The effectiveness of therapeutic touch: a meta-analytic review

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Authors' objectives
To explore the strengths of the more recent published research base supporting the use of therapeutic touch (TT) as a nursing intervention. Two key questions were addressed:

a. Does TT produce the desired outcome in treated subjects.

b. Are TT outcomes significantly different than those found in the control group?

Searching
The databases CINAHL, MEDLINE and PsycINFO were searched using TT as a keyword for studies published from 1986 to 1996. Retrieval was also undertaken using the 'ancestorty' method (see Other Publications of Related Interest no. 2)

Study selection
Study designs of evaluations included in the review
The study design had to be experimental, quasi-experimental or pre-post single group. Unpublished doctoral dissertations were excluded (of dissertations identified, only two would have met the inclusion criteria, the results of which were reported separately). Qualitative research was excluded.

Specific interventions included in the review
Therapeutic touch (TT) as a nursing intervention. The intervention had to follow Krieger's (see Other Publications of Related Interest no. 1) four phases of TT. Studies that evaluated procedural touch, tactile stimulation or prayer were excluded. Specific interventions evaluated by included studies were non-contact therapeutic touch and contact TT. Control intervention included casual touch, relaxation therapy, sitting quietly, mimic TT, standard care or no treatment. In studies that compared TT with both placebo and another intervention, only the placebo group was used for statistical comparison in the review.

Participants included in the review
Only human intervention studies were included. TT was used to relieve anxiety, immune system, tension headache, stress, postoperative pain, and wound healing. The type of study population included by individual studies were open heart surgical patients, bereaved persons, elderly patients in long-term care facilities, inpatients and psychiatric patients, healthy professional care givers, adults in pain or who have tension headache, children hospitalised for acute injury or illness, adult surgical patients, and volunteers with punch biopsy. The age of participants ranged from 2 weeks to 83 years (98% were adults). Sample sizes ranged from 4 to 153 subjects.

Outcomes assessed in the review
Studies had to present empirically based research and include an outcome that measured either psychological or physiological well-being to be included in the review. Outcomes that provided insufficient data or mixed interventions preventing effect size calculations were excluded. Outcomes assessed by individual studies were State Trait Anxiety Inventory (STAI), McGill-Melzack Pain Scale, PMRRT (tool of physiologic measures), Visual Analogue Pain Scale, Wound Healing per MDs (the meaning of MD in full was not reported).

How were decisions on the relevance of primary studies made?
The author does not state how the papers were selected for the review, or how many of the reviewers performed the selection.

Assessment of study quality
Studies were coded for quality using the quality of study instrument presented by Smith and Stullenbarger, 1995 (see Other Publications of Related Interest no. 3). This tool examines four major areas of each study: introduction, methodology, data analysis/results and conclusions. A total of 22 specific criteria are evaluated and given a number rating of 0 to 3 (from 'absent' to 'met at a high level'). The author does not state how the papers were assessed for quality, or how many of the reviewers performed the quality assessment.

**Data extraction**
The author does not state how the data were extracted for the review, or how many of the reviewers performed data extraction. The relevant characteristics of the studies that were coded included conceptual framework, population, methodology and intervention variables. For each individual study the effect size (cohen's d, see Other Publications of Related Interest no. 2) was calculated.

**Methods of synthesis**

How were the studies combined?
Because of problems with statistical reporting, pooled standard deviations (SDs) were not available and therefore the control group SD was used as advocated by McGaw and Glass, 1980 (see Other Publications of Related Interest no. 4). In determining effect size, only one outcome measure was taken from each study. The measure chosen was the one that reported the best reliability results. In studies that used multiple groups, effect was determined by comparing the experimental group with a 'no treatment' control group whenever possible. The combined probabilities of the studies as determined by the Stouffer Combined test were presented. Publication bias was addressed using the fail-safe N method (indicates the number of additional studies necessary in a meta-analysis to reverse the overall probability obtained from the combined test to a value higher than the critical value for statistical significance, see Other Publications of Related Interest no. 5). Effect size was calculated for two questions in each study. Did TT produce the desired outcome in treated subjects and were outcomes significantly different from the control group?

How were differences between studies investigated?
Heterogeneity was not formally investigated. However, heterogeneity between studies was discussed in the text.

**Results of the review**
Nine studies were included in the review. Five studies included psychological variables (333 participants) and four studies evaluated physiological variables (222 participants). The findings of three unpublished quantitative dissertation research studies on TT were presented separately (where given, 108 participants). The type of study design used by included studies was experimental pre-/posttest with control (n=5), descriptive pre-/posttest with no control (n=1), experimental posttest only (n=2), experimental posttest only with control (n=1). Of the eight studies that had two or more groups, seven (88%) reported random assignment to groups.

Does TT increase response?

Psychological variables (4 studies, n=228):
All four studies reported significant findings in favour of TT. The effect size (Cohen's d) for within treatment group responses were +0.21 and +4.41. The probabilities were not combined due to insufficient data.

Physiological variables (2 studies, n=168):
Both studies reported significant findings in favour of TT. The effect size (Cohen's d) for within treatment group responses were +0.67 and +1.76. The probabilities were not combined due to insufficient data.

Is TT more effective than control?

Psychological variables (4 studies, 329):
All four studies reported significant reduction in anxiety in favour of TT. The effect size (Cohen's d) could only be
calculated for 3 studies (n=298) and ranged from +0.26 to +0.70. The combined probability (Zc) was 1.76, p<0.04. Fail safe N=1.

Physiological variables (2 studies, n=222):

All four studies reported significant improvement in physiological outcomes (decrease headache pain, decrease stress, decrease pain or increase wound healing) in favour of TT. The effect size (Cohen's d) ranged from +0.57 to +1.9. The combined probability (Zc) was 4.05, p<0.001. Fail safe N=20.

The three unpublished quantitative dissertations found no significant effect of TT on reducing anxiety.

The quality score for included studies that looked at psychological variables ranged from 1.88 to 2.70 and for physiological variables they ranged from 1.27 to 2.63. The study identified as having the greatest number of methodological concerns reported the highest level of significance in reducing anxiety and had the greatest effect-size value (+4.41).

Although all studies examined TT as the treatment variable, there was no consistency in the definition of the procedure and the timing of the TT varied greatly. The qualification of the practitioner and their level of experience also varied between studies.

**Authors’ conclusions**

This meta-analytic review raises many issues and concerns regarding the TT research. It appears that TT can produce a medium effect for physiological outcomes and psychological outcomes within treated subjects. It also appears that TT produces a medium effect on physiological outcomes when comparing treatment with control groups. However, the fail-safe N indicates that, currently there is not enough empirical data to support TT as more effective than control measures in improving psychological well-being.

**CRD commentary**

The review includes a clear objective and the inclusion criteria are reported. Only studies published between 1986 and 1996 were included in the review and some important information may have been excluded. Unpublished dissertation abstracts were excluded from the meta-analysis. However, their findings were presented separately and it is therefore possible to assess how their inclusion would affect the overall results. The possible influence of publication bias was also investigated. The author does not report how many reviewers were involved in selecting studies for inclusion and data extraction or how this was undertaken. The author assessed the quality of included studies using a validity tool. Relevant details of included studies were presented in tabular format, although the information relating to the intervention was limited. The author discussed the heterogeneity between the studies in a narrative. Considering the extent of the heterogeneity it may have been inappropriate to pool the studies. The author's conclusions seem to follow from the results.

**Implications of the review for practice and research**

Research: The author reports that more rigorous research still needs to be done to establish a solid body of evidence that supports the effectiveness of TT as a nursing intervention. Four major weaknesses must be addressed if future studies are to establish a scientific base supporting the effectiveness of TT. The problems include sampling procedures, intervention practices, practitioner skills and the underreporting of data.

**Bibliographic details**


**PubMedID**

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Other publications of related interest

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This is a critical abstract of a systematic review that meets the criteria for inclusion on DARE. Each critical abstract contains a brief summary of the review methods, results and conclusions followed by a detailed critical assessment on the reliability of the review and the conclusions drawn.