



## Acupuncture and electroacupuncture for anxiety disorders: A systematic review of the clinical research

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### ABSTRACT

Anxiety disorders are one of the most common mental health concerns with a major contribution to the global burden of disease. When not treated, anxiety can be aggravated to more serious and complicated health problems. Pharmacology and psychotherapy stand for the conventional treatment for anxiety disorders but these present limited efficacy, especially in the case of chronic anxiety, with high relapse rates and often causing adverse side effects. Clinical research studies render acupuncture as a valid treatment therapy for anxiety disorders without significant adverse effects.

The objective of this paper is to review the literature on the effectiveness of acupuncture and electroacupuncture for the treatment of patients with anxiety disorders in order to find strong scientific evidence for its regular practice in Western culture.

The systematic review of the clinical research was focused on published clinical trials (controlled, randomized and non-randomized) regarding the treatment of anxiety with acupuncture. Only clinical trials where anxiety was treated as the therapeutic target, and not as a secondary measurement or being associated with other health condition or disease, were considered. Two authors extracted the data independently and exclusion and inclusion criteria were set. The search rendered 1135 papers addressing anxiety as a primary therapeutic target. After review, 13 papers were identified to match exclusion and inclusion criteria and were selected for this analysis. Methodology, design, and quality of the research were highly variable and are discussed and compared.

Overall, there is good scientific evidence encouraging acupuncture therapy to treat anxiety disorders as it yields effective outcomes, with fewer side effects than conventional treatment. More research in this area is however needed.

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### Contents

1. Introduction .....	32
2. Material and methods .....	32
2.1. Literature search and inclusion criteria .....	32
3. Results .....	33
3.1. Acupuncture or electroacupuncture for anxiety treatment .....	33
3.2. Type of acupuncture and main acupoints selected .....	33
3.3. Control groups .....	33
3.4. Type on inventories for the assessment of anxiety .....	35
3.5. Biological measurements of anxiety .....	35

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4. Discussion .....	36
5. Conclusions .....	36
Funding .....	37
Author disclosure statement .....	37
References .....	37

## 1. Introduction

Anxiety disorders are one of the most common mental health concerns. These disorders represent a significant public health problem and are frequently associated with complications and disability. Anxiety has been detected early in life in children within the 5–9 year range, spanning until a 55–59 year range, after which the most common mental health problem becomes depression (GBD 2015) [1].

In fact, depression and anxiety have been reported to contribute substantially to the Global Burden of Disease as stated in the 2015 report (GBD 2015) [1]. Anxiety ranks in the top ten causes of disability worldwide and is the most prevalent psychiatric condition in the European Union (EU) with over 60 million people being affected by this condition [2]. When untreated, anxiety implies significant personal and societal costs due to frequent primary and acute care visits, decreased productivity at work, unemployment and impaired social relationships. In addition, anxiety presents itself as a risk factor for the development of other anxiety-related disorders [2]. While anxiety disorders were previously related to Western countries, new evidence has recently shown that it is, in fact, a worldwide concern [3]. Anxiety is considered a deleterious mood disturbance characterized by persistent feelings of apprehension, despair, tension, and distress with developing physical symptoms such as tachycardia, nervousness and inability to relax. This condition tends to become chronic and interferes with daily life predisposing to other serious health conditions and to engage in an unhealthy lifestyle behavior [4,5]. The terminology “Anxiety disorders” are a general term comprehending several conditions such as panic disorder, social anxiety disorders, separation anxiety disorders, phobias, selective mutism, anxiety induced by substance use, anxiety associated with a medical condition, and generalized anxiety disorder [6]. Pharmacotherapy and psychotherapy are the conventional treatments for anxiety with the former being considered the standard treatment and with the latter being insufficient when used alone in most cases. Regarding pharmacotherapy, anxiolytics, antidepressants or monoamine oxidase inhibitors are used, with benzodiazepines being the most used pharmacological resource as anxiolytics [7]. Nonetheless, pharmacotherapy is not free from concern since they can lead to habituation (especially in long-term treatments), and present side effects and drug interactions, among other problems [8,9]. Due to its chronicity, high relapse rates, and the need for a long-term maintenance treatment, there is an urgent need for an effective treatment of anxiety, with less undesirable side effects. In the last years, non-conventional therapies such as acupuncture are becoming more popular to treat this health problem. Several studies have proved acupuncture as a safe therapy with rare adverse side effects [10,11]. Acupuncture is an ancient energy-based traditional Chinese medicine technique, popular in the East but still recent in Western countries. The technique aims at redirecting and harmonizing energy flow along 14 main energy channels called meridians. The technique consists of stimulating with fine needles selected points in the skin within the 360 points that were identified - acupoints. Each internal organ is linked to a

specific meridian and the stimulation of a specific acupoint is believed to interact with the corresponding internal organ harmonizing the energy flow [12]. In the view of traditional Chinese medicine, anxiety is mainly a result of an impairment of the heart and kidneys vital energy flow (and lack of communication between them) and a hyperactivity of liver Yang (active and heating force). Acupuncture, by the stimulation of specific trigger points, could, therefore, improve and alleviate this condition [13].

The objective of this literature review is to summarize clinical research regarding acupuncture in anxiety in the last 10 years to prove the efficacy and consistency of this technique in the treatment of this disorder. Acupuncture has rather recently branched into laser acupuncture and electroacupuncture. This review will only focus on acupuncture (A: body (BA) and auricular (AA)) and electroacupuncture (EA).

## 2. Material and methods

### 2.1. Literature search and inclusion criteria

A systematic search was performed on the months of July to September of 2017 (Fig. 1) on relevant electronic databases (B-On, PubMed, Scielo, Science Direct and Scopus) and included both the broad term ‘anxiety [all fields]’ AND ‘Acupuncture [all fields]’ OR ‘Electroacupuncture’ [all fields]. Results were limited to ‘human’ studies published from 2007 to 2017. Only peer-reviewed English-language publications were considered. Titles and abstracts were scanned to identify papers containing relevant data. This web search yielded 1135 publications from which literature reviews, case studies, opinion or comment papers, and papers focused on general surveys were excluded from analysis.

Repeated papers common to different databases, denied access to full text, papers concerning anxiety and acupuncture but not correlating both, or papers treating anxiety as a secondary effect while treating other conditions, were excluded. The remaining 96 full-text papers were analyzed for eligibility criteria. Studies that did not use A and EA to treat anxiety as a primary target were not considered.

Whenever another health condition was associated with anxiety (such as pain) other acupuncture points were introduced and stimulated in the treatment and therefore, the results regarding the decrease of anxiety could be indirectly related to the stimulation of other acupoints (anxiety unrelated points). Moreover, the reduction of anxiety could also be indirectly related to an improvement of the condition per se, for example, the reduction of pain. Laser acupuncture and acupressure studies were excluded from this review as well. Uncontrolled, prospective, case studies or trials considering a very small group of subjects were also not considered. One paper was excluded because the same authors presented a similar but more complete study 2 months after the submission of the previous work [15]. All studies had to use an established rating scale or other effective measures to access the degree of anxiety. Although only clinical trials are reviewed, other types of publications were read to identify relevant studies such as review papers. After the exclusion and inclusion criteria accordingly to the method

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