



# Effects of Electroacupuncture for Depression-Related Insomnia

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Acupuncture is a popular treatment approach to many medical and psychiatric conditions. However, this discipline has been relatively understudied in clinical trials, particularly in mental health. Yin et al<sup>1</sup> present the results of a 3-group study comparing the outcomes of electroacupuncture vs sham acupuncture as adjuncts to standard care vs standard care alone for patients with depression and insomnia. The authors found that adding electroacupuncture to standard care significantly improved sleep and mood among the study participants compared with a sham intervention and standard care alone. This finding is an exciting one because depression is a common illness, and sleep disturbance is a frequent comorbidity with depression. Indeed, sleep disturbance is one of the *Diagnostic and Statistical Manual of Mental Disorders (Fifth Edition)* diagnostic criteria for major depressive disorder. The study also has public health importance given that many patients with depression do not seek help from mental health professionals owing to stigma associated with mental illness and many commonly used antidepressants and sedative-hypnotics have adverse effects, the latter of which may produce habituation and dependence. Although cognitive behavioral therapy is effective for treating depression and insomnia, therapists who use cognitive behavioral therapy have limited availability worldwide, especially in low-income countries and in many parts of the US. This study supports electroacupuncture as an effective and, at least in some locations, potentially more accessible alternative treatment for this population.

The study's strengths include its large sample size, validated instruments used to measure parameters for sleep and depression, and actigraphy for obtaining objective sleep data. In addition, sham noninsertion needles<sup>2</sup> were used as a control intervention.

Nonetheless, the study has several limitations. First, attempts at replication in other clinics and populations are called for to establish greater generalizability. Second, the investigators described the needling technique of "rotating or lifting-thrusting manipulation... for deqi sensation." The deqi sensation is based on subjective reports by patients.<sup>3</sup> It is not clear whether all acupuncturists in this study were trained to use the same manipulation and whether the desired effects were uniformly obtained. Treatment was provided by licensed acupuncturists with at least 5 years of experience, a relatively broad selection criterion. Acupuncturists trained in different schools may use different needling methods and styles, and their skills and effectiveness in delivering these needling techniques may vary. The reporting of deqi sensation by patients can be highly variable because it depends not only on the skills of the acupuncturists but also on the ability of patients to feel and describe it. Third, the study was performed in 3 hospitals in Shanghai, and "psychiatrists in the Shanghai Mental Health Center guided all patients' standard care treatment." Shanghai Mental Health Center is one of the top psychiatric hospitals in China, and clinicians there have high levels of training and expertise in the treatment of depression and insomnia. Likewise, the level of skill of acupuncturists recruited from Shanghai, an educational hub with many well-established traditional Chinese medicine schools, is expected to be high. This may have produced greater synergy of effects between standard care and acupuncture when combined. The standard care provided in this study by high-caliber psychiatrists and acupuncturists may therefore not be available in places with fewer mental health resources, and thus the favorable outcomes from this study may not be replicable elsewhere.

Another important consideration is that the blinding in this study was only partially successful. The use of the sham noninsertion needles is considered the state of the art for blinding in acupuncture studies. The sensation produced by electroacupuncture, however, is more distinct and

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intense and more readily recognized by patients who have received electroacupuncture in the past. In this study, 56 of 90 patients (62.2%) in the sham acupuncture group guessed wrongly about their group assignment (Bang blinding index,  $-0.4$  [95% CI,  $-0.6$  to  $-0.3$ ]), whereas only 15 of 90 patients (16.7%) in the electroacupuncture group guessed wrongly. This outcome suggests that blinding was not highly successful, particularly in the active treatment group. The higher rate of recognizing electroacupuncture may have resulted in favorable outcome expectation and thus better treatment outcomes in this group. In future studies, the recruitment of patients who are naive to acupuncture and electroacupuncture could reduce such a bias. Likewise, the acupuncturists who provided the treatment were not blinded, and this too could be a source of potential bias in the way treatments were being delivered.

Last, there is also a question about the theoretical basis for acupoint selection in this study and whether individualization of treatment is needed. It would be helpful to provide a description of how this set of acupoints were chosen for treatment of depression and insomnia, and whether these acupoints need to be adapted to individual needs based on traditional Chinese medicine diagnosis of each participant.<sup>4</sup> Two previous open studies by our group<sup>5,6</sup> found a benefit from a standardized acupuncture protocol using the same set of acupoints for all participants, which facilitates clinical trials and increases their rigor but may risk undertreatment of some patients who might benefit more from subtle changes in point selection based on individual clinical characteristics. Such a discussion is important for future refinement of this acupuncture treatment for depression and insomnia and for tailoring to individual differences.

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#### ARTICLE INFORMATION

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#### REFERENCES

1. Yin X, Li W, Liang T, et al. Effect of electroacupuncture on insomnia in patients with depression: a randomized clinical trial. *JAMA Netw Open*. 2022;5(7):e2220563. doi:[10.1001/jamanetworkopen.2022.20563](https://doi.org/10.1001/jamanetworkopen.2022.20563)
2. Streitberger K, Kleinhenz J. Introducing a placebo needle into acupuncture research. *Lancet*. 1998;352(9125):364-365. doi:[10.1016/S0140-6736\(97\)10471-8](https://doi.org/10.1016/S0140-6736(97)10471-8)
3. Spaeth RB, Camhi S, Hashmi JA, et al. A longitudinal study of the reliability of acupuncture deqi sensations in knee osteoarthritis. *Evid Based Complement Alternat Med*. 2013;2013:204259. doi:[10.1155/2013/204259](https://doi.org/10.1155/2013/204259)
4. Qiao Y, Stone AI. *Traditional Chinese Medicine Diagnosis Study Guide*. Eastland Press; 2008.
5. Mischoulon D, Brill CD, Ameral VE, Fava M, Yeung AS. A pilot study of acupuncture monotherapy in patients with major depressive disorder. *J Affect Disord*. 2012;141(2-3):469-473. doi:[10.1016/j.jad.2012.03.023](https://doi.org/10.1016/j.jad.2012.03.023)
6. Yeung AS, Ameral VE, Chuzi SE, Fava M, Mischoulon D. A pilot study of acupuncture augmentation therapy in antidepressant partial and non-responders with major depressive disorder. *J Affect Disord*. 2011;130(1-2):285-289. doi:[10.1016/j.jad.2010.07.025](https://doi.org/10.1016/j.jad.2010.07.025)