

A Review of the Impact of Touch Therapy on Cancer Treatment

Abstract

Pain is one of the common and painful symptoms in cancer patients. Pain affects the life of these patients and sometimes its effect is more than cancer itself. Several studies have investigated the effect of using various non-pharmacological interventions, including touch therapy, on reducing the pain of cancer patients, which have yielded different results. The purpose of this study was to investigate the effect of touch therapy on the relief of cancer pain. Also, in this study, the side effects and safety of this method were investigated. According to the results of various studies in this field, it seems that touch therapy can be used as a non-invasive nursing intervention to reduce the pain of cancer patients. Probably, by teaching touch therapy to nurses interested in this field, they can be employed in the field of working with cancer patients and reducing their pain. However, it seems necessary to conduct more clinical trials to confirm these contents. Based on the results of the studies, it should be mentioned that in the field of touch therapy, none of the studies have mentioned any significant complications. It seems that this method can be used as a safe method to reduce the pain of cancer patients. However, it is recommended to avoid giving large amounts of energy in limited sessions of touch therapy lasting 2 to 3 minutes, especially in children, the elderly, and people with head injuries.

Keywords: Cancer, Treatment, Touch therapy, Pain

Introduction

Pain is one of the most common, frightening, and costly symptoms in cancer patients and can have negative effects on the quality of life of these patients.^[1-3] More than half of cancer patients have experienced some amount of pain.^[4, 5] The severity of pain is determined through the patient's reactions, the need for emergency pain relief procedures, and the patient's statements.^[3] The experience of pain in cancer patients varies depending on the etiology of the disease, location, and severity of the disease. One of the sources of pain is the tumor itself (as a result of the tumor and its growth), which causes visceral, physical pain or pain caused by nerve stimulation. So, it is natural that the amount of pain that patients feel is different from each other.^[4] For example, while leukemia is associated with relatively mild pain, lung, gastrointestinal, and genitourinary tract cancers usually have severe pain, and patients whose cancer has metastasized to the bones will typically experience more severe pain.^[6]

In the USA, pain is the most common cause of disability and the second reason for visiting a doctor. Most people with

advanced cancer (60-85 %) and about 40 % of people with an estimated 5-year survival rate report pain. Many cases of hospitalization (14-26 %) are due to uncontrolled pain, which costs more than 10 million dollars.^[7] Regardless of traditional and new treatments, an average of 43% of cancer patients receive appropriate treatment. They do not receive them for their pain.^[8] Unfortunately, according to the studies conducted, the communication between nurses and patients is not enough to check and control pain, and nurses monitor pain based on objective signs such as pallor, and pupils Dilated muscles increase heart rate, increase breathing rate, increase blood pressure, nausea, and weakness. While the gold standard for pain monitoring is the patient's self-report.^[9] Therefore, the more clinical experiences a nurse has with cancer patients, the better she will understand the patient's condition.^[10, 11]

The measures used to control pain are divided into 3 categories invasive, non-invasive, and drug therapy interventions. Complementary medicine is one of the types of non-invasive interventions. In the United States, about 38 percent of adults (4 out of 10) and about 12 percent of children (1 out of 9) use some form of

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complementary medicine. It seems that women and educated people, as well as those who are in a better situation in terms of income, are more likely to use complementary medicine.^[12]

One of the primary components of complementary medicine, particularly for cancer patients, is treatment and recovery.^[13] There are many types of complementary medicine, some of which are: biofeedback, deep breathing exercises, nutritional therapy, touch therapy, targeted visualization, hypnosis, homeopathic treatment, massage, meditation, movement therapy, tai chi, and relaxation. Progressive.^[12, 14]

Complementary medicine for cancer includes methods that lead to the prevention, diagnosis, or treatment of cancer. Some types of complementary treatments can help in eliminating specific symptoms of cancer and side effects caused by treatment such as fatigue, anxiety, and pain, or lead to an increase in the feeling of well-being in a person.^[15] One of the types of complementary medicine is touch therapy. The basis of touch therapy is based on the assumption that the human energy field, which is closely related to human life, is a manifestation of the cosmic energy field. The goal of the therapist's touch is to create and restore balance in the natural pattern of the client's energy field.^[15, 16] Therapeutic touch is one of the components of complementary medicine that can be considered as a nursing measure.^[17]

Touch therapy was first used in America as a nursing method.^[18] In this touch technique, the therapist gently places his hands on or above the person's body. This technique is based on Eastern beliefs^[12] and is based on the principle that the body is a complex energy system that can be influenced by others.^[19] Touch therapy is a treatment in which hands are used to facilitate the healing process.^[20] In touch therapy, the patient is usually placed on his back. Sometimes it is possible to have a sitting or standing position. There are 4 stages in this technique: in the first stage of touch, the therapist empties his mind so that he can unite his energy with the patient; The second stage is examination, in this touch stage, the therapist places his hands at a distance of 2 to 6 inches from the patient's body; then the therapist moves both his hands from head to foot. In the third stage, the therapist moves his hands on certain areas of the body and takes the negative energies from the patient's body. In the end, the therapist transfers the energy to the patient through his hands.^[15]

According to studies, touch therapy can reduce stress and heart rate changes,^[21] improve the quality of life,^[22] and also improve depression in cancer patients.^[23] Therapeutic touch in musculoskeletal diseases has an effect in reducing pain and debilitating symptoms.^[24] Cordes *et al.* in a single-blind and three-group study on 38 people with knee joint surgery, found that touch therapy had no effect on pain on a 10-point scale, but increased joint movement by 30%.^[25] Therapeutic touch reduces pain and improves the range of motion in back pain,^[26] reduces chronic pain, and pain after surgery, increases relaxation, and reduces restlessness in patients with dementia.^[27]

Peck^[28] found that touch therapy reduces pain in the elderly with degenerative diseases. Diener^[29] stated in their studies

that touch therapy reduces pain in fibromyalgia syndrome. According to the results, the question arises whether touch therapy can reduce the pain caused by cervical cancer or not. Most cancer patients experience some degree of pain and this experience is not pleasant and sometimes it becomes difficult to bear it. By analyzing previous research in this area, the current study seeks to determine whether touch therapy can help cancer patients feel less pain. It also seeks to determine whether this approach is safe or may have unintended consequences.

Results and Discussion

The incidence of cancer is different in different parts of the world. This disease is considered a non-infectious health problem in developing countries. Kelly *et al.*^[30] designed a study that used telephone interviews to investigate the effects of touch therapy in women with breast cancer. The sample of this research consisted of 18 women with breast cancer who are in the early stages of the disease. This study measures the effect of therapeutic touch on the experiences of postsurgical anxiety, mood, and postsurgical pain in women with breast cancer. In this research, the test group benefits from touch therapy along with verbal nursing interventions, and the control group benefits from rest in a soothing and controlled environment along with verbal nursing interventions. At the conclusion of the study, there was no statistically significant difference between the two groups' outcomes; nonetheless, the samples showed increased levels of calm, relaxation, security, and comfort regardless of the type of intervention used, but this finding may be explained by the small sample size. (n = 18). Of course, this study was of a qualitative type and expressed the experiences of women with breast cancer in two groups. Weze *et al.*^[31] used therapeutic touch intervention in 4 sessions (1 hour) during 4 to 6 weeks. The intervention was non-invasive and lasted for an average of 40 minutes. The samples in this research were evaluated before the beginning of the therapeutic intervention and at the end of the intervention period using the quality-of-life questionnaire and VAS. This study was a group study and measured the results through the difference between the data before the intervention and after the intervention. In this study, there is not enough explanation about the method of touch therapy used. The results of this prospective study all indicated the positive effect of touch therapy in reducing the pain of cancer patients. Although there was no control group in this study to be able to confirm the above statements with more certainty.

The subsequent study by Aghabati *et al.*^[32], was a 3-group study. 90 patients who were undergoing chemotherapy and suffered from pain and fatigue formed the sample population of this research. Before chemotherapy, patients reported their pain intensity and fatigue. The intensity of fatigue and the intensity of pain of the samples were recorded for 5 days after the intervention. Touch therapy once a day was performed as an intervention for 5 days, once a day for 30 minutes each time. The design of this study was three groups with a pre-and post-test. Each group consisted of 30 people. The test group received touch therapy, the placebo group received a

demonstration intervention that was similar to touch therapy, and the control group received routine care. The dependent variables were pain and fatigue and were determined by patients undergoing chemotherapy. The samples were selected from 3 special care units. The samples were admitted to these departments for chemotherapy. The conditions for entering this study were as follows: a confirmed diagnosis of cancer, having a normal level of consciousness, age 15 to 65 years, staying in the ward for at least 5 days, and all participants were female. The exclusion condition was having any type of disease that causes pain (such as rheumatoid arthritis, or osteosarcoma). In this study, the placebo group had less pain and fatigue than the control group. The report of pain improvement was reported by the patients themselves. The strength of this study is that there are 3 groups, but considering that all the participants in this study were women, the question arises whether these results can be generalized to the male community or not. Can we get help from touch therapy as an effective technique in reducing the pain of all cancer patients? Or paying attention to the conditions of entry into the study, can touch therapy be used as an effective nursing technique in reducing the pain of cancer patients over 65 years of age?

Olson *et al.*^[33] considered cancer patients who had no previous experience of touch therapy, chemotherapy, or radiotherapy for the previous month. They needed 2 or 5 analog doses in the previous days and had received palliative treatments for advanced cancer. Anson *et al.* investigated pain intensity and quality of life in two stages of their research. The measurement of these variables before the intervention has provided a suitable basis for the subsequent evaluation. In this study, the patients who were in the touch therapy group with opioid therapy reported a significant reduction in pain on the first day. On the fourth day, there was a significant decrease in pain.

Cook *et al.*'s^[34] research indicates a reduction in pain following touch therapy. One of the items asked in this tool is pain. Reduction of pain and improvement of physical function and life have been reported in this research. The duration of each touch therapy session in the test group was 20-30 minutes once a week during the radiotherapy period. In the control group, 20-30 minutes of demonstration movements were performed. The samples of this research were women aged 18 or over with grade 1 or 2 breast cancer and were treated with radiotherapy for 4, 5, or 6 weeks. The questionnaire was completed in two stages, before the beginning of the intervention and at the end of the intervention. In this study, the test group improved better in terms of quality of life than the control group, and in comparison, with the control group, improvements were seen in terms of physical function, pain, and vitality.

This research has been done on 62 patients and the samples of this research are women. On the other hand, breast cancer and oncology have been considered in this research. Although this research is experimental and has scientific validity, it seems that if the male community was also considered, the results of the above research could be more valid. The results of this research show that touch therapy can reduce pain in breast cancer and oncology, but the question will remain as to

whether touch therapy has positive effects on other types of cancer. One of the strengths of this study is the presence of a control group.

Post-White *et al.*^[35] evaluated touch therapy as an effective and useful technique in adult patients with cancer. They reported that in patients treated with chemotherapy, touch therapy intervention is associated with the following: reduction of pain, reduction of respiratory rate, heart rate, systolic and diastolic blood pressure, reduction of mood disorders and fatigue in this study, the samples are They were randomly divided into 3 massage therapy, touch therapy, and control groups. For the control group, like the other 2 groups, relaxing music was used; but this group did not receive any massage therapy or touch therapy. The intervention was carried out during 4 weeks and each session lasted 45 minutes. The tool used in this study to evaluate pain was the Brief Pain Index (BPI). The samples of this study were adults who were undergoing chemotherapy in an outpatient clinic. Their cancer diagnosis was confirmed and they underwent at least 2 or more cycles of chemotherapy. Also, their pain, nausea, or fatigue had a score of 3 or more on a 10-point scale. Also, the samples were able to read and write English. The above research was conducted with a sample size of 164 people, which increases the credibility of the work. Bard. In addition, the existence of a control group is another advantage of this study. As a result, it seems logical to refer to this study to investigate the effect of touch therapy.

Danhauer *et al.*'s research^[36] was conducted on acute leukemia patients. 91.7% of the patients in this study were acute myelogenous leukemia and 8.3% were acute lymphocytic leukemia. In the first phase of this research, which was a cross-sectional survey, 40 patients over 18 years of age who were treated for leukemia (myelogenous and lymphocytic) were included in the study. These people were interviewed about their previous use of complementary medicine, their knowledge of touch therapy, their previous experiences with touch therapy, and their desire to participate in a touch therapy program. Out of these 40 people, 13 patients expressed their desire to perform touch therapy and entered the second phase of the prospective cohort study. Touch therapy intervention in this research was in the form of 9 sessions of 30 minutes for 3 weeks. The intervention started from the second week of hospitalization and 3 times in the second, third, and fourth weeks. Patients' symptoms including pain, distress, nausea, and fatigue were monitored during this period. The extent of these symptoms was estimated by the patient as self-reported and according to a 10-point scale (from 0 to 10). The results of this study indicate that the fatigue and nausea of the patients have decreased significantly, but unlike previous studies, no statistically significant decrease was observed in terms of pain and distress. The reason for this difference can be attributed to the very small sample size (12 people). Meanwhile, this research has focused on the immediate results of touch therapy and measured them. Maybe if the results were measured over a longer period or the sample size was higher, the results of pain and distress would be significant. In their research design.

Wilkinson *et al.*^[37] divided the samples into 3 groups in terms

of intervention (1) without treatment or intervention (2) using touch therapy alone (3) touch therapy with music and similar making. The age range of the samples was 13 to 73 years. In this study, the participants expressed improvement in health level by 59% and pain relief by 55% (6 out of 11 people). Also, Wilkinson *et al.* found that the more experienced the therapist's touch, the better the results. Wilkinson has conducted his study on 19 women and 3 men. The age range of the participants was 13 to 73 years, with an average age of 38 years. The lack of sample size is one of the weaknesses of this research.

Coakley and Barron^[38] believe that energy therapy can be used to improve various symptoms in cancer patients. He believes that a patient who has been diagnosed with cancer will experience high stress and anxiety, and such holistic interventions, even if they have not shown any results in experimental articles, are facing a high demand from patients.

Eschiti^[39] stated that touch therapy is one of the types of complementary medicine that can be used for patients with critical conditions and may induce positive effects on patients. On the other hand, such interventions can induce a sense of comfort in patients. According to the Oxford English Dictionary, comfort means a feeling of physical and material well-being along with freedom from pain and problems and feeling satisfied with physical needs. There are 3 types of comfort: relief, ease, and superiority.^[40] Relief is the experience of a patient whose need for special comfort has been met. Easiness refers to the state of calmness and peace, and superiority is the condition in which a person overcomes problems or pain.^[41] Jackson *et al.* reviewed the studies and concluded that touch therapy can be an acceptable method for reducing the physical and psychological complications of cancer patients.^[42]

Conclusion

Regarding the main purpose of the present study, according to the results of various studies in this field, it seems that touch therapy can be used as a non-invasive nursing intervention to reduce the pain of cancer patients. Probably, by teaching touch therapy to nurses interested in this field, they can be employed in the field of working with cancer patients and reducing their pain. However, it seems necessary to conduct more clinical trials to confirm these contents. Based on the results of the studies, it should be mentioned that in the field of touch therapy, none of the studies have mentioned any significant complications. It seems that this can be used as a safe method to reduce the pain of cancer patients. However, it is recommended to avoid giving large amounts of energy in limited sessions of touch therapy lasting 2 to 3 minutes, especially in children, the elderly, and people with head injuries.^[43]

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Conflict of interest

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Ethics statement

None.

References

1. Raad M, López WOC, Sharafshah A, Assefi M, Lewandrowski K-U. Personalized medicine in cancer pain management. *J Pers Med.* 2023;13(8):1201. doi:10.3390/jpm13081201
2. Mercadante S, Ferrera P, Lo Cascio A, Casuccio A. Pain catastrophizing in cancer patients. *Cancers.* 2024;16(3):568. doi:10.3390/cancers16030568
3. Dalal S, Hui D, Nguyen L, Chacko R, Scott C, Roberts L, et al. Achievement of personalized pain goals in cancer patients referred to a supportive care clinic at a comprehensive cancer center. *Cancer.* 2012;118(15):3869-77.
4. Di Prospero L, Thavarajah N, Chen E, Jon F, Chow E, Holden L. Pain management needs assessment: A survey of radiation therapists at a large academic comprehensive cancer center. *J Med Imag Radiat Sci.* 2012;43(4):214-20.
5. Su WC, Chuang CH, Chen FM, Tsai HL, Huang CW, Chang TK, et al. Effects of good pain management (GPM) ward program on patterns of care and pain control in patients with cancer pain in Taiwan. *Support Care Cancer.* 2021;29:1903-11. doi:10.1007/s00520-020-05656-x
6. Wang R, Zheng X, Su X, Huang X, Liu H, Guo Y, et al. The development of a cancer pain belief modification program for patients with oral cancer in China: A feasibility study. *BMC Nurs.* 2023;22(1):206. doi:10.1186/s12912-023-01372-z
7. Green CR, HartJohnson T, Loeffler DR. Cancer-related chronic pain. *Cancer.* 2011;117(9):1994-2003.
8. Nayak MG, George A, Vidyasagar MS, Mathew S, Nayak S, Nayak BS, et al. Quality of life among cancer patients. *Indian J Palliat Care.* 2017;23(4):445-50. doi:10.4103/IJPC.IJPC_82_17
9. González-Martín AM, Aguilera-García I, Castellote-Caballero Y, Rivas-Campo Y, Bernal-Suárez A, Aibar-Almazán A. Effectiveness of therapeutic education in patients with cancer pain: Systematic review and meta-analysis. *Cancers.* 2023;15(16):4123. doi:10.3390/cancers15164123
10. Bahrami M, Parker S, Blackman I. Patients' quality of life: A comparison of patient and nurse perceptions. *Contemp Nurse.* 2008;29(1):67-79.
11. Beck I, Törnquist K, Gruevback A, Rasmussen BH, Olsson Möller U. Nurses' experiences of using the integrated palliative care outcome scale with patients in specialized palliative care-A qualitative focus group study. *Nurs Open.* 2023;10(12):7639-49. doi:10.1002/nop2.2004
12. National Center for Complementary and Alternative Medicine. The use of complementary and alternative medicine [Internet]. NCCAM. 2012. [cited 2014 Oct 21]. Available from: <http://nccam.nih.gov/health/whatiscam>
13. Vaghela C, Robinson N, Gore J, Peace B, Lorenc A. Evaluating healing for cancer in a community setting from the perspective of clients and healers: A pilot study. *Complement Ther Clin Pract.* 2007;13(4):240-9.
14. Deng G, Cassileth BR. Integrative oncology: Complementary therapies for pain, anxiety, and mood disturbance. *CA Cancer J Clin.* 2005;55(2):109-16.
15. American Cancer Society. Complementary and alternative methods for cancer management, therapeutic touch. www.cancer.org. Access online on 10/11/2012. 2011.
16. Wardell DW, Weymouth KF. Review of studies of healing touch. *J Nurs Scholarsh.* 2004;36(2):147-54.
17. Dossey BM, Keegan L, Guzzetta CE. *Holistic nursing. Sudbury, Mass: A handbook for practice;* 2000.
18. Mackey RB. Complementary modalities/Part 1: Discover the healing power of therapeutic touch. *Am J Nurs.* 1995;95(4):26-32.
19. Mentgen JL. Healing touch. *Nurs Clin North Am.* 2001;36(1):143-58.
20. Lafreniere KD, Mutus B, Cameron S, Tannous M, Giannotti M, Abu-Zahra H, et al. Effects of therapeutic touch on biochemical and mood indicators in women. *J Altern Complement Med.* 1999;5(4):367-70.

21. Kemper KJ, Fletcher NB, Hamilton CA, McLean TW. Impact of healing touch on pediatric oncology outpatients: Pilot study. *J Soc Integr Oncol.* 2009;7(1):12-8.
22. Schnepfer LL. Healing touch and health-related quality of life in women with breast cancer receiving radiation therapy. Milwaukee: University of Wisconsin--Milwaukee; 2009.
23. Hart LK, Freel MI, Haylock PJ, Lutgendorf SK. The use of healing touch in integrative oncology. *Clin J Oncol Nurs.* 2011;15(5):519-25.
24. Weze C. Evaluation of healing by gentle touch for the treatment of musculoskeletal disorders at the center for complementary care. (Dissertation). Cumbria: Martin's College, Lancaster University; 2001.
25. Cordes P, Proffitt C, Roth J. The effect of healing touch therapy on the pain and joint mobility experienced by patients with total knee replacements. In *Healing touch research survey*. New York: Lakewood, CO. Healing Touch International; 2002.
26. Weymouth K, Sandberg-Lewis S. Comparing the efficacy of healing touch and chiropractic adjustment in treating chronic low back pain: A pilot study. *Healing Touch Newsl.* 2000; (3):7-8.
27. Wang K, Hermann C. Healing touch on agitation levels in dementia. *Healing Touch Newsl.* 1999;9(3):3.
28. Peck SDE. The effectiveness of therapeutic touch for decreasing pain in elders with degenerative arthritis. *J Holistic Nurs.* 1997;15(2):176-98.
29. Diener D. A pilot study of the effect of chakra connection and magnetic unshuffle on the perception of pain in people with fibromyalgia. *Healing Touch Newsl Res Ed.* 2001;1(3):7-8.
30. Kelly AE, Sullivan P, Fawcett J, Samarel N, editors. *Therapeutic touch, quiet time, and dialogue: Perceptions of women with breast cancer.* *Oncol Nurs Forum.* 2004;31(3):625-31.
31. Weze C, Leathard HL, Grange J, Tiplady P, Stevens G. Evaluation of healing by gentle touch in 35 clients with cancer. *Eur J Oncol Nurs.* 2004;8(1):40-9.
32. Aghabati N, Mohammadi E, Pour Esmail Z. The effect of therapeutic touch on pain and fatigue of cancer patients undergoing chemotherapy. *J Evid Based Complement Altern Med.* 2010;7(3):375-81.
33. Olson K, Hanson J, Michaud M. A phase II trial of Reiki for the management of pain in advanced cancer patients. *J Pain Symptom Manag.* 2003;26(5):990-7.
34. Cook C, Guerrero J, Slater VE. Healing touch and quality of life in women receiving radiation treatment for cancer: A randomized controlled trial. *Altern Ther Health Med.* 2003;10(3):34-41.
35. Post-White J, Kinney ME, Savik K, Gau JB, Wilcox C, Lerner I. Therapeutic massage and healing touch improve symptoms in cancer. *Integr Cancer Ther.* 2003;2(4):332-44.
36. Danhauer S, Tooze J, Holder P, Miller C, Jesse M. Healing touch as a supportive intervention for adult acute leukemia patients: A pilot investigation of effects on distress and symptoms. *J Soc Integr Oncol.* 2008;6(3):89.
37. Wilkinson DS, Knox PL, Chatman JE, Johnson TL, Barbour N, Myles Y, et al. The clinical effectiveness of healing touch. *J Altern Complement Med.* 2002;8(1):33-47.
38. Coakley AB, Barron A. Energy therapies in oncology nursing. *Semin Oncol Nurs.* 2012;28(1):55-63.
39. Eschiti VS. Healing touch: A low-tech intervention in high-tech settings. *DCCN.* 2007;26(1):9-14.
40. Kolcaba KY, Kolcaba RJ. An analysis of the concept of comfort. *J Adv Nurs.* 1991;16(11):1301-10.
41. Kolcaba K. *Comfort theory and practice: A vision for holistic health care and research*: Springer Publishing Company; 2003.
42. Jackson E, Kelley M, McNeil P, Meyer E, Schlegel L, Eaton M. Does therapeutic touch help reduce pain and anxiety in patients with cancer? *Clin J Oncol Nurs.* 2008;12(1):113-20.
43. Krieger D. *The therapeutic touch: How to use your hands to help or to heal.* 1st ed. New York: Prentice Hall Press; 1986.