Authors' objectives
To evaluate the efficacy of acupuncture in the treatment of primary headaches.

Searching
MEDLINE was searched using the keywords 'acupuncture', 'electroacupuncture', 'headache' and 'migraine'; the search dates were not reported. The authors also searched textbooks and other relevant sources (the reference details were presented in the paper), and the American Journal of Acupuncture for the previous 20 years.

Study selection
Study designs of evaluations included in the review
No a priori inclusion criteria relating to study design were reported.

Controlled studies, uncontrolled studies and studies of a crossover design were included in the review. Studies that investigated possible mechanisms of acupuncture analgesia, which used those patients who were presented in other studies, were excluded. Studies with an inadequate amount of information regarding results and their statistical significance were also excluded. Published abstracts were included if they contained the necessary information.

The length of follow-up ranged from 4 weeks to 8 years.

Specific interventions included in the review
Acupuncture methods including traditional acupuncture or 'trigger point deactivation' using acupuncture needles. Other forms of therapy, such as 'ear acupuncture', 'scalp acupuncture', trigger point injections (with local anaesthetics, steroids or sterile water) and 'acupuncture-like TENS', were excluded. Studies where acupuncture was used in combination with other medical or physical forms of treatment were also excluded. It was a prerequisite that the studies were conducted in Western countries.

The control included physiotherapy, sham acupuncture, pseudo-transcutaneous electrical nerve stimulation, and pharmacotherapy.

Participants included in the review
Adults and children with primary headaches (migraine headache, tension headache and mixed forms). Studies that evaluated the effectiveness of acupuncture in secondary headaches, pain as a result of temporomandibular joint dysfunction, postlumbar puncture headache or atypical facial pain, were excluded.

Outcomes assessed in the review
The a priori outcomes of interest were not reported.

The studies were classified according to whether the authors concluded that acupuncture was (classified as 'positive') or was not ('negative') a useful analgesic method in the treatment of headache. It is not stated how the outcomes were measured in the primary studies.

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 authors do not state that they assessed validity.
Data extraction
The authors do not state how the data were extracted for the review, or how many of the reviewers performed the data extraction.

The following data were extracted: the number of patients in the study; the type of headache; the type of control treatment; the number of treatments; the length of follow-up; the overall result according to the authors; and comments.

Methods of synthesis
How were the studies combined?
The studies were not combined using statistical methods. The total number of studies demonstrating a positive (or negative) result, i.e. acupuncture was considered useful (or not useful) in the treatment of headache, was calculated; the authors did not make a firm conclusion in three of the studies.

Publication bias was not assessed.

How were differences between studies investigated?
No formal tests for heterogeneity were performed. The authors stated that the selected studies differed significantly in terms of the project design, the number of patients, the follow-up time, and other parameters.

Results of the review
Twenty-seven studies were included in the review, of which 19 had a control group and 8 did not. A crossover design was used in 5 studies and partially in another study. The total number of patients in all of the trials was 1,088. The number of participants in the individual studies ranged from 9 to 150.

The actual results of the primary studies are not presented fully. Twenty-three studies were considered to have a positive result and one study was considered to have a negative result. In one study, acupuncture was considered to be ‘a potentially useful method needing more clinical evaluation’. In two studies, the authors did not end in a real outcome: one study found that acupuncture was slightly superior to pseudo-acupuncture, whilst in the other, the number of patients was considered to be too small to make a firm conclusion, although there was a decrease in headache days.

Authors’ conclusions
The use of acupuncture for the treatment of headache seems promising because the majority of the clinical trials (23 out of 27) reported positive conclusions regarding its effectiveness. However, additional clinical research is necessary to confirm the efficacy of acupuncture and to clarify its indications.

CRD commentary
The authors stated their review question and the inclusion criteria clearly. The study inclusion criteria stated that it was a prerequisite that the studies were conducted in Western countries. This was justified by the statement that acupuncture is a respected form of treatment in China; this general acceptance may influence patient opinion regarding the effectiveness of acupuncture by enhancing the placebo effect.

The literature search was clearly described although the search dates were omitted. However, the search was not thorough and the authors made no attempt to identify unpublished or grey literature, although textbooks, an acupuncture journal and other relevant sources were searched. This narrow search strategy might have missed relevant studies, thus allowing a selection bias to be introduced; particularly, since the journal chosen for searching was an acupuncture journal, which may have been a biased source. Publication bias was not assessed.

Relevant literature could also have been identified by searching other appropriate databases, such as EMBASE, SIGLE and the NRR, and by contacting experts in the field.

The authors did not report a method for assessing validity. The authors state that acupuncture trials are not double-blind.
as the clinician administering acupuncture is aware of which is the true treatment, and placebo acupuncture is not an ideal placebo.

The authors did not report details of the study selection, data extraction or validity assessment processes, such as how many of the reviewers were involved, whether the studies were examined independently, whether the reviewers were blinded to the source, and how any disagreements were resolved.

The study details were displayed in two tables that included information relating to sample size, type of headache, brief description of interventions, follow-up, authors’ results, and comments. There was no key to explain the abbreviations used in the tables, and it was unclear why the studies were split between two different tables. These data were supplemented by a narrative discussion. A typing error was made in the results section relating to the number of trials investigating the different types of headache. There was limited data on the methodology of the included studies, such as how pain was measured, how the studies classified the treatment as a success or failure, and who performed the acupuncture.

No formal tests for heterogeneity were performed, although the authors stated that the selected studies differed significantly. Despite this, the authors crudely pooled the results of the studies using a method known as 'vote counting'.

The authors’ conclusions appear justified based on their crude pooling of results. However, the conclusions must be interpreted with caution given the potential for selection bias, lack of quality assessment, and the heterogeneity of the studies. The review appears to be relevant to the topic area.

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

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

Research: The authors state that clinical trials that evaluate acupuncture frequently are characterised by several inadequacies (including some from those evaluating headaches). Additional clinical research is necessary to confirm the efficacy of acupuncture, and to clarify its indications.

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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.