

THE USE OF ACUPUNCTURE TO REDUCE ANXIETY SYMPTOMS

Willian Matheus Cassiano Lima

UNICEPLAC - ``Centro Universitário do
Planalto Central Aparecido dos Santos``
Brasília - Federal District.

<http://lattes.cnpq.br/6368658395170520>

Alberto Andrade dos Reis Mota

UNICEPLAC - ``Centro Universitário do
Planalto Central Aparecido dos Santos``
Brasília - Federal District

<http://lattes.cnpq.br/3601576335655535>

Gyzelle Pereira Vilhena do Nascimento

UNICEPLAC - ``Centro Universitário do
Planalto Central Aparecido dos Santos``
Brasília - Federal District

<http://lattes.cnpq.br/6940105522124089>

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Abstract: Anxiety is one of the most common mental disorders in the general population. It can directly affect an individual's quality of life through their physical and mental actions. The objective of this work was to evaluate the effectiveness and safety of acupuncture in the treatment of anxiety disorder, based on a literature review. A survey of articles was carried out using the following databases and databases: LILACS (Latin American and Caribbean Literature), VHL (Virtual Health Library), PubMed (US National Library of Medicine National Institutes of Health), Google Scholar and Scielo (Scientific Electronic Library Online) using the descriptors "Medicine, Chinese Traditional" AND "Acupuncture therapy" AND "Anxiety" AND "Acupuncture in which 7 articles were selected. It is concluded that acupuncture proved to be effective in reducing anxiety in several cases and maintained patient safety.

Keywords: Acupuncture, Anxiety and Traditional Chinese Medicine

INTRODUCTION

Anxiety disorder is one of the most common mental disorders, present in 19.9% of the metropolitan population of São Paulo (MANGOLINI; ANDRADE; WANG, 2019). Anxiety is a vague and unpleasant feeling of fear, worry, characterized by nervousness or discomfort caused by the anticipation of unknown or strange danger (LÚCIO et al., 2019). The diagnosis is made by a professional psychiatrist when there is suffering or impairment in social, professional functioning or in any other area of the individual's life based on the criteria of the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5) (LOPES et al., 2021) (BARNHILL, 2020).

Based on the diagnosis, the therapeutic approach may vary and is generally carried out by psychiatric treatment, pharmacological

treatment and the combination of both treatments (NICE 2019). As it is a long treatment, the medications indicated for treatment can generate several side effects, such as drowsiness, psychomotor incoordination, and more frequently, chemical dependence, which is aggravated when associated with opioids (ALVES, 2018). Depending on the stage of the disorder, it can directly affect the individual's quality of life, causing negative effects on personal and professional life (CAVALCANTI et al., 2018).

Seeking an alternative form of treatment to psychiatric or pharmacological treatment, many individuals with anxiety disorders end up looking for Integrative and Complementary Health Practices (PICS), one of which originates from Traditional Chinese Medicine (TCM), acupuncture, an ancient practice that it works by stimulating specific points with needles (VASCONCELLOS, 2019).

Acupuncture is a widely used practice due to its therapeutic properties. Among these properties is its action on various areas of the body, such as physical pain, emotional and mental problems. In order to evaluate the effectiveness and safety of acupuncture in the treatment of anxiety disorder, this study aims to seek data that prove the effects of therapy performed with acupuncture.

REVIEW OF LITERATURE

Anxiety is a natural and adaptive reaction, generating behavioral and affective reactions, preparing the individual for possible threats. However, it qualifies as an anxiety disorder when: 1 – There is a failed interpretation of the possible threat or danger in relevant situations; 2 – When there is interference in the individual's performance when facing difficult or aversive conditions; 3 – Presence of anxious sensation for a long period (SCHÖNHOFEN et al., 2020).

In 2015, the World Health Organization

(WHO) estimated that 264 million people worldwide had some type of anxiety disorder, mainly affecting women. Around 9.3% of the Brazilian population is affected by this disorder (MOURA et al., 2018). (ABRAHÃO; LOPES, 2022) realized that a major aggravating factor in triggering anxiety is the instability of contemporary society, which in the presence of the uncertainties of reality itself, the individual ends up overreacting to everyday situations, resulting in problems in quality of life.

Anxiety is represented by an emotional and physical reaction, characterized by unpleasant feelings of worry and tension along with the physical symptoms of agitation, palpitations, chills, sweating and nervousness. Can be considered mild, moderate or severe, this mental disorder is chronic and recurrent (IBIAPINA et al., 2022). It can be enhanced by exposure to more disadvantaged socioeconomic conditions and related factors such as: violence, difficulty accessing health services, unemployment, poor economic distribution, among others (COSTA et al., 2019).

This disorder directly affects the individual's quality of life, affecting personal and professional life, compromising leisure time with family and friends, increasing aggression, irritability, tiredness and sadness (LOURENAÇÃO, 2018). The symptoms of anxiety are caused by a disorganization of the sympathetic nervous system, where there is the release of large, inappropriate amounts of hormones that trigger stress in the circulation (FRANCO; QUEIROZ, 2019).

The most commonly used treatments for anxiety disorders are pharmacological and psychotherapeutic, with emphasis on the use of benzodiazepines, the most prescribed medications in the world. (FRANCO; QUEIROZ, 2019). Acting throughout the central nervous system (CNS) through

inhibitory synaptic transmission modulating the gamma-aminobutyric acid (GABAA) subtype A receptor, benzodiazepines are psychotropic drugs from the anxiolytic subgroup (FARIA et al., 2019).

Receptors: GABA_A they are made up of five transmembrane subunits, which together form the ligand-gated chloride channel. These receptors: GABA_A, they have typical subunits, being composed of two subunits: α , two β and a γ subunit. To initiate an inhibitory signal, GABA must bind to the receptor: GABA_A, causing it to open the negatively charged chloride channels (Cl⁻) (SILVA; SOUZA, 2021).

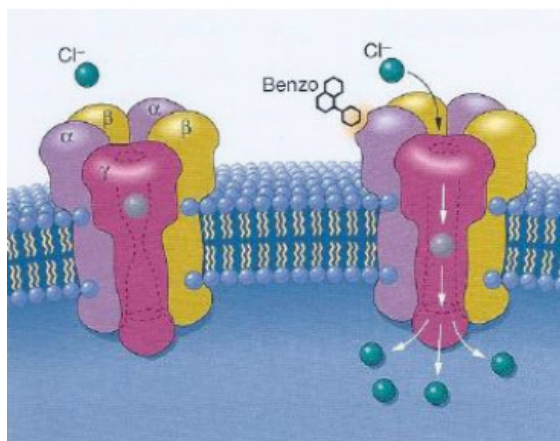


Figure 1 – Representation of the GABA receptor opening the chlorine ion channel.
Source: (SANTOS et al., 2016)

Benzodiazepines act as a GABA co-agonist, acting between the α and γ subunits, as positive allosteric modulators (PAM) in the extracellular domain. When they bind to the binding site, they increase the frequency of the channels, leading to an increase in the entry of Cl⁻ ions into the intracellular environment. Causing hyperpolarization of the environment (SILVA; SILVA; GUEDES, 2022).

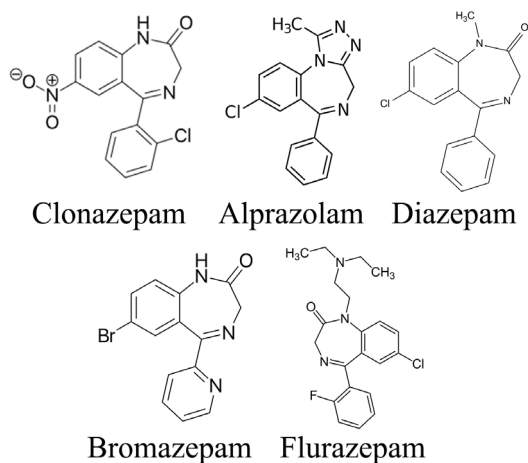


Figure 2 – Representation of the chemical structures of the most consumed benzodiazepines.

Source: Prepared by the author.

The α subunit has six subtypes, and benzodiazepines bind to receptors: GABA_a that contains the subtypes: $\alpha 1$, $\alpha 2$, $\alpha 3$ or $\alpha 5$ combined with the γ subunit, and do not interact with the subtypes $\alpha 4$ and $\alpha 6$, where these subunits with different subtypes promote different effects than benzodiazepines. The $\alpha 2$ and $\alpha 3$ subunits are responsible for the anxiolytic effect, while the $\alpha 1$ and $\alpha 3$ subunits are responsible for sedation, amnesia and ataxia (JULIO et al., 2022).

In its class, the most used medications are: Clonazepam (45.2%), Alprazolam 23.8%, Diazepam 14.3%, Bromazepam 11.9% and Flurazepam 4.8%. According to:

MEDICINE	PERCENTAGE
Clonazepam	42,2%
Alprazolam	23,8%
Diazepam	14,3%
Bromazepam	11,9%
Flurazepam	4,8%
Total	100%

Table 1: Medicines most consumed by the study population.

Source: (BARBOSA; FERRAZ; ALVES, 2021)

In the use of benzodiazepines, among their negative points, excessive sedation, dependence, lethargy, tolerance and decreased reflexes are reported. Representing a smaller percentage are side effects such as constipation, urinary retention, bradycardia, nausea and vomiting (CHRISTINA; DÁBIA BATISTA RAMOS; MOREIRA, 2023). Adverse effects associated with normal therapeutic doses are those that affect manual skills. While overdose causes excessive sedation and prolonged use causes tolerance, requiring adjustment of the dose to obtain the same therapeutic efficacy (BARBOSA; FERRAZ; ALVES, 2021).

Acupuncture is the best-known practice of Chinese medicine today and the one that has seen the greatest expansion of its knowledge and use around the world (CONTATORE; TESSER; BARROS, 2022). The principle of acupuncture is based on the flow of vital energy, called qi, and blood, called xue, where the balance of both is interpreted as health and the imbalance as illness. With this principle as a basis, all types of dysfunction or pathology, such as anxiety, can be treated by acupuncture, with the insertion of needles in specific points on the body, which act to reestablish balance and smooth flow (SOUSA, 2021).

According to the principles of Traditional Chinese Medicine, anxiety is triggered due to an imbalance between the cardiovascular and renal systems (heart and kidney). Generating feelings of apprehension and fear of something happening in the future, combined with fear and restlessness, with physical representations of tremors, urinary frequency and accentuated bowel movements. Authors state that a shen disorder is an indication that the spirit does not move properly through the body (NUNES et al., 2018).

By introducing needles at specific points in the energy meridians, a stimulus is generated in the nerve endings at the level of the muscles, where it is directed to the

Central Nervous System (CNS), which is recognized and translated into levels: Hypothalamic level, generating activation of the hypothalamic-pituitary axis that triggers the release of β -endorphins (analgesics), (anti-inflammatory) and serotonin (antidepressant) in the bloodstream and spinal brain fluid, midbrain level where there is the activation of gray matter neurons, releasing endorphins that stimulate the production of serotonin and norepinephrine, at the level of the spinal cord, there is the activation of interneurons in the gelatinous substance and release of dynorphins (AMARAL; ALVARENGA; STEFFEN, 2014).

When a needle is inserted into the skin, microinflammation is generated that promotes the natural production of these substances. With the release of these neurotransmitters, there is a block in the propagation of painful stimuli, preventing the brain from noticing and triggering an analgesia process. Causing the body to respond, reducing or disappearing symptoms (LAI; LIN; HSIEH, 2019).

METHODOLOGY

To be a systematic literature review, this study seeks to gather and summarize scientific knowledge already produced on the topic, being able to evaluate and synthesize the information already known and available, contributing to the development of the review. The systematic literature review is a method that provides the synthesis of knowledge and the incorporation of the applicability of results from significant studies in practice (Galvão et al. 2020).

After identifying the topic chosen for the article, the PICO strategy was used to define the following question as a guide: “How can acupuncture help in the treatment of anxiety disorder and what scientific evidence is available about it?”

Abbreviation	Description	Question Components
P	Patient	Patients with anxiety disorder
I	Intervention	The use of acupuncture as a treatment
C	Comparison	Other treatment alternatives
O	Result	Patient improvement

Table 2: PICO strategy for elaborating the project question.

Source: Prepared by the author.

Seeking to answer this question, a survey of national and international articles was carried out using the following databases and databases: LILACS (Latin American and Caribbean Literature), VHL (Virtual Health Library), PubMed (US National Library of Medicine National Institutes of Health), Google Scholar and Scielo (Scientific Electronic Library Online).

Based on the Health Sciences Descriptors (DeCS), an electronic search was carried out: “Medicine, Chinese Traditional” AND “Acupuncture therapy” AND “Anxiety” AND “Acupuncture”, considering articles published in the last 10 years.

To select articles for inclusion, criteria were used such as: Contain the key words in the title, summary, or in the body of the text according to the guiding question in Portuguese or English. After reading and analyzing the titles and abstracts, those that best suited the research were selected. As exclusion criteria, duplicate articles were defined, studies that did not answer or address the guiding question and the related theme, and articles that did not fit the established period.

After reading the titles and analyzing the abstracts of the articles, 242 articles were selected. After reading the titles and analyzing the study summaries, 36 articles were selected. Where 9 articles were chosen to prepare the results and discussion. To demonstrate the stages of the article search and selection

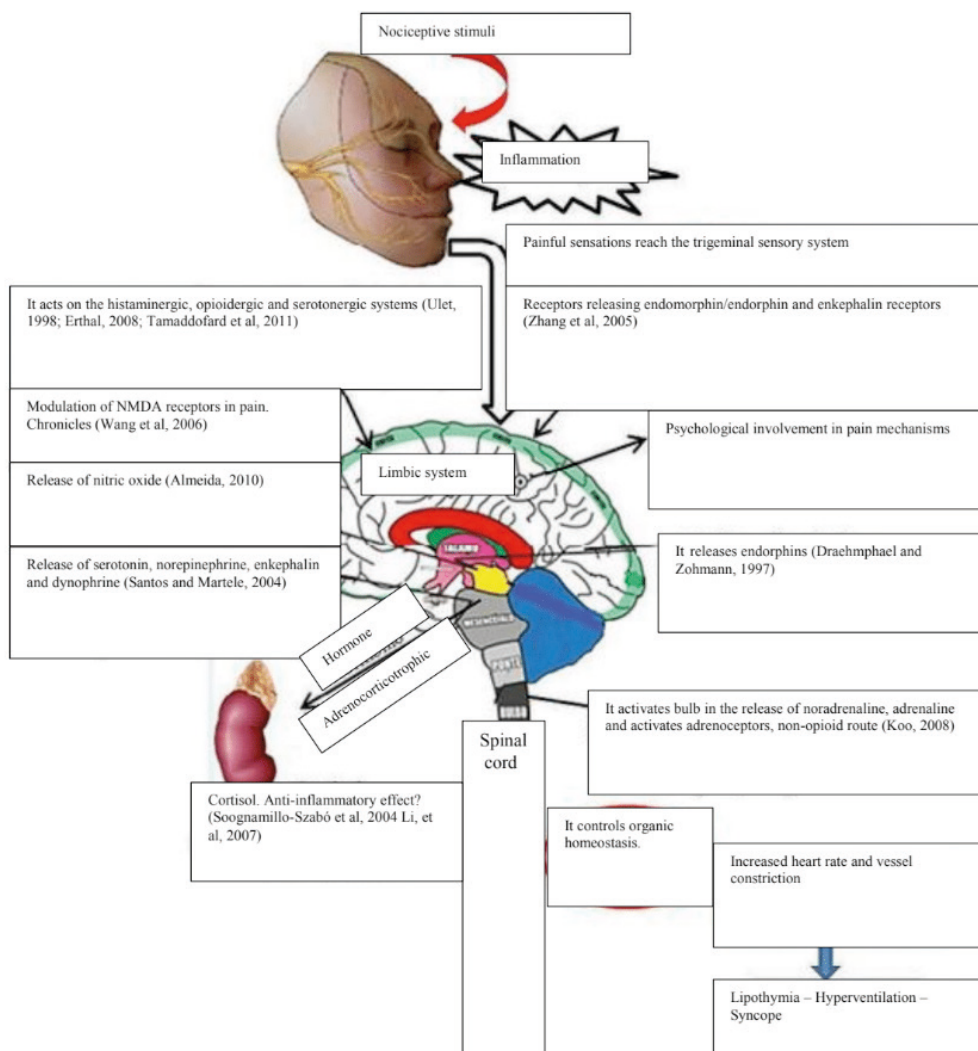


Figure 3 – Mechanism of action of acupuncture in the analgesia effect.

Source: (BOLETA-CERANTO and MIURA, 2013)

Title	Goal	Result
Laser acupuncture for the treatment of anxiety and depression in post-covid-19 syndrome. Lima et al (2023)	To evaluate the safety and efficacy of treating anxiety and depression with laser acupuncture in patients with Covid-19 Post-Acute Syndrome	Laser acupuncture proved to be painless, safe and potentially useful, presenting an effective reduction in post-Covid anxiety and depression scores19
Effects of acupuncture and medical training therapy on depression, anxiety, and quality of life in patients with frequent tension-type headache: A randomized controlled study. Schiller et al (2022)	Compare the effects of acupuncture and medical training therapy combined or individually.	Acupuncture alone and in combination showed positive effects in the treatment of anxiety and depression.
Preoperative anxiety management: acupuncture vs. pharmacological treatment. Zanella S. et al (2022)	To compare the effectiveness of acupuncture with pharmacological treatment in reducing preoperative anxiety in patients undergoing cholecystectomy or PTE.	Acupuncture has been shown to be effective in treating pre-operative anxiety. Auricular acupuncture is most indicated in the treatment of elderly and complex patients, who have an important pharmacological therapy.

Electroacupuncture and acupuncture in the treatment of anxiety. Amorim et al (2022)	Evaluate the effectiveness of acupuncture and electro acupuncture by checking whether: there is a reduction in anxiety after 5 and 10 sessions; cortisol levels follow the reduction; electro acupuncture is more effective than acupuncture; treatment does not depend on anxiolytic medication.	Both acupuncture and electroacupuncture can reduce the patient's level of anxiety regardless of the use of anxiolytics, with just 5 sessions needed to reduce it to a lower level.
Effects of auriculotherapy on the anxiety of low-risk prenatal pregnant women. Silva et al (2020)	To evaluate the effects of auriculotherapy on anxiety levels in pregnant women receiving low-risk prenatal care.	The results showed that auricular acupuncture has a significant effect on reducing anxiety in pregnant women, demonstrating the practice.
Effect of Acupuncture on Improving Anxiety, Sleep, and Quality of Life. Novak et al (2019)	Verify the effect of acupuncture on improving anxiety, sleep and quality of life in anxious individuals	Based on the parameters evaluated, acupuncture showed a significant decrease in patients' anxiety and an improvement in sleep and quality of life.
Electro-acupuncture improves psychiatric symptoms, anxiety and depression in methamphetamine addicts during abstinence. (ZENG et al., 2018)	Observe the effects of electroacupuncture on improving symptoms of depression and anxiety in methamphetamine-dependent patients during abstinence under randomized clinical trials.	Patients who received electroacupuncture had a more significant improvement than those who received no treatment.
Acupuncture as prophylaxis for chronic migraine: a protocol for a singleblinded, double-dummy randomised controlled trial. (LIU et al., 2018)	Seeking to evaluate the efficacy and safety of acupuncture compared to topiramate in patients with chronic migraine, a randomized, double-blind, double-dummy clinical trial was carried out.	In the first few days, patients reported through a questionnaire that they felt an improvement in their headaches, a reduction in medication use and an improvement in anxiety symptoms.
Auriculotherapy to reduce anxiety and pain in nursing professionals. Kurebayashi (2017)	To evaluate the effectiveness of the auriculotherapy protocol in reducing anxiety, pain and improving the quality of life of the nursing team at a hospital	The protocol proved to be effective in reducing pain and anxiety, where the group with needles had a better result than the group with seeds.

Table 3. Articles analyzed in the Integrative Literature Review.

Source: Prepared by the author.

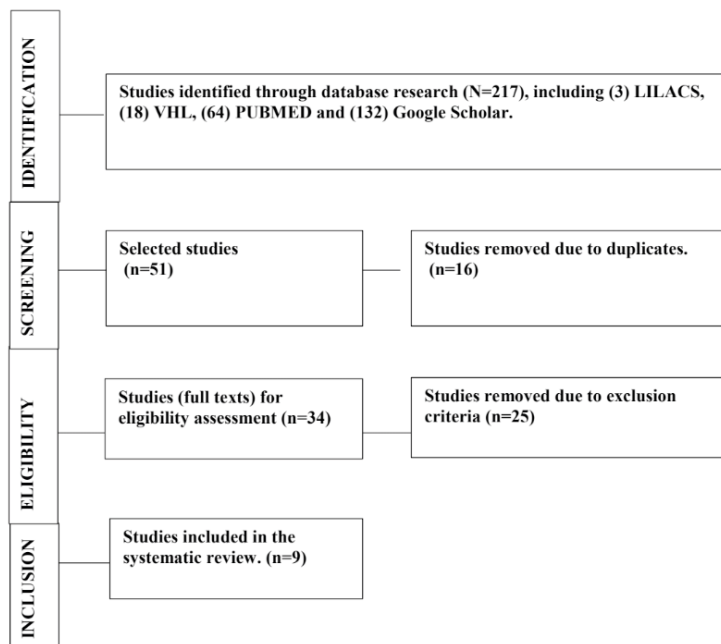


Figure 1. Flowchart of the article search and selection process.

Source: Prepared by the author.

process, a flowchart was developed (Figure 1).

RESULT AND DISCUSSIONS

Presenting a summary of the articles included in the integrative review, table 3 provides information about the title, year, design, sample, intervention and results of the randomized clinical studies.

In Brazil, the National Health Council (CNS) recognizes the use of acupuncture as a multidisciplinary practice, which can be used at all levels of health care, has numerous benefits, and one of them is the control of anxiety, promoting a treatment for individual without the use of medication, which ends up reducing the amount of medication in treatment, and improving the patient's quality of life.

With the analysis of the studies, satisfactory results were presented in the treatment of anxiety with acupuncture in relation to conventional treatment, with no adverse reactions reported.

Comparing the effects of medical training therapy and acupuncture, where 10 to 16 acupuncture points were selected following the diagnostic principles of Traditional Chinese Medicine where sessions lasted around 30 minutes. The group that received acupuncture treatment showed a more significant improvement compared to the group that received medical training therapy, achieving better results in cases of headache and mental comorbidities (SCHILLER et al., 2023).

Analyzing the effects of acupuncture on patients who would undergo cholecystectomy or TEP (Totally Extraperitoneal Hernia Repair) and compared the effectiveness of the practice with pharmacological therapy (Midazolam) in reducing pre-operative anxiety. The study was carried out on 120 patients, who were randomized into four groups, where in group A: Midazolam was

administered 30 minutes before surgery, Group B; Somatic acupuncture, Group C; Auricular acupuncture and Group D: Did not receive treatment. In the groups where acupuncture was performed, less Propofol was needed compared to the pharmacological treatment group, and there were no statistical differences between the somatic and auricular acupuncture groups in the consumption of Propofol. Patients who underwent somatic acupuncture had a lower consumption of Fentanyl than pharmacological treatment. There were also no adverse events attributed to acupuncture.

Studying the effectiveness of acupuncture and electroacupuncture, where: Group 1 only had its cortisol and anxiety levels monitored, Group 2 was treated with acupuncture, at the Yintang (Ex-HN-3), Sanyinjiao (SP-6) points on the right, Zusanli (ST-36) on the left, Hegu (L.I.-4) on the right, Taichong (LIV-3) on the right, Neiguan (P-6) bilateral, Shenmen (HE-7) bilateral, Danzhong (Ren-17), Baihui (Du20), and the ear points, She Men, Antidepressant 1, Heart, Master Cerebral and Group 3 was treated with electroacupuncture, at the points Yintang (Ex-HN-3) and Baihui (Du-20), She Men and Antidepressant 1, and Heart and Brain Master with a direct current at a frequency of 2 Hz and 250 μ s for 30 minutes. The reduction in anxiety in both treatments was similar, and a marked reduction can be observed from the fifth session (T5) and, although less pronounced, from the tenth session (T10) anxiety levels continue to reduce.

Analyzing the effectiveness of Laser acupuncture in the treatment of anxiety and depression in Post-Covid Syndrome¹⁹. Carried out with 23 patients who tested positive for SARS-CoV-2 4 weeks or more ago, who reported symptoms of the disease and presented scales above zero in anxiety and depression. According to the Acupuncture

and Moxibustion Intervention protocol for Covid-19, under the responsibility of the World Federation of Acupuncture-Moxibustion Societies (WFAS), each participant participated in 10 sessions, two weeklies, for 5 weeks, with an average duration 40 minutes per session. Using invisible, low-intensity infrared laser light, class 3B for health, with a wavelength of 808nm, dose of 4 Joules, in pulsed mode and, maximum power of 120mw, the CS6 – Bilateral, E36 – Bilateral points were used, VC12, E25, VC6, P1 – Bilateral, VC17 and Yintang. With an analysis of the initial and final values, a significant reduction in the patients' anxiety and depression scales was evidenced, bringing promising results for laser acupuncture, which stands out for its painless action and for not using needles.

(SILVA et al., 2020) Carrying out a randomized clinical study, seeking to evaluate the effects of auriculotherapy on anxiety levels in pregnant women receiving low-risk prenatal care. Separated into control and intervention groups, the intervention group participated in three auriculotherapy sessions during an interval of 3 days from one group to the other. Meanwhile, the control group only underwent auriculotherapy sessions. The group that received the intervention showed a significant reduction in anxiety between the third and fourth session, which was not seen in the control group. Reinforcing the effectiveness of the practice.

Seeking to evaluate the effect of acupuncture on improving anxiety, sleep and quality (NOVAK et al., 2019), he divided his patients into two groups, where the Control Group underwent 20 minutes of ergometric cycling, at free speed, once a week, for 12 weeks. While the Acupuncture Group underwent 12 acupuncture sessions, once a week, with an average duration of 20 minutes per session. The points chosen were: Yintang, CV6, HC6 – Bilateral, HT7 – Bilateral, SP6 – Bilateral and

LV3 – Bilateral for all patients.

Although in Traditional Chinese Medicine the choice of acupoints is directly linked to the particularities and characteristics of the individual, in order to facilitate the analysis of results, acupoints were standardized. This ended up corroborating the study, because, even with the use of a single protocol, the Acupuncture Group showed a more pronounced decrease in anxiety than the Control Group.

Observing the effects of acupuncture on improving psychiatric symptoms in methamphetamine-dependent patients undergoing abstinence through randomized clinical trials. 68 men were divided into two groups, one electroacupuncture and the other simulated electroacupuncture, receiving treatment for 20 minutes every Monday, Wednesday and Friday, over a period of 4 weeks. Compared to the control group, electroacupuncture proved to be effective in significantly improving anxiety symptoms, where from the first week of treatment there was already a reduction in such symptoms.

The study by (KUREBAYASHI et al., 2017) evaluated the effectiveness of the ear protocol for reducing anxiety, pain and improving quality of life in a hospital nursing team and allocated its sample into 4 groups: Control (No intervention), Auriculotherapy with seeds, Auriculotherapy with needles and Auriculotherapy with Adhesive Tape (Placebo).

In the three groups there was a significant decrease in anxiety levels, however, pain levels decreased only in the groups where auriculotherapy was performed, with a more pronounced drop in auriculotherapy performed with a needle compared to that performed with seeds, however, the advantage of seed is caused by less discomfort and easier application, and can be applied by people with less experience.

CONCLUSIONS

As there is some disagreement about the effectiveness of acupuncture, high methodological quality and larger, more meaningful samples are needed to compare acupuncture. This study shows that acupuncture can be used in a variety of patients, especially primary care patients, and its effects go beyond reducing anxiety. May reduce use of potentially addictive prescription medications. Acupuncture is low-cost, effective and used in various health services, as it promotes anxiety relief, improving

patients' quality of life and performance in daily activities. The challenge is to expand access to this practice, especially for patients with symptoms of anxiety, and to develop a protocol that can be used in combination or alone to treat anxiety.

The pharmaceutical professional stands out in this integrative practice since, with his extensive knowledge about medications, he can seek the best way to reduce the use of long-term medications, helping the individual to have a better quality of life, avoiding side effects and drug interactions.

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