An integrative review and meta-analysis of therapeutic touch research
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Authors' objectives
To perform an integrative research review and meta-analysis of therapeutic touch (TT) research.

Searching
Searches were conducted of MEDLINE, CINAHL and PsycLIT databases, and the TT bibliography published by Nurse Healers-Professional Associates International Inc. Dissertations and master's theses were also sought. Only published research and doctoral dissertations were included. No details were given of keywords used, dates searched or language restrictions.

Study selection
Study designs of evaluations included in the review
The inclusion criteria were not defined in terms of study design. Included studies were of quantitative design (including experimental and randomised controlled trials (RCTs)), qualitative design, or case studies. Studies included in the meta-analysis were required to report means and standard deviations for treatment and control groups, and use human participants.

Specific interventions included in the review
Studies based on the Krieger or Krieger-Kunz method of TT were eligible. Laying-on of hands and Healing Touch Program were excluded.

Participants included in the review
Studies of people, plants or animals were eligible. The following types of cardiovascular patients appear to have been included: hospitalised patients (adults, elderly and children), cardiovascular patients, premature infants, patients receiving chemotherapy, institutionalised elderly, pre- and post-operative patients, AIDS patients, and people with dementia and grief. Most studies focused on adult patients.

Outcomes assessed in the review
The inclusion criteria were not defined in terms of outcomes. The following outcomes appear to have been assessed in humans: physiological change; anxiety (methods used included the State-Trait Anxiety Inventory); stress reduction; sleep; tension headache pain; conceptual change; induced pain; wound healing; anticipatory nausea and vomiting; post-operative pain; milk letdown; patient expectation of anxiety; immune function; grief experience and agitation. Methods used to assess outcomes other than anxiety were not specified.

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

Assessment of study quality
The validity criteria included: source of publication; clinical area studied; study design; type of analysis; appropriateness of analysis for study; reliability of scale (reported, not reported, not applicable); validity of scale (reported, not reported, not applicable); internal validity (discussed or not discussed); external validity (discussed or not discussed); study builds on other studies to accumulate knowledge; mid-level practice theory or hypothesis confirmed; theory or hypothesis generated; suggestions for future research; study merits replication; description of intervention; investigator experience; outcomes assessed by person performing TT; used mimic TT; and outcome measured. The validity criteria were entered using a coding form, and difficulties relating to the coding of individual studies were resolved by consensus.
Data extraction
Two researchers extracted the data using a 32-item model developed by Moody to define the research question (see Other Publications of Related Interest no.1). The following data were extracted using a coding form: characteristics of sample, including demographics and illness-related data; characteristics of intervention including evaluation of the type of TT used; and substantive characteristics of the article or dissertation including the reliability and validity of any scales used. Any difficulties relating to coding individual studies were resolved by consensus. Inter-rater reliability checks were performed on 3 studies and agreement was 100%. In the meta-analysis, a coin-toss was used to select one outcome for inclusion where studies reported more than one variable.

Methods of synthesis
How were the studies combined?
Studies that posited a hypothesis were classified as either supporting the hypothesis, reporting mixed results or refuting the hypothesis, and the number of studies in each category was counted. In the meta-analysis, an average effect size (d) and 95% confidence interval (CI), weighted for sample size, was calculated.

How were differences between studies investigated?
Statistical heterogeneity was assessed using the chi-squared test and differences between studies were discussed.

Results of the review
Thirty-eight articles were included in the initial review (6 quantitative, 31 quantitative including 18 RCTs, and 1 case report), 29 studies were included in the narrative review and 13 experimental studies were included in the meta-analysis. The number of participants was not reported.

Few studies reported demographic details of participants, or made it clear whether all required steps of the Krieger-Kunz TT method were followed. In 14 studies the investigator performed the TT and half of the included studies did not specify the experience of the TT practitioners. Reliability of scale was reported in 21 studies, and validity of scale reported in 21 studies. There was great diversity of the research methods and study designs.

Studies positing a hypothesis (29 studies): 13 supported the hypothesis, 6 reported mixed results, and 10 refuted the hypothesis.

Pooled d (13 experimental studies) was 0.39 (95% CI: 0.18, 0.50) suggesting a moderate effect (see Other Publications of Related Interest no.2). Significant heterogeneity was found (p<0.001).

Authors’ conclusions
There are many approaches to TT research, samples are described incompletely and the TT practices vary in the studies. Most of the studies supported hypotheses regarding the efficacy of TT, though a number had mixed or negative results. The average d from the meta-analysis was 0.39, which is described as moderate. Gaps found in the research included inadequate description of both the study sample and the TT intervention.

CRD commentary
The aims were stated and inclusion criteria were defined in terms of intervention. Inclusion criteria were not defined in terms of participants, study design or outcome. The search included sources of both published and unpublished material though no details were given of keywords used, methods used to select studies, or whether any language restrictions were applied. Validity was assessed, and methods used to assess validity and extract data were described. Only limited information was given of the included studies and, in particular, it was not possible to assess the validity of the studies included in the meta-analysis or the number of patients involved. In view of the finding of significant statistical heterogeneity and apparent differences among studies in design, sample and outcomes, a meta-analysis was not an appropriate means of combining the studies. No attempt was made to further investigate the statistical heterogeneity.

In view of the above, the conclusion of a moderate effect of TT cannot be considered as supported by the evidence. The
authors' conclusions about the limitations of the evidence were supported.

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

Practice: The authors do not state any implications for practice.

Research: The authors state that future research should study well-defined TT therapy on ill patients, delivered by experienced practitioners who are not then involved in assessing the outcomes. Studies should be adequately powered and appropriately analysed, outcomes should be more broadly based than those used to date, and real TT should be assessed rather than 5-minute treatments that were developed in the name of standardising the research.

**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.