

Therapeutic Touch efficacy: A Systematic Review

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ABSTRACT

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Background: Recently, the "Disruptions in the Energy Field" have been omitted from the list of nursing diagnoses published by the North American Nursing Diagnosis Association (NANDA). Therapeutic touch is a scientific nursing intervention. The aim of this systematic review was to identify the efficacy of therapeutic touch (TT) and investigate the tenability of omitting this diagnosis from the NANDA nursing diagnosis list.

Methods: For the purpose of the study, we employed the English and Persian articles in complementary therapy (Therapeutic Touch) area published within January, 2006-December, 2016. The articles were obtained by searching such databases as the Proquest, PubMed, Science Direct, SID, Magiran, and Iran Medex. The searches were performed using the following keywords and their MeSH equivalents: "Therapeutic Touch", "Aura Therapy", and "Energy Healing". Finally, 13 articles were selected based on the inclusion criteria. The articles were evaluated based on a standard checklist presented by the Cochrane database. The articles were presented based on PRISMA format.

Results: Out of the 3 review articles and 736 research articles, which were retrieved, 13 studies were examined in full-text with especial focus on the quality of methodology sections.

Conclusion: Based on the reviewed articles, that observing no significant impact following TT interventions does not mean that this approach is actually ineffective. It may just be due to inappropriate methodology and research design employed for investigation. Therefore, we need to focus on the methodologies of these randomized control trials rather than their final results.

1. Introduction

The North American Nursing Diagnosis Association (NANDA) provides a list of nursing diagnoses, which is useful for the nurses in different countries. This list is reviewed every few years,¹ which results in the omission and addition of some diagnoses in this list.² This list helps the nurses to make diagnoses through a standardized language.³ One of the standard nursing diagnoses listed by the NANDA was "Energy Field Disturbance",² which was

introduced into the nursing field following Rogers' theory. According to Rogers, the world is a set of open energy systems with different patterns integrated with the environment.^{4,5} She believes that human is an energy field beyond the pure physical body. This energy field is known in different cultures under different names such as "Prana", "Chi", "Aura", and "Bioplasmic Energy".⁶

According to Rogers' view, the mental and physical problems of humans are caused by energy

imbalance.⁷ The specific diagnosis of "Energy Field Disturbance" was listed in the NANDA-International Diagnoses Taxonomy in 1994.² Usually, the nursing interventions associated with energy field disturbance are targeted towards balancing these fields.⁸

This study was focused on a type of therapeutic touch (TT), which is directly related to energy therapy. The TT includes touching the energy fields around the human body without any physical contact on the respective regions.^{6, 9} The TT increases parasympathetic tone, whereas it decreases the activity of the sympathetic system.⁸ It has now become clear that physiological processes, such as cell division, wound healing, and sleep-wake cycles, are regulated by the electromagnetic field.¹⁰ In addition, Zirman showed that strong magnetic fields were released from the hands of the therapist at the time of focusing or therapeutic touch.⁶

Energy therapy is a complementary treatment founded in 1972 by Dora Koons and Delarez Krieger. Over the past 20 years, the scientists have succeeded to determine and measure the energy fields.¹¹ Today, TT is recognized by the American Nurses Association and Holistic American Nurses Association.⁶ In 2014, the NANDA introduced the specific diagnosis of "Energy Field Disturbance" in its list as a standard nursing diagnosis.¹² However, in the latest version, the "Energy Field Disturbance" was removed from the list (2015-2017).¹³ This omission occurred due to the fact that some of the NANDA members in Sweden began to express concerns about the lack of evidence on this diagnosis.^{1, 2}

It is necessary to assess the effect of TT on different variables. Furthermore, the methodology accuracy should also be considered to investigate the effectiveness of this therapeutic approach. Therefore, this study aimed to review the impact of energy therapy on different variables in the trials conducted in the past 10 years and also investigate the quality of methodology employed in these studies.

2. Methods

2.1. Design

In order to conduct this systematic review, the Cochrane database was first reviewed in order to prevent duplication.

2.2. Data Sources

We employed the English and Persian articles in complementary therapy (Therapeutic Touch) published within January, 2006-December, 2016. The articles were obtained by searching such

databases as the Proquest, PubMed, Science Direct, SID, Magiran, and Iran Medex by one researcher and two independent researchers, who controlled the result search of the first one. Search were performed using the following keywords and their MeSH equivalents: "Therapeutic Touch", "Aura Therapy", and "Energy Healing"(Searches were done by one researcher and were then controlled by two others) . Finally, 13 articles were selected based on the inclusion and exclusion criteria.

The inclusion criteria entailed having such pre-determined keywords as "energy therapy" or "therapeutic touch" in the title, being written in English or Persian, and having interventional nature. On the other hand, the exclusion criteria included obtaining a score of less than 12 based on the checklist and unavailability of the full-text version of the article.

2.3. Instruments

The Cochrane checklist consists of 20 items concerning different parts of a paper (Table 1). This checklist is based on Cochrane handbook that is prepared for evaluating the article quality in a systematic review.¹⁴ This checklist has been used by Matourypour *et al.*¹⁵ and its validity and reliability have been confirmed.

In addition to evaluating the methodology of the articles, this checklist considers the introduction, results, and discussion sections. Each item was attributed a score of one. Low quality articles, which were represented by the score of < 12 out of 20, were excluded from the study.

This instrument consists of 20 items covering the introduction (3 items), materials and methods (10 items), findings (2 items), discussion (3 items), conclusion (1 item), and references (1 item).

2.4. Study Selection

After omitting the duplicate articles by Endnote software, 672 studies remained out of 708 cases. On the first phase and initial review of the articles, 633 articles were excluded due to having unrelated titles and abstracts. Out of these 633 papers, 9, 43, 3, and 578 cases were review articles, papers investigating interventions other than touch therapy, non-human studies, and non-interventional articles (i.e., case-control, congress and seminar, and letters to the editor), respectively.

Subsequently, the articles were screened by the exclusion criteria. Therefore, a total of 13 articles meeting the inclusion criteria were included in the study and examined in full-text (Table 2). Since the articles extracted from the thesis are a part of a larger project and do not present all variables

assessed in the main research, the dissertations were evaluated separately.

For example, the researchers found that in one research among 4 studies we found, TT was not effective in some variables, such as anticipatory phase of nausea and vomiting (presented in the thesis). However, this therapeutic approach was reported to be effective in the acute phase of nausea induced by chemotherapy (presented in the article extracted from that thesis) while the methodology of the work was of high quality.

2.5. Data Extraction

The full-text articles were prepared and given to three reviewers after removing the names of the authors, institutes, and journals following the blind method. The reviewers independently excluded the unqualified articles based on the pre-specified inclusion criteria. The articles obtaining a minimum of 12 points out of 20 according to the checklist taken from the Cochrane handbook were read in full-text at the later stage (Table 1). The cut-off score of 12 was determined following a similar article.^{15, 16} Different parts of the checklist are described below.

The details of the articles were extracted through reviewing the whole article, and then recorded in the specific checklist. These details included the purpose of the study, type of methodology, number of samples in each group, type of complementary and alternative medicine (CAM), inclusion and exclusion criteria for the study, a brief description of the intervention, a brief explanation of the findings,

limitations, research applications, and finally suggestions for future studies.

2.6. Data Analysis

The articles were also evaluated for publication bias; for example, whether insignificance of the results has been reported or not. The Gray literature was also reviewed (i.e., dissertations and reports not published on the web). The agreement between the reviewers was assessed and approved using the Kappa test ($K=0.85$, $P=0.03$). Afterwards, to ensure the quality and quantity of the completed checklists, they were evaluated by another researcher, who was not involved in the first stage of the review. If these reviewers were not in agreement with each other, a panel of experts was used for consensus.

The results showed that three articles have examined the effects of TT, and have been only about three particular variables, including wound healing,¹⁷ anxiety disorders,¹⁸ and pain improvement in adults.¹⁹ However, among the review articles regarding this subject, none had covered all the different variables examined in the clinical trials, such as hemoglobin, pain, anxiety, wound healing rate, and fracture repair.^{8, 10, 16-23}

2.7. Ethical Considerations

In accordance with the ethical principles, after the deletion of the names of the authors, institutes, and journals, the researchers reviewed the articles independently.

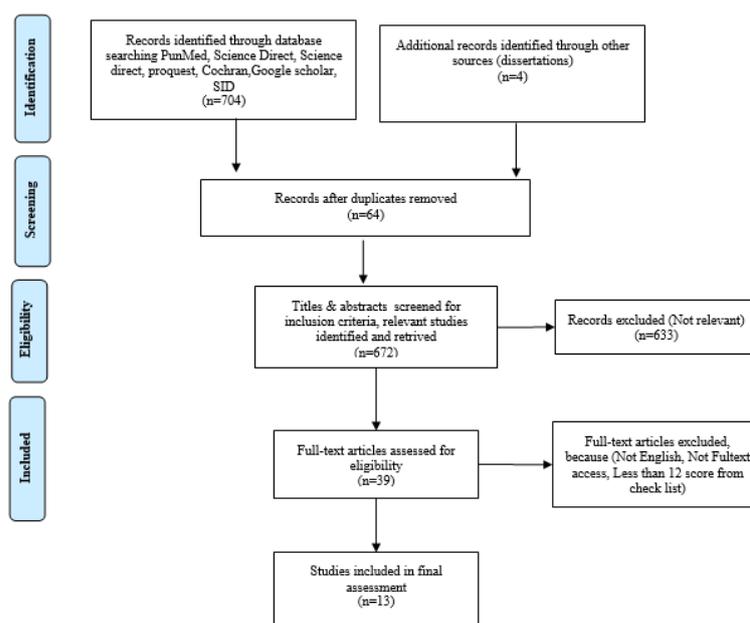


Diagram 1. Flow diagram showing the article selection process

Table 1. Researcher-made checklist for review and quality assessment of the studies

| Article NO: | | Review | |
|--------------------------------|-------|-----------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|
| Title of Article | Score | | |
| Authors | Score | | |
| Introduction | 3 | Define terms used in title <input type="checkbox"/> | Purpose of study |
| | | Clarify what this work adds (Importance) <input type="checkbox"/> | |
| | | State purpose of the study <input type="checkbox"/> | |
| Methods & Materials | 10 | 1. Methodology <input type="checkbox"/> | QuasiExperimental <input type="checkbox"/> Experimental <input type="checkbox"/> |
| | | 2. Ethics <input type="checkbox"/> | |
| | | 3. Samples <input type="checkbox"/> | Men <input type="checkbox"/> Women <input type="checkbox"/> Pediatrics <input type="checkbox"/> Both <input type="checkbox"/> |
| | | 4. Age <input type="checkbox"/> | Sample size |
| | | 5. Sample size <input type="checkbox"/> | |
| | | 6. Inclusion/exclusion criteria <input type="checkbox"/> | Control <input type="checkbox"/> Intervention <input type="checkbox"/> |
| | | 7. Setting <input type="checkbox"/> | |
| | | 8. Measurement <input type="checkbox"/> | |
| | | 9. Reliability and validity <input type="checkbox"/> | |
| | | 10. Brief explanation about intervention <input type="checkbox"/> | |
| Results | 2 | Using tables, figures, graphs <input type="checkbox"/> | Brief explanation about results |
| | | Self-explanatory legends for each figure <input type="checkbox"/> | |
| | | Comparing the results with those of other articles <input type="checkbox"/> | |
| Discussion | 3 | Limitations <input type="checkbox"/> | |
| | | Implications <input type="checkbox"/> | |
| Conclusion | 1 | Proposals for further research <input type="checkbox"/> | |
| References | 1 | Serving parallelism all over the article <input type="checkbox"/> | |

Table 2. Characteristics of the investigated studies

| References | Instruments | Dependent variable type | Placebo (n) | Intervention (n) | Control (n) | Effectiveness of intervention (p-value) |
|-----------------------------------------|---------------------------------------------------|-----------------------------------------------------------------------------------------|-------------|------------------|-------------|-----------------------------------------|
| GUY L MCCORMACK (2009) (33) | Visual Analogue Scale (VAS) | Post-surgical pain | 30 | 30 | 30 | 0.01 |
| Pamela Hawranik (2008) (27) | Cohen-Mansfield Agitation Inventory | Physical aggression in Alzheimer's disease | 16 | 17 | 18 | 0.32 |
| | | Physical nonaggression in Alzheimer's disease | 16 | 17 | 18 | <0.05 |
| | | Verbal agitation in Alzheimer's disease | 16 | 17 | 18 | 0.37 |
| Ilda Estefani Ribeiro Marta (2010) (32) | VAS | Pain | - | 30 | 30 | 0.001 |
| | Beck's Depression Inventory | Depression in chronic pain | - | 30 | 30 | <0.05 for 6 of 21 dimensions* |
| | Pittsburgh Sleep Quality Index | Sleep in chronic pain | - | 30 | 30 | 0.002 |
| Matourypour (2015) (19) | Hour | Nausea (duration) | 36 | 36 | 36 | 0.001 |
| | Times | Frequency of breast cancer patients | 36 | 36 | 36 | 0.001 |
| Julie Anne Whitley (2008) (28) | Heart period variability (parasympathic activity) | Safety of usage in premature infants | - | 10 | 10 | 0.00 |
| Jokar (1390) (29) | Scale | Anxiety | 10 | 10 | 10 | 0.016 |
| | | Brain wave (theta wave**) | | | | 0.041 |
| Matory (1392) (14) | VAS | Nausea (intensity) (anticipatory phase) | 36 | 36 | 36 | >0.05 |
| | | Acute phase | 36 | 36 | 36 | <0.001 |
| Taheri (1392) (30) | Spilberger's Anxiety Inventory | Anxiety (trait) | - | 12 | 12 | >0.05 |
| | | Anxiety (state) | - | 12 | 12 | <0.05 |
| Zare (2009) (9) | - | Vital signs before CABG (heart rate, blood pressure, respiratory rate, and temperature) | - | 22 | 22 | <0.001 |
| Moeini (2008) (25) | Speilberg's Anxiety Inventory | Trait anxiety | - | 22 | 22 | <0.001 |
| | | State anxiety | - | 22 | 22 | |
| Aghebati (2006) (8) | VAS | Pain in cancer patients | 30 | 30 | 30 | <0.05 |
| Matourypour (2016) (24) | Vomiting intensity scale | Vomiting intensity | 36 | 36 | 36 | 0.0001 |
| Honda Noritsugu (2012) (31) | -Oxygen saturation | Brain activation of preterm infants | - | - | 10 | <0.05 |
| | -Heart rate | | | | | >0.05 |
| | -Body movement | | | | | >0.05 |
| | -Partial pressure of oxygen | | | | | >0.05 |

CABG: coronary artery bypass grafting

3. Results

Reviewing the literature in the Cochrane database revealed that three systematic review studies investigated the effects of TT on three particular variables, including wound healing,¹⁷ anxiety disorders,¹⁸ and pain improvement in adults.¹⁹ However, the present review investigated a set of different variables on which the effects of TT were studied, such as symptoms in different diseases and different ages. Finally, after screening the articles, 13 articles that met all the inclusion criteria

were included in the study and their full-texts were examined.

3.1- Effect of therapeutic therapy on different variables

The TT intervention were reported to be significantly effective ($P < 0.05$) in such variables as post-surgery pain, chronic pain, depression, sleep quality, non-agitated behaviors in Alzheimer's patients, vital signs, pain in cancer patients, anxiety, and vomiting (under the influence of hypnosis, the patients in the placebo group also showed a

reduction in vomiting), as well as the duration, severity, and frequency of nausea in cancer patients undergoing chemotherapy.

3.2- Placebo Group

Seven out of the thirteen investigated articles had the placebo group.^{8, 11, 16, 21, 24-26}

3.3- Age Groups

Another important point investigated in the reviewed articles was the age group (i.e., adults,^{8, 9, 11, 16, 21, 22, 24-28} infants, and even premature neonates,^{29, 30} subjected to TT intervention.

3.4- Sample Size

Some of the quasi-experimental studies investigated the effectiveness of therapeutic touch without the employment of any control or placebo group. These articles included those carried out by Pamela²⁴ with a small sample size,^{25, 29} jokar with a sample size of 10,²⁵ Taheri (2013)²⁸ with a sample size of 12, zare(2010)⁹ with a sample size of 22, Moeini (2009)²² with a sample size of 22, and Noritosgou³⁰ with a sample size of 10.

3.5- Side Effects

None of the reviewed studies had mentioned any adverse outcomes following the intervention.

4. Discussion

The present study investigated the TT treatment involving body touch without physical contact (i.e., touching the first energy layer of the body). It was tried to evaluate the interventional studies, which had examined the impacts of this kind of treatment on different physical and psychological disorders. The present study attempted to assess the quality of these interventions (i.e., energy healing), determine their effectiveness in the treatment of different diseases (related to a disturbance in the energy field), and determine the necessity of adding the diagnosis of "disruptions in the energy field" to the NANDA list.

We had few unduplicated cases in the quantitative analysis of the articles obtained from the Cochrane database. In a systematic review study, So et al. (2008) noted the moderate impact of touch-based therapies (e.g., touch therapy, healing touch, and TT) and did not find a significant role for employing the placebo group ($P > 0.05$). They recommended that more research should be performed in this area to assess the impact of this treatment on children as well.¹⁹ Robinson et al.

(2007) showed that no empirical or semi-empirical interventional study has been conducted on the effects of TT on anxiety problems.¹⁸ especially chronic pain),²⁷ pain in cancer,⁸ post-operative pain,²⁶ anxiety (i.e., anxiety before open heart surgery),^{9, 22} anxiety before an exam,²⁵ vital signs (i.e., before open heart surgery),^{9, 22} vital signs of premature newborns,³⁰ nausea and vomiting caused by chemotherapy,^{3, 16, 21} depression and sleep quality,²⁷ safety usage in infants,²⁹ and verbal and nonverbal agitation in Alzheimer's patients.²⁴

As shown in Table 2, the TT was found to be significantly effective in such variables as post. The reviewed articles had studied the effect of TT on the following variables: pain (surgery pain, chronic pain, depression, sleep quality, non-agitated behaviors in Alzheimer's patients, vital signs, pain in patients with cancer, anxiety, vomiting (under the influence of hypnosis, the patients in the placebo group also showed a reduction in vomiting), and the duration, severity, and frequency of nausea in cancer patients undergoing chemotherapy.

Among the 13 investigated articles, seven cases had considered the placebo group. Since the TT was in the form of body non-contact touch and the first layer of the body's energy field was touched, the observed impacts might have been due to hypnosis or the presence of other observers. Therefore, it is essential to consider a third group in the studies investigating the energy therapy intervention.¹⁶ In case of interventions such as TT in which there is a risk of hypnotic effects, it is better to consider a placebo group in addition to the control group.³¹

For the placebo group, an intervention similar to the actual one is performed to determine whether the patients exhibit a positive outcome in psychological reaction to the intervention or not.¹⁶ Another important point was that this treatment was investigated not only on adults, but also on the infants and even premature neonates. The impacts of this therapeutic approach were studied on different variables, such as the level of oxyhemoglobin, arterial blood oxygen saturation, heart rate, and stimulation of the parasympathetic system.^{29, 30}

These studies showed that TT can stimulate the parasympathetic system and increase the level of oxyhemoglobin, while it has no positive effect on the level of dissolved oxygen in arterial blood, neonatal movements, and heart rate. In their review study, So et al. (2008) also suggested to conduct further research on the neonates and children.¹⁹ An important and considerable issue in evaluating the quality of interventions is sample size, which could affect the generalizability of the results.

Therefore, in studies with large sample size (i.e., more than 30 subjects), the normal distribution of

the data can be assured. In the studies with small sample size, it is needed to estimate the variables through the Kolmogorov-Smirnov test.^{15, 32} In studies with a small sample size and without a control group,^{9, 22, 24, 25, 29, 30, 33} the generalizability of research results is strongly influenced, and insignificant results do not facilitate the possibility of judgment. The results reported by Noritosgou³⁰ and Pamela²⁴ were not statistically significant.

Additionally, none of the reviewed studies mentioned any adverse outcomes following the intervention. According to the research findings, insignificant findings do not necessarily mean lack of impact and can just result from non-compliance with the standards of clinical trials implementation (e.g., sample size, randomization, and considering the placebo group). Therefore, it is clear that when judging the results of the clinical trials, we should not only rely on the P-value and final conclusions. In addition, the significance of a research result regardless of the methodology quality does not necessarily imply its effectiveness.

Therefore, in reviewing the results of such studies focusing on some sensitive decisions, such as the inclusion or exclusion of a diagnosis into and from the NANDA standard list, all of these factors should be seriously considered and investigated. In the Roger's conceptual model (both in its proposal in 1970 and in its later revised versions [1980, 1983, 1986, and 1992]), the existence of the energy fields in the world (environment) and human has been indicated. Rodgers insisted that these energy fields are open, irreducible, and multidimensional. He described the diseases as disturbances in the energy patterns and called the nursing intervention as "re-patterning".^{33, 34}

Although the Rogers' model was introduced as a new concept in the field of nursing, he clearly spoke about energy fields around the human, the existence of which have been proven today through special devices and graphs.⁶ "Energy Healing" is known as a series of treatments for re-patterning the disturbed energy fields and is performed by the nurses. These treatments are recognized by the CAM International Organization and include healing touch, TT, and Reiki.¹⁶

One of the limitations of the present study was the unavailability of the full-text version of some articles that met the inclusion criteria, which could add valuable results to the final review. To fix this problem, the corresponding authors of the respective studies were contacted (for three times if no response was received). After explaining the study goal, the full text was requested; however, it was successful in two cases.

Another limitation was that despite the availability of some articles in full-text, they were

excluded from the study for being written in a non-English language. Although the researchers tried to find gray literature and reduce publication bias, they just found four Iranian thesis in this field.

Meta-analysis

It was impossible to conduct a meta-analysis on the results of the reviewed articles since the data were heterogeneous, and the patients were of different ages with different diseases. In addition, some of the patients were healthy people who were only evaluated for the test anxiety.²⁵ In addition, in one study, the effect of TT on the Alzheimer's patients had been assessed, and in two other studies, the target population included infants and premature neonates.^{24, 29, 30}

Therefore, future clinical trials in this field should be conducted through a much stronger methodology appropriate for its high sensitivity due to the lack of the body touch. On the other hand, as there are just few significant studies in this area, extensive research must be carried out to make the diagnosis of "disruptions in the energy field" enter the list of NANDA nursing diagnoses. It is also suggested that in addition to "Energy Field Disturbance", two other diagnoses, namely "congestion in the energy field" and "reducing energy field", also be considered in order to determine the type of disturbance in the energy field.

5. Conclusion

This study can be regarded as one of the evidence required to indicate the effectiveness of TT to bring the "energy field imbalance" back to the list of NANDA nursing diagnoses. According to the findings, the future studies should focus on the factors strengthening the research such as the employment of a sample size of over 30 cases, a placebo group in addition to the control group, and different age groups.

In addition, regarding the controversy over the effects of energy therapy, it is essential to perform more systematic reviews in other areas of energy healing, Reiki, and healing touch to achieve more accurate and comprehensive results. Furthermore, future interventional studies should be carried out with further standards to provide more evidence for the merits of bringing energy therapy back to the list of NANDA nursing diagnoses.

Conflicts of interest

The authors declare no conflicts of interest.

Authors' contributions

Mohammad Ali Cheraghi: Design, preparing and editing the manuscript, Akram Sadat Sadat

Hosseini: Design, preparing and editing the manuscript, Roya Gholami: Completing the checklist for articles, Imane Bagheri: Completing the checklist for articles, Nilofar Binaee: Completing the checklist for articles, Pegah Matourypour: Design, literature review and searching in English and Persian databases, preparing and editing the manuscript, Mehdi Ranjbaran: Consultation on statistical analysis and helping in preparation of manuscript.

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