

# EFFECT OF THERAPEUTIC TOUCH ON PAIN RELATED PARAMETERS IN PATIENTS WITH CANCER: A RANDOMIZED CLINICAL TRIAL

Amir Tabatabaee<sup>1</sup>, Mansoureh Zagheri Tafreshi<sup>2</sup>, Maryam Rassouli<sup>3</sup>, Seyed Amir Aledavood<sup>4</sup>, Hamid AlaviMajd<sup>5</sup>, and Seyed Kazem Farahmand<sup>6</sup>

<sup>1</sup>Department of Nursing, International Branch, Shahid Beheshti University of Medical Sciences, Tehran, Iran

<sup>2</sup>Department of Management, School of Nursing and Midwifery, Shahid Beheshti University of Medical Sciences, Tehran, Iran

<sup>3</sup>Department of Pediatric Nursing, School of Nursing and Midwifery, Shahid Beheshti University of Medical Sciences, Tehran, Iran

<sup>4</sup>Cancer Research Center, Faculty of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran

<sup>5</sup>Department of Biostatistics, School of Paramedical, Shahid Beheshti University of Medical Sciences, Tehran, Iran

<sup>6</sup>Department of Traditional Medicine, Mashhad University of Medical Sciences, Mashhad, Iran

Corresponding author: Mansoureh Zagheri Tafreshi. Vali-Asr Avenue, Cross of Vali-Asr and Neiaiesh Highway, Opposite to Rajae Heart Hospital, Tehran, Iran, Postal Code: 1996835119 I. E-mail: [contactroute@yahoo.com](mailto:contactroute@yahoo.com)

## ABSTRACT

**Introduction:** In patients with cancer, pain may influence their life style, and feeling of satisfaction and comfort, leading to fatigue, and cause impairment of their quality of life, personal relationships, sleep and daily activities. The aim of this study was to evaluate the effect of therapeutic touch (TT) on pain related parameters of in patients with cancer. **Methods:** In a randomized clinical trial a total of 90 male patients referring to Specialized Oncology Hospital in Mashhad, were conveniently selected and randomly divided into three intervention, placebo, and control groups. The intervention consisted of TT in 7 sessions for a 4-week period. The data were collected using a demographic questionnaire along with the Brief Pain Inventory, which were then analyzed and compared using Kruskal-Wallis and Mann-Whitney tests. **Results:** By comparing scores parameters of pain scales (general activity, mood, walking ability, relations with other people and sleep) in the three groups, there was no significant difference at the beginning of the first session. However, a significant difference was observed at the end of TT sessions between the three groups ( $p = 0.001$ ). Furthermore, the groups were compared two-by-two by using Mann-Whitney test and Bonferroni correction, and the result indicated significant differences between the two intervention and placebo groups as well as between the two intervention and control groups. **Conclusion:** The results of the study showed that TT had a positive impact on the positive management of pain related parameters in cancer patients. Therefore, TT is suggested to be used by healthcare providers as a complementary method for managing pain and its parameters.

**Key words:** Pain parameters, Therapeutic touch, Cancer, General activity, Sleep.

## 1. INTRODUCTION

According to the World Health Organization report in 2012, cancer accounted for 8.2 million deaths across the globe, with an estimated 14 million new cases for the same year (1). Over the past 3 decades, the 5-year relative survival rate for all cancers combined has increased 20 percentage points among patients with cancer (2). This disease is also known as a growing problem in the Middle Eastern countries (3). Cancer is often associated with pain which is seen in approximately 50-70% of patients (4). Cancer patients deal with different problems in various individual, family and

social areas and experience reduced life quality (5). Pain is a stressful event in patients with cancer that can affect a patient's way of life as well as his feeling of satisfaction and comfort, cause suffering, discomfort and fatigue and lead to impaired quality of life, personal relationships, sleep and daily activities (6). Pain exerts a negative impact primarily on mood, normal work, and sleep among cancer patients. Additionally, it has been shown that pain significantly correlates to poor quality of life and sleep quality and in patients with cancer (7).

Numerous studies have investigated pain and its high

prevalence in patients with cancer as a top priority and have supported palliative and treatment methods of pain and patients' attitudes towards it (8, 9). Given the high prevalence of pain in cancer and failure of most interventions in relieving pain, more effective methods must still be researched (6). Interventions used to relieve pain include three major categories of invasive interventions, noninvasive interventions and drug therapy. On average, cancer pain in 70% of cases is not sufficiently relieved by medical interventions and most patients, despite tolerating the side effects of sedatives, still suffer from pain (10, 11). One of the most common non-invasive methods in relieving pain is to use complementary and alternative medicine (CAM) (12). Despite the focus of modern medicine on treating problems, the philosophy underlying complementary and alternative medicine treatments focuses on harmony within an individual and his health. In one study, 82 percent of patients claimed the side effects of drugs and the lack of resolution of problems to be among the factors that caused them to use CAM (13). According to the American Cancer Society, CAM for cancer includes methods that lead to the prevention, diagnosis and treatment of cancer. Some types of complementary therapies can help to relieve from some certain symptoms of cancer and side effects caused by the treatment, such as fatigue, and pain, or lead to an increased sense of well-being in a person (14). New studies indicate the increasing referral of patients, especially patients with cancer, to different branches of complementary medicine, which is between 22 to 73 percent. Moreover, 62% of women with breast cancer have also used CAM (15).

The National Center for Complementary and Alternative Medicine places therapeutic touch (TT) into the category of bio-field energy (16). In the TT method, the therapist's hand is used to increase comfort and reduce pain using the body's energy field correction mechanism (17). TT is used for patient bio-field coordination and the therapist attempts to balance patients' energy field in order to create and maintain health in them and to reduce the symptoms of pain and anxiety (18). Jackson et al. in a systematic study concluded that TT could be an acceptable method for reducing physical and psychological symptoms in cancer patients (19). Although, some studies have noted the effects of TT in lowering pain in cancer patients, clinical trial data on the effect of TT through using an evidence-based and systematic approach have not yet been evaluated in patients with cancer (20). The results obtained from RCT studies regarding the effects of TT on cancer patients have been reported to be both significant and non-significant. Even in the absence of significant results, recipients of TT often reported to experience mental benefits, including improved mood, feeling of well-being, and positive interpersonal relations and also expressed reduced pain and fatigue as well as satisfaction with treatment (21).

This study was designed with the aim of determining the effect of TT on parameters of pain in cancer patients. It is hoped that by increasing knowledge about TT, this study could draw the attention of patients, nurses and other treatment team personnel towards the use of non-pharmacological therapies such as TT for pain relief at lower cost and less complications.

## 2. MATERIALS AND METHODS

After approval by the ethics committee, International Branch of Shahid Beheshti University of Medical Sciences, and patients' informed consent, this randomized clinical trial which was designed in three groups (intervention, control, and placebo) using a non-probability convenience sampling method has been conducted. The participants in the study included male patients referring to Omid Oncology Specialized Hospital in Mashhad in 2016 among whom, 90 patients were conveniently selected based on the criteria for participation and randomly divided into three groups, each containing 30 individuals. Inclusion criteria included, informed consent of participants; male patients aged 20 to 65 years; being conscious; having cancer related pain confirmed by physician; being diagnosed and treated at least for one year; being in remission stage; no plan for surgery as treatment during the intervention; and no history of using TT.

Due to the nature of cancer and review of related articles (22, 23) as well as consultation with TT experts, seven sessions with an interval of 3 days between each two, were selected for the patients. The TT program was performed as follows:

In the experiment group, the patients were taken to a quiet room and those accompanying them could also join them. The patients were asked to close their eyes and start breathing slowly and deeply and not to think about anything. Then, the therapist focused and kept his hands at a distance of 5 to 10 cm from the patient's body and began to explore the energy field and aura around the patient's body so that he could search for energy deficit or energy increase in the patient's energy field. In the second stage, the therapist would move his hand from the head to the feet and perform cleansing in order to compensate for the energy deficit, to burn off the accumulated negative energy and to develop an alternative positive energy. In the third stage, the therapist focuses his hands on specific areas of the body and transfers positive energy to the patient through his hands (16). The placebo group was also used to determine and compare the possible impact of the relaxation caused by the presence of the researcher. In the placebo group, for the same amount of time, the hands were placed around the body as a gesture, with distance from the body, and were moved without a certain order. For the participation in the control group, the practitioner did not do any intervention except routine interventions in the ward. All groups (TT, placebo, and control) received the same standard medical care. TT was carried out in the intervention group by a skilled and qualified researcher in TT, who had undertaken a specific 7 month TT course, and had 15 years of experience in this area. Both the therapeutic and simulated touches took between 10 to 15 minutes.

Data were collected with the help of patients completing a demographic questionnaire along with the Brief Pain Inventory (BPI), which were then analyzed and compared using SPSS software, Kruskal-Wallis and Mann-Whitney tests and Bonferroni correction. A p value of 0.05 or less was considered statistically significant.

The BPI has been used extensively in pain research and has been found to reliably assess levels of pain and pain relief from various interventions and has established face and

content validity. Pain function was the average of 5 items assessing how much pain interfered with General Activity, Mood, and Walking ability, Relations with other people and Sleep (24). Test-retest reliability has been assessed for cancer pain and shows good reliability for pain intensity ( $r = 0.8$ ) and pain interference ( $r = 0.8$ ). Internal consistency of the BPI is high for the severity scale ( $0.81 < \alpha < 0.89$ ) and interference scale ( $0.88 < \alpha < 0.95$ ) (25). It should be noted that reliability and validity of the Persian version of the Brief Pain Inventory have been investigated by Vakilzadeh (26). This study registered in the Iranian Registry of Clinical Trials Database (201412094115N3).

### 3. RESULTS

Comparison between three groups with regard to participants' baseline characteristics was shown no significant differences (Table 1).

However, at posttest, there was significant difference between the three groups in patients' activity general, Mood, Walking ability, Relations with other people, and Sleep

Variable	Experim-ental (n=30)	Placebo (n=30)	Control (n=30)	P-value
Age Mean (SD)	54 (9.21)	53.60 (8.51)	55.93 (6.47)	F = 0.703 P=0.498
Primary	%3.33	%30	%33.3	
High school	%46.7	%43.3	%46.7	$\chi^2 = 0.348$ P=0.840
Diploma & High	%20	%26.7	%20	
Yes	%46.7	%53.3	%50	$\chi^2 = 0.267$ P=0.875
No	%53.3	%46.7	%50	
II, III	%73.3	%63.3	%63.3	Kruskal-Wallis $\chi^2 = 0.900$ P=0.638
IV	%26.7	%36.7	%36.7	

Table 1. Comparison between three groups with regard to participants' baseline characteristics

scores (Table 2). Pair-wise comparison of the groups (post hoc) showed that there were significant differences between the experiment and control groups, and experiment and placebo groups ( $p < 0.001$ ). Furthermore, there were statistically not significant differences among the placebo and control groups. The posttest revealed significant differences in patients' sleep scores between the three groups. Moreover, pair-wise comparison of the groups (post hoc) showed that there were significant differences between the experiment

and control groups, and the experiment and placebo groups. However, no statistically significant differences were observed between the placebo and control groups.

In addition, regarding the impact of pain on the ability to walk, positive and negative significant differences were observed at the beginning and end of the study in the intervention group and in the placebo and control groups, respectively ( $p = 0.001$ ). Due to the increase in the average impact of pain on walking ability in two placebo and control groups, TT intervention may not only have prevented any increase in the impact of pain on the ability to walk, but also caused the impact of pain on walking ability be effectively reduced.

According to the results, there was found a significant difference ( $p = 0.001$ ) between the impact of pain on the value of sleep score at the beginning and end of the study in the intervention group. However, no significant difference was observed in the control group ( $p = 0.298$ ). According to the results, it can be said that the TT intervention has positively influenced the reduction in the impact of pain on general activity, Mood Walking ability, Relations with other people, and Sleep scores.

### 4. DISCUSSION

The results demonstrated that TT is significantly more effective on the Pain parameters in the experimental group than on the placebo and control groups. The findings by Abbot et al. showed that spiritual healing, as a therapy for chronic pain, significantly decreased pain intensity during the sessions of therapies (27). Moreover, Denison found that TT decreased the intensity of pain in the patients with Fibromyalgia Syndrome during the six sessions of TT (28).

Wardell and et al., conducted a study to evaluate the use of TT in soldiers with neuropathic chronic pain and secondary psychological stress to spinal cord injury. The study benefited from a mixed methods and intervention was carried out by a trained person in the houses of 12 samples within six sessions. The results showed the pain reduction to be statistically significant. Other findings included improved mood and greater satisfaction with life after the TT sessions (21). Wez and et al., found that TT decreased pain in the clients with cancer within the six sessions of treatment (29). In this regard, Post-white and et al., in their study investigated the effects of massage therapy (MT) and TT compared to the

Variable	Experimental		Placebo		Control		Kruskal-Wallis & P-value	
	Session 1	Session 7	Session 1	Session 7	Session 1	Session 7	Session 1	Session 7
Activity General Mean (SD)	7.78 (0.86)	4.67 (0.66)	7.80 (0.88)	6.67 (0.71)	7.53 (0.97)	6.93 (0.78)	$X^2 = 2.59$ P=0.938	$X^2 = 59.16$ P=0.001
Mood Mean (SD)	7.53 (0.90)	4.67 (0.61)	7.53 (0.77)	6.70 (0.75)	7.63 (0.55)	6.90 (0.88)	$X^2 = 0.938$ P=0.626	$X^2 = 52.008$ P=0.001
Walking ability Mean (SD)	6.13 (1.33)	3.73 (0.78)	5.67 (0.75)	6.37 (0.80)	5.97 (0.76)	6.77 (0.71)	$X^2 = 2.548$ P=0.280	$X^2 = 59.550$ P=0.001
Relation other people Mean (SD)	7.57 (1.04)	4.50 (1.13)	7.80 (0.88)	7.27 (0.90)	6.93 (0.74)	7.23 (1.00)	$X^2 = 1.837$ P=0.399	$X^2 = 52.859$ P=0.001
Sleep Mean (SD)	8.07 (1.20)	4.73 (0.90)	7.73 (1.08)	6.87 (0.68)	7.93 (0.94)	7.20 (0.66)	$X^2 = 1.942$ P=0.379	$X^2 = 58.720$ P=0.001

Table 2. Comparison pain related parameters in the three groups-experimental, placebo and control

standard care on inducing relaxation and reducing symptoms in 203 patients with cancer. The results demonstrated TT to cause a greater relaxed feeling and short term pain reduction, along with less disturbed mood in the patients in the intervention group as compared to the patients in the control group. Participants found TT gave them more energy and a peaceful feeling, and they were better able to sleep with fewer symptoms (30). The results obtained from the aforementioned studies were consistent with the findings of this study with regard to the positive impact of TT on patients' parameters of pain.

Although, energy healing methods have still remained as one of the controversial issues in CAM (31), this study indicated the positive results of the TT method on parameters associated with pain in patients with cancer.

It also seems that this method can be used as a safe method in the management of physical function, pain, anxiety, and nausea in cancer patients. Due to the limitations of this study (including its small sample size, conducting this study in just one hospital, and only man samples), it is recommended that further investigations with a larger sample be performed at other hospitals and both genders.

## 5. CONCLUSION

The goal of complementary alternative therapies such as these is to relieve symptoms, modify or remove contributing factors, and restore balance to the body. Based on these findings the authors make a number of recommendations in relation to the use of TT by cancer patients.

- Acknowledgments: The paper is derived from the PhD thesis of the first author in nursing International Branch of Shahid Beheshti University of Medical Sciences, Tehran, Iran.
- Conflict of interest: None declared.

## REFERENCES

1. Organization WH. Cancer Fact Sheet No. 297. WHO, 2014. Available from:[Last accessed on 2015 Apr 25] Back to cited text. 2012 (1).
2. Siegel RL, Miller KD, Jemal A. Cancer statistics, 2016. *CA Cancer J Clin.* 2016; 66(1): 7-30.
3. Daher M. Opioids for cancer pain in the Middle Eastern countries: a physician point of view. *J Pediatr Hematol Oncol.* 2011; 33: S23-S8.
4. Wiese C, Löffler E, Vormelker J, Meyer N, Taghavi M, Strumpf M, et al. Cancer pain therapy in palliative care patients: knowledge of prehospital emergency physicians in training. Prospective questionnaire-based investigation. *Schmerz (Berlin, Germany).* 2010; 24(5): 508-16.
5. Rassouli M, Sajjadi M. Palliative Care in Iran Moving Toward the Development of Palliative Care for Cancer. *American Journal of Hospice and Palliative Medicine.* 2014; 1049909114561856.
6. Paice JA, Ferrell B. The management of cancer pain. *CA Cancer J Clin.* 2011; 61(3): 157-82.
7. Mystakidou K, Parpa E, Tsilika E, Pathiaki M, Gennatas K, Smyrniotis V, et al. The relationship of subjective sleep quality, pain, and quality of life in advanced cancer patients. *Sleep-New York Then Westchester.* 2007; 30(6): 737.
8. Moradian S, Aledavood S, Tabatabaee A. Iranian cancer patients and their perspectives: a qualitative study. *European Journal of Cancer Care.* 2012; 21(3): 377-83.
9. Van den Beuken-van Everdingen M, De Rijke J, Kessels A, Schouten H, Van Kleef M, Patijn J. Prevalence of pain in patients with cancer: a systematic review of the past 40 years. *Ann Oncol.* 2007; 18(9): 1437-49.
10. De Vita V, Lawrence T. De Vita, Hellman, and Rosenberg's Cancer: Principles and Practice of Oncology. Editorial Lippincott Williams and Wilkins. 2015; 10 ed.
11. McMahon S, Koltzenburg M, Tracey I, Turk DC. Wall & Melzack's Textbook of Pain: Expert Consult-Online: Elsevier Health Sciences; 2013.
12. Mao JJ, Palmer CS, Healy KE, Desai K, Amsterdam J. Complementary and alternative medicine use among cancer survivors: a population-based study. *J Cancer Surviv.* 2011; 5(1): 8-17.
13. Mansky PJ, Wallerstedt DB. Complementary medicine in palliative care and cancer symptom management. *The Cancer Journal.* 2006; 12(5): 425-31.
14. Barrett M, Huang P, Chu A, Chen J, Dhingra L. Complementary and Alternative Medicine Approaches for Pain in Underserved Chinese-American Cancer Patients: Prevalence and Correlates. *J Pain Symptom Manage.* 2016.
15. Fouladbakhsh JM, Stommel M, editors. Gender, symptom experience, and use of complementary and alternative medicine practices among cancer survivors in the US cancer population. *Oncol Nurs Forum;* 2010.
16. Lindquist R, Snyder M, Tracy MF. Complementary & alternative therapies in nursing. 7 ed: Springer Publishing Company, 2014.
17. Anderson JG, Taylor AG. Biofield Therapies and cancer pain. *Clin J Oncol Nurs.* 2012; 16(1): 43-8.
18. Xue CC, Zhang AL, Lin V, Da Costa C, Story DF. Complementary and alternative medicine use in Australia: a national population-based survey. *The Journal of Alternative and Complementary Medicine.* 2007; 13(6): 643-50.
19. 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.
20. Anderson JG, Taylor AG. Effects of Healing Touch in Clinical Practice A Systematic Review of Randomized Clinical Trials. *J Holist Nurs.* 2011; 29(3): 221-8.
21. Wardell DW, Weymouth KF. Review of studies of healing touch. *J Nurs Scholarsh.* 2004; 36(2): 147-54.
22. Aghabati N, Mohammadi E, Pour Esmaiel Z. The effect of therapeutic touch on pain and fatigue of cancer patients undergoing chemotherapy. *Evid Based Complement Alternat Med.* 2010; 7(3): 375-81.
23. Anderson JG, Suchicital L, Lang M, Kucic A, Mangione L, Swengros D, et al. The effects of Healing Touch on pain, nausea, and anxiety following bariatric surgery: a pilot study. *EXPLORE: The Journal of Science and Healing.* 2015; 11(3): 208-16.
24. Ferreira VTK, Dibai-Filho AV, de Oliveira AK, de Paula Gomes CAF, Melo ES, de Almeida AM. Assessing the impact of pain on the life of breast cancer survivors using the Brief Pain Inventory. *Journal of physical therapy science.* 2015; 27(5): 1361.
25. Poquet N, Lin C. The Brief Pain Inventory (BPI). *J Physiother.* 2016; 62(1): 52.
26. Vakilzadeh PNN. The Reliability and Validity of the Persian Version of the Brief Pain Inventory in Cancer Patients. *Journal of Rafsanjan University of Medical Sciences.* 2006; 5(4): 253-8.
27. Abbot NC, Harkness EF, Stevinson C, Marshall FP, Conn DA, Ernst E. Spiritual healing as a therapy for chronic pain: a randomized, clinical trial. *Pain.* 2001; 91(1): 79-89.
28. Denison B. Touch the pain away: new research on therapeutic touch and persons with fibromyalgia syndrome. *Holist Nurs Pract.* 2004; 18(3): 142-50.
29. 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.
30. 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.
31. Zaghari Tafreshi M, Rasouli M, Tabatabaee A, Golmakani E, Mortazavi H. Utilization of complementary and alternative medicine in nursing with emphasis on the touch therapy. *Journal of North Khorasan University of Medical Sciences.* 2014; 6(1): 207-13.