3):546-54.
 23. Kashani F, Kashani P. The effect of massage therapy on the quality of sleep in breast cancer patients. *Iranian Journal of Nursing and Midwifery Research*. 2014;19(2):113.
 24. Toth M, Marcantonio ER, Davis RB, Walton T, Kahn JR, Phillips RS. Massage therapy for patients with metastatic cancer: A pilot randomized controlled trial. *The Journal of Alternative and Complementary Medicine*. 2013;19(7):650-6.
 25. Mazlum S, Chaharsoughi NT, Banihashem A, Vashani HB. The effect of massage therapy on chemotherapy-induced nausea and vomiting in pediatric cancer. *Iranian Journal of Nursing and Midwifery Research*. 2013;18(4):280.
 26. Cutshall SM, Mahapatra S, Hynes RS, Van Rooy KM, Looker SA, Ghosh A, et al. Hand massage for cancer patients undergoing chemotherapy as outpatients: A pilot study. *Explore*. 2017;13(6):393-9.
 27. Zorba P, Ozdemir L. The preliminary effects of massage and inhalation aromatherapy on chemotherapy-induced acute nausea and vomiting: A quasi-randomized controlled pilot trial. *Cancer Nursing*. 2018;41(5):359-66.

28. Gentile D, Boselli D, O'Neill G, Yaguda S, Bailey-Dorton C, Eaton TA. Cancer pain relief after healing touch and massage. *The Journal of Alternative and Complementary Medicine*. 2018;24(9-10): 968-73.
29. Robison JG, Smith CL. Therapeutic massage during chemotherapy and/or biotherapy infusions: Patient perceptions of pain, fatigue, nausea, anxiety and satisfaction. *Clinical Journal of Oncology Nursing*. 2016;20(2).
30. Gensic ME, Smith BR, LaBarbera DM. The effects of effleurage hand massage on anxiety and pain in patients undergoing chemotherapy. *Journal of the American Academy of PAs*. 2017;30(2):36-8.

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