RESEARCH

AURICULOTHERAPY FOR THE TREATMENT OF ANXIETY DURING PREGNANCY: ELABORATION AND VALIDATION OF A CLINICAL PROTOCOL

AURICULOTERAPIA PARA O TRATAMENTO DE ANSIEDADE NA GESTAÇÃO: CONSTRUÇÃO E VALIDAÇÃO DE PROTOCOLO CLÍNICO

AURICULOTERAPIA PARA EL TRATAMIENTO DE LA ANSIEDAD DURANTE EL EMBARAZO: CONSTRUCCIÓN Y VALIDACIÓN DE UN PROTOCOLO CLÍNICO

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ABSTRACT

Objective: to elaborate and validate an auriculotherapy point protocol for anxiety in pregnant women. **Method**: this is a methodological study, developed in four steps: (i) bibliographic survey; (ii) elaboration of the auricular point protocol; (iii) format and content validation of the point protocol by 18 experts in the acupuncture area, using an absolute agreement percentage equal to or greater than 90%; and, (iv) clinical validation of the protocol developed in pregnant women with anxiety, assessed by means of a score ≥40 on the State Anxiety Inventory. **Results**: of the 285 articles identified in the databases, one was included for full analysis. The auriculotherapy protocol for anxiety in pregnant women, validated by the experts, was composed of the points Anxiety (100%), Shen Men (100%), Heart (94.4%), Kidney (94.4%) and Visceral/Sympathetic Nervous System (94.4%). However, the Liver (83.3%), Subcortex (77.8%) and Spleen (72.2%) points did not reach the established agreement. The application of auriculotherapy with radionic crystals unilaterally, alternating the ear pavilion once a week for four sessions, showed a significant improvement in anxiety (p=0.029). **Conclusion**: the auricular points Anxiety, Shen Men, Heart, Kidney and Visceral/Sympathetic Nervous System were validated by the experts. The point protocol demonstrated a statistically significant difference in the reduction of anxiety in pregnant women. Therefore, it is an integrative and complementary health practice that can be associated with other interventions to prevent, minimize or treat anxiety in pregnant women.

Keywords: Auriculotherapy; Anxiety; Pregnancy; Complementary Therapies; Traditional Chinese Medicine; Nursing.

RESUMO

Objetivo: construir e validar um protocolo de pontos de auriculoterapia para ansiedade em gestantes. *Método*: trata-se de um estudo metodológico, desenvolvido em quatro etapas: (i) levantamento bibliográfico; (ii) construção do protocolo de pontos auriculares; (iii) validação de aparência e conteúdo do protocolo de pontos pelos 18 especialistas na área de acupuntura, utilizando uma porcentagem de concordância absoluta igual ou superior a 90%; e, (iv) validação clínica do protocolo desenvolvido em gestantes com ansiedade, avaliadas por meio do escore ≥40 no Inventário de Ansiedade Estado. *Resultados*: dos 285 artigos identificados nas bases de dados, um foi incluído para análise completa. O protocolo de auriculoterapia para ansiedade em gestantes, validado pelos especialistas, foi composto pelos pontos Ansiedade (100%), Shen Men (100%), Coração (94,4%), Rim (94,4%) e Sistema Nervoso Visceral/Simpático (94,4%). Porém, os pontos Fígado (83,3%), Subcórtex (77,8%) e Baço (72,2%) não alcançaram a concordância estabelecida. A aplicação da auriculoterapia com cristais radiônicos de forma unilateral, alternando o pavilhão auricular uma vez por semana durante quatro sessões, evidenciou uma melhora significativa da ansiedade (p=0,029). *Conclusão*: os pontos auriculares Ansiedade, Shen Men, Coração, Rim e Sistema Nervoso Visceral/Simpático foram validados pelos especialistas. O protocolo de pontos demonstrou uma diferença estatisticamente significativa na redução da ansiedade em gestantes. Portanto, é uma prática integrativa e complementar de saúde que pode ser associada a outras intervenções para prevenir, minimizar ou tratar a ansiedade em gestantes.

Palavras-chave: Auriculoterapia; Ansiedade; Gravidez; Terapias Complementares; Medicina Tradicional Chinesa; Enfermagem.

RESUMEN

Objetivo: construir y validar un protocolo de puntos de auriculoterapia para el tratamiento de la ansiedad en mujeres embarazadas. *Método*: este estudio metodológico se desarrolló en cuatro etapas: (i) revisión bibliográfica; (ii) elaboración del protocolo de puntos auriculares; (iii) validación de la apariencia y contenido del protocolo por parte de 18 expertos en el campo de la acupuntura, utilizando un porcentaje de acuerdo absoluto igual o superior al 90%; y (iv) validación clínica del protocolo en gestantes con ansiedad, evaluadas mediante una puntuación ≥40 en el Inventario de Ansiedad Estado. *Resultados*: de los 285 artículos identificados en las bases de datos, uno fue seleccionado para un análisis detallado. El protocolo de auriculoterapia para la ansiedad en mujeres embarazadas, validado por expertos, incluyó los puntos Ansiedad (100%), Shen Men (100%), Corazón (94,4%), Riñón (94,4%) y Sistema Nervioso Visceral/Simpático (94,4%). Sin embargo, los puntos Hígado (83,3%), Subcórtex (77,8%) y Bazo (72,2%) no alcanzaron el porcentaje de acuerdo requerido. La aplicación de auriculoterapia mediante cristales radiónicos de forma unilateral, alternando el pabellón auricular semanalmente durante cuatro sesiones, resultó en una mejora significativa de la ansiedad (p=0,029). Conclusión:

los puntos auriculares de Ansiedad, Shen Men, Corazón, Riñón y Sistema Nervioso Visceral/Simpático fueron validados por expertos. El protocolo demostró ser estadísticamente significativo en la reducción de la ansiedad en mujeres embarazadas, representando una práctica de salud integradora y complementaria que puede ser combinada con otras intervenciones para prevenir, minimizar o tratar la ansiedad en mujeres embarazadas. Palabras clave: Auriculoterapia; Ansiedad; Embarazo; Terapias Complementarias; Medicina Tradicional China; Enfermería.

Palabras clave: *Auriculoterapia; Ansiedad; Embarazo; Terapias Complementarias; Medicina Tradicional China; Enfermería.*

INTRODUCTION

The Nursing diagnosis of anxiety is defined by NANDA-International as an "emotional response to a diffuse threat, in which the individual anticipates an imminent and nonspecific danger, catastrophe or misfortune". This condition causes autonomic signs and symptoms, in addition to behavioral, emotional, physiological, sympathetic, parasympathetic and cognitive distresses[1]. During pregnancy, anxiety is common due to physical, emotional and hormonal changes, as well as changes in social roles[2]. In a cross-sectional study conducted in Brazil, it was observed that 27.6% of pregnant women had moderate to severe anxiety[3].

During pregnancy, the presence of anxiety with moderate to intense clinical signs has been associated with the threat of miscarriage, premature rupture of membranes and a higher risk of cesarean delivery[4], depression before and after childbirth, low scores on Apgar, fetal and infant development deficits[4,5], prematurity and low birth weight[5]. Furthermore, anxiety can alter a woman's social interaction, cause panic attacks, increase reports of nausea and vomiting, lead to more prenatal consultations, cause absences from work and alter the perception of fetal movements[4].

Among the professionals who care for women during pregnancy, nurses stand out, as they can identify anxiety through the use of validated instruments, such as the State-Trait Anxiety Inventory (STAI-State), the Beck Anxiety Inventory[3] and the anxiety domain of the Hospital Anxiety and Depression Scale (HADS-A)[5]. In addition, nursing professionals can implement measures to prevent, track and treat anxiety during prenatal consultations in primary health care[5]. It is essential that nursing interventions are planned and implemented based on the problem identified, highlighting active listening, guidance on relaxation techniques, medication administration[6] and integrative and complementary health practices (PICS).

PICS are widely used in the treatment of anxiety, with emphasis on systemic and auricular acupuncture, recognized by the World Health Organization and the Brazilian Ministry of Health since the 1970s[7,8]. They comprise a set of techniques with their own diagnostic systems, which promote the balance of the body, mind and a state of physical and emotional health[9].

Acupuncture, especially the auricular approach, has proven effects in controlling several diseases and conditions, including anxiety in adults[9]. The technique, based on Traditional Chinese Medicine (TCM), involves the application of devices such as needles, seeds and crystals to the ear, at points that correspond to organic systems in the body. Stimulation at the chosen point promotes the activation of the Central Nervous System and the harmonization of energy channels, resulting in the release of hormones and chemical and endogenous substances responsible for improving physical and emotional conditions[9].

Due to its ease of application, low cost, and significant effectiveness, this technique has been increasingly incorporated into clinical practice and can be applied by nurses at different levels of health care[8,9]. However, given the increased use of PICS and the scarcity of studies, both in Brazil and other locations around the world, that describe the validation and use of specific auricular points for anxiety in pregnant women, as well as the safety of their use during pregnancy, it is imperative to conduct more research. Although auriculotherapy protocols may differ from the individual evaluation criteria proposed by TCM, they are fundamental because they allow the replicability of the study, an essential criterion in conducting scientific research, with the aim of generating reliable evidence and contributing to evidence-based practice[9]. Thus, this study aims to construct and validate a protocol of auriculotherapy points for anxiety in pregnant women.

METHOD

This methodological study[10] was developed in distinct steps: i) conducting a bibliographic survey; ii) developing a protocol of auriculotherapy points for the treatment of anxiety in pregnant women; iii) validating the appearance and content of the points protocol; and iv) clinical validation of the protocol in pregnant women with anxiety. The study took place between December 2021 and February 2023..

Auriculotherapy point protocol for anxiety in pregnant women

The mnemonic PICO was used to conduct the search. The central question of the study was: What are the auriculotherapy protocols (intervention) for the treatment of anxiety (outcome) in pregnant women (population), when compared to placebo groups, conventional treatments or no intervention (comparison)?

The sources of information consulted included: Medline via National Library of Medicine (PUBMED); Virtual Health Library (BVS); Virtual Health Library in Traditional, Complementary and Integrative Medicines (BVS MTCI); Embase; Web of Science; Scopus; The Cochrane Library (CENTRAL) and International Auricular Acupuncture Bibliography, in addition to publications from the Ministry of Health, dissertations, theses and books on the subject.

The search strategy was reviewed by a professional librarian. The descriptors 'auriculotherapy', 'anxiety' and 'pregnancy' were used in Portuguese, English and Spanish, combined with the Boolean operators AND and OR. The terms defined by the Medical Subject Headings (MeSH) were adapted for the other databases, using the following search strategy: ("anxiety disorder" OR anxiety) AND ("Pregnant Woman" OR "Woman Pregnant" OR "pregnancy" OR "pregnancy" OR "pregnancies" OR "gestation") AND ("Acupuncture, Ear" OR "Ear Acupuncture" OR "auriculotherapy" OR auriculopressure OR "Ear Acupunctures" OR "Auricular Acupuncture" OR "Auricular Acupunctures"). The theses and dissertations were consulted in the BVS database and the publications of the Ministry of Health in the public domain of the internet.

Studies conducted with pregnant women, addressing the use of auriculotherapy in the treatment of anxiety in health services, without time or language limitations, were included to evaluate the relevant available literature. Editorials, abstracts, correspondence, monographs and reviews were excluded.

After removing duplicates using Microsoft Office Excel®, the initial selection of titles and abstracts was performed independently by two reviewers, with disagreements resolved by a third reviewer. The selected texts were evaluated in full, and information was extracted on the auricular points for treating anxiety in pregnant women, as well as on the treatment regimen and main findings.

Of the points identified for treating anxiety in pregnant women, in the reviewed literature, the 'Brain Stem' point was excluded because it had a similar action to the 'Shen Men' and 'Visceral/Sympathetic Nervous System' points, while the 'Heart', 'Liver' and 'Subcortex' points were added to the analysis, considering their indication for treating anxiety in the general population[9,11].

Selection of experts

The sample definition was based on a sample calculation, using the formula for a finite population $n = Z\alpha^2 . P(1-P)/e^2$[12]. A confidence level (Zα) of 95% was adopted, a proportion of experts who agreed with the relevance of the suggested auricular points (P) of 90% and an expected difference (e) of 15%. Thus, the minimum number of experts required was 15. The experts were selected through the analysis of their resumes on the Lattes Platform of the National Council for Scientific and Technological Development (CNPq). Invitations were sent by email and telephone message, accompanied by the Free and Informed Consent Form (ICF) and data collection instruments.

To participate in the study, experts needed to achieve a minimum of four points, based on the sum of the criteria obtained, which were adapted for this study: having a latu sensu degree in acupuncture (2 points); having taken an auriculotherapy course (2 points); having professional experience as an acupuncturist for a minimum period of two years (3 points); and being an author, co-author or advisor in studies related to acupuncture, auriculotherapy, anxiety or pregnancy (2 points)[13].

After analyzing resumes, recommendations from research groups and contact networks, a sample of 18 experts was obtained who responded to the questionnaires and met the established criteria. It is important to emphasize that there is no consensus in the literature on the ideal number of experts for appearance and content validation processes, although the variability found in the literature ranges from five to 21 experts[13-15].

Format and content validation of the points protocol

At this step, the construction of instruments stands out, including: a questionnaire to characterize experts, a protocol of auriculotherapy points for anxiety in pregnant women and a treatment regimen.

The questionnaire characterizing the experts included variables such as: gender, age, state of residence, area and time of activity, type and time of academic training, maximum qualification, type and time of training in acupuncture and auricular acupuncture, in addition to the development of research on the themes of acupuncture, auricular acupuncture, anxiety or pregnancy.

The protocol of auriculotherapy points for anxiety in pregnant women, validated by experts, was structured including the points: Anxiety, Shen Men, Heart, Kidney, Visceral/Sympathetic Nervous System, Liver, Subcortex and Spleen. For each point, the expert had to choose between agreeing or disagreeing, and there was also an open field for suggestions of additional auricular points not found in the literature.

In the treatment regimen instrument, the variables considered were: rationality for the practice of acupuncture, location of points and laterality of insertion (application of points unilaterally or bilaterally in the ear), type of point stimulation (manual or electrical), device used for stimulation of acupuncture points and number and frequency of sessions, as adapted from the Standards Reporting Interventions Controlled Trials of Acupuncture (STRICTA)[16].

This study aimed to validate the points protocol. To analyze the agreement on the relevance of the auriculotherapy points protocol among the experts, the percentage of absolute agreement was used, calculated by the formula: % of agreement = (number of participants who agree / total number of participants) x 100. Items with agreement rates equal to or greater than 90% were considered adequate. A single round of evaluation by the experts was carried out, since acceptable agreement values were obtained in the initial round.

For the relative frequencies of agreement, 95% confidence intervals were adopted. The other information on the characterization of the experts and the variables of the points and auriculotherapy treatment regimen were analyzed by means of absolute (n) and relative (%) frequency, using the Statistical Package for Social Sciences (SPSS), version 20.

Clinical validation of the points protocol

The clinical validation of the protocol took place in a municipality in the northern region of Minas Gerais, involving pregnant women with normal-risk prenatal care seen at the eight basic health units in the municipality. Pregnant women aged 18 years or older were invited to participate in a prenatal consultation and agreed to participate in the study after signing the informed consent form.

The STAI-State[17-18] was used to quantify subjective components of anxiety, consisting of twenty questions. Scores ranging from 20 to 80 points indicate the severity of anxiety, with a cut-off score of 40 points for clinically significant anxiety in the gestational context[17-18].

The inclusion criteria included pregnant women with a gestational age of less than 37 weeks and moderate to high anxiety, assessed by scores ≥40 on the STAI-State. Pregnant women who used benzodiazepines, antidepressants or anxiolytics, who were undergoing treatment with energy therapies or had undergone them in the last three months, who had an infection, inflammation or injury in the auricle, allergy to microporous tape, use of piercing at the insertion site of the devices and anatomical alteration in the auricle were excluded.

The sociodemographic and obstetric characteristics of pregnant women were quantitatively assessed using an adapted questionnaire[18], including variables such as age, marital status ("single"; "married/stable union"; "widowed"; "divorced"), occupation ("employed"; "unemployed"; "self-employed"; "student"; "housewife") and parity (number of pregnancies, births and abortions).

The sample was composed by convenience, based on the availability and interest of pregnant women to voluntarily participate in the research. During the screening period, 27 pregnant women responded to the STAI-State, of which seven were excluded for obtaining a score <40. Thus, 20 pregnant women participated in the study, with no sample losses during the intervention. The application of the point protocol occurred after scheduling by the researcher, according to the availability of pregnant women. It is noteworthy that the researcher had approximately five years of practical and academic experience in auriculotherapy.

Data were analyzed using the Statistical Package for Social Sciences (SPSS), version 20. Categorical variables were described using absolute and relative frequencies. The paired t-test was used to compare anxiety levels before and after the intervention, with 5% significance.

Ethical aspects

The study followed the ethical principles of research with human beings worldwide. The validation by experts was approved by the Ethics and Research Committee of the Universidade Estadual de Montes Claros, under CAAE: 53877821.7.0000.5146. The clinical validation with pregnant women was approved under CAAE: 48035121.0.0000.5146.

RESULTS

Auriculotherapy point protocol for anxiety in pregnant women

Of the 285 articles identified in the databases, 59 (20.7%) were excluded due to duplication and 219 (76.8%) for they did not address auriculotherapy for gestational anxiety. Of the remaining titles and abstracts, seven were selected for full reading and one was included in the analysis (Table 1). Two were excluded because the auriculotherapy approach occurred after delivery, three for they addressed anxiety during abortion and one because it assessed anxiety at the time of delivery.

It should be noted that the selected article was conducted in an outpatient context, different from that of the present study. Furthermore, there are no reports of clinical or content validation of the auriculotherapy protocol used.

Chart 1 - Recommendation and protocol for performing auriculotherapy for anxiety during pregnancy. Montalvânia, MG, Brazil, 2023.

Citation	18
Article title	Efeitos da auriculoterapia na ansiedade de gestantes no pré-natal de baixo risco
Journal Title	Acta Paulista Enfermagem
Year of publication	2020
Health service	Outpatient clinic
Country of origin	Brazil
Points used in the experimental group	Shen Men, Kidney and Sympathetic Nervous System, Brainstem, Spleen, Anxiety
Intervention in the control/placebo group	Control with prenatal consultation
Rationality of acupuncture	Traditional Chinese Medicine
Location of points	Sensitivity at the site of the points
Laterality of device insertion	Not described
Type of point stimulation	Manual manipulation of the point by the pregnant woman 10 times a day, for a period of approximately 10 seconds
Device type	Yellow mustard seed–rapeseed
Number of sessions	3 sessions
Session frequency	Every 3 days
Main results	After auriculotherapy there was a reduction in anxiety in the experimental group

Source: The authors (2023)

Selection of experts

Among the 18 participating experts, the average age was 41 years (SD: 11 years). The average score in the resume analysis was 7.3 points, and 58.8% had training in systemic acupuncture in the latu sensu modality. All participants had training in auriculotherapy, either through extension courses or other specific courses. The average time of experience with the technique was 16 years (SD: 11 years).

All experts were female (n=18, 100%). The majority were living in southeastern Brazil (n=17, 94.4%), while one was living in the central-west (5.6%). The areas of training included nursing (n=12, 66.7%), physiotherapy (n=2, 11.1%), occupational therapy (n=1, 5.6%), speech therapy (n=1, 5.6%) and naturology (n=1, 5.6%).

Regarding the field of activity, the highlights were healthcare (n=12, 66.7%), teaching (n=9, 50.0%), management (n=1, 5.6%) and postgraduate students (n=1, 5.6%).

The academic production of the experts included presentations at events (n=6, 33.3%), publication of articles (n=6, 33.3%), supervision or preparation of theses (n=7, 39.9%), supervision or preparation of dissertations (n=6, 33.3%), supervision of course completion or residency work (n=3, 16.7%) and the preparation of booklets (n=1, 5.6%).

Format and content validation of the points protocol

Regarding the auricular points that did not reach the minimum agreement rate, the Liver point was contraindicated by the experts for the treatment of anxiety (n=3, 16.7%) and was only recommended in the presence of signs of anger and irritability. Regarding the Spleen point, the experts advised against its use due to the possibility of stimulating the uterus at inappropriate times (n=5, 27.8%). In turn, the Subcortex point, according to the experts (n=4, 22.2%), is indicated for analgesia, without there being clear neurophysiological justifications for its use in the treatment of anxiety. It is important to emphasize that, in a context open to suggestions, the experts did not identify additional auricular points to those mentioned in the protocol proposal.

Information regarding the treatment regimen for anxiety in pregnant women is detailed in Table 2

Table 1 - Auricular points for treating anxiety validated by experts. – Montalvânia, MG, Brazil, 2023.

Ponto auricular	N	% de concordância	IC95%
Anxiety	18	100	0.78-1.00
Shen Men	18	100	0.78-1.00
Heart	17	94.4	0.71-1.00
Kidney	17	94.4	0.71-1.00
Visceral/Sympathetic Nervous System	17	94.4	0.71-1.00
Liver	15	83.3	0.58-0.96
Subcortex	14	77.8	0.52-0.93
Spleen	13	72.2	0.46-0.89

Source: The authors (2023)

Clinical validation of the points protocol

The clinical evaluation of the auriculotherapy protocol, developed for the treatment of anxiety, was performed using radionic crystals at the Shen Men, Kidney,

Visceral/Sympathetic Nervous System, Heart and Anxiety points (Figure 1). After antisepsis of the ear pavilion with 70% alcohol, the devices were fixed unilaterally with microporous tape, alternating the ear pavilion once a week, for four sessions. The rationale adopted was based on Traditional Chinese Medicine, and the points were located using the World Federation of Acupuncture-Moxibustion Societies point map, under the nomenclatures: Shénmén/TF4 (Shen Men); Shèn/CO10 (Kidney); Jiāogǎn/AH6a (Visceral Nervous System); Xīn/CO15 (Heart); and Chuíqián/LO4 (Anxiety)[19].

This step included the participation of 20 pregnant women, with a mean age of 28.4 years (SD: 7.1), of whom were single (n=3, 15.0%) and married (n=17, 85.0%). Regarding occupation, the participants were divided between employed (n=8, 40.0%), unemployed (n=8, 40.0%), housewives (n=3, 15.0%) and self-employed (n=1, 5.0%). Regarding gestational parity, it was observed that 11 were primiparous (55.0%) and 9 were multiparous (45.0%). The assessment of the mean anxiety before and after treatment is described in Table 3.

Esta etapa contou com a participação de 20 gestantes, apresentando uma idade média de 28,4 anos (DP: 7,1), das quais estavam solteiras (n=3, 15,0%) e casadas (n=17, 85,0%). Quanto à ocupação, as participantes se dividiram entre empregadas (n=8, 40,0%), desempregadas (n=8, 40,0%), do lar (n=3, 15,0%) e autônomas (n=1, 5,0%). Em relação à paridade, observou-se que 11 eram primigestas (55,0%) e 9 eram multíparas (45,0%). A avaliação da média de ansiedade antes e depois do tratamento é descrita na Tabela 3.

Figure 1 – Location of the auricular points used in the study. Montalvânia, MG, Brazil, 2023
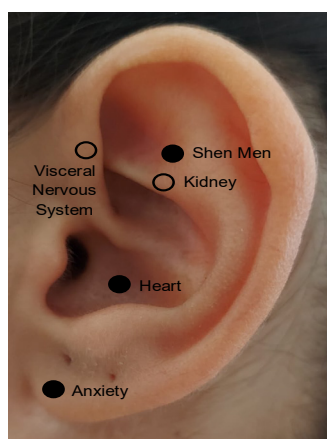
Source: The authors (2023)

Table 2 - Variables related to treatment and materials used in auriculotherapy sessions, adapted from the STandards Reporting Interventions Controlled Trials of Acupuncture (STRICTA). Montalvânia, MG, Brazil, 2023.

Variables	N	%
Rationality of acupuncture		
Rationality of acupuncture	17	94.4
Neurophysiology	1	5.6
Location of points		
Points map	11	61.1
Electric detector	10	55.6
Pressure feeler	7	38.9
Laterality of device insertion		
Unilateral	17	94.4
Bilateral	1	5.6
Type of point stimulation		
Manual	12	66.7
No stimulation	6	33.3
Tipo do dispositivo		
Non-invasive devices (mustard seed, radionic crystals, crystals, laser)	13	72.2
Needle (semi-permanent, systemic)	6	33.3
Número de sessões		
1 session	1	5.6
2 sessions	2	11.1
3 sessions	2	11.1
4 sessions	5	27.8
5 sessions	2	11.1
8 sessions	1	5.6
Between 7 and 10 sessions	1	5.6
10 sessions	2	11.1
Variable according to the assessment	2	11.1
Session frequency		
Weekly	14	76.4
Every 5 days	2	11.1
Between 5 and 7 days	1	5.6
Every 3 days	1	5.6

Source: The authors (2023)

Table 3 – Anxiety before and after auriculotherapy (n=20). Montalvânia, MG, Brazil, 2023.

IDATE-Estado	Média (DP1)	p-valor
Pre-intervention (initial assessment)	49.5 (5.0)	0.029(2)
Post-intervention (final assessment)	45.9 (7.8)	

1Standard deviation; 2Pared-T test.

DISCUSSION

Of the identified and validated auricular points, Shen Men, which has a sedative and analgesic effect[11,20], was used in previous studies on anxiety control, obtaining satisfactory results with the general public[9,11], pregnant women[18] and parturients[20]. Shen Men, in association with the Kidney and Visceral Nervous System points, predisposes the brain stem and cortex to receive, condition and encode auricular reflexes[18,20]. Together, these points have the function of calming the mind, reducing anxiety[18], regulating neurovegetative activity and establishing a connection with the limbic system[11]. Alone, the Kidney point has an energetic and invigorating function, while the Visceral Nervous System point has a considerable effect on improving pain and muscle relaxation[9].

The Anxiety point alleviates this condition, and the Heart point has the effect of calming and controlling the mind[21]. In addition, the Heart (Xin) point is sedative, relaxing, and regulates blood circulation, as well as mental, cognitive, and emotional activities[9,11]. The combination of the Heart, Anxiety, and Shen Men, Kidney, and Visceral/Sympathetic Nervous System points, according to the joint indication of the experts, demonstrated a reduction in anxiety in low-risk pregnant women in this study. In fact, a study[21] with women undergoing uterine curettage for voluntary termination of pregnancy, in which the Heart, Anxiety, and Shen Men points were applied, revealed a reduction in anxiety. Furthermore, auriculotherapy using these points is considered a complementary therapeutic measure, which is economical, harmless, and has minimal adverse reactions[21].

The points that did not reach the established agreement index (Spleen, Subcortex, Liver) can be used[11] in the treatment of anxiety in adults and the elderly[9,12] and during pregnancy, considering the regulatory actions on neurovegetative activity and the possible repercussions on pregnancy, in addition to the professional's experience in TCM[18] and the specific complaints of each pregnant woman. It is noteworthy that, in the present study, the disagreement in the use of the Spleen point was due to the possible stimulation of the uterus. In auriculotherapy, there are also contraindications of points that induce labor in early gestational periods, such as the uterus[20,22-24] and cervix[22-24]. The Subcortex point was not recommended, since its indication is more related to analgesia. As for the Liver point, according to the experts, it should have an individualized indication, depending on the evaluation of the pregnant woman.

Experts in this study highlight a lack of uniformity in auriculotherapy treatments in existing literature. The lack of consensus is also evidenced in a validation study of a laser auriculotherapy protocol for spinal pain[14] and in a systematic review for stress, anxiety, and depression in adults[9]. Regarding the number of sessions and the time for removal of the devices, studies conducted to evaluate the effect of auriculotherapy on pain and anxiety control showed that a single-session treatment regimen offered no benefit for the outcomes in medical abortion situations[22-23]. Considering the reduction in gestational anxiety with three sessions in a clinical trial[18] and the perception of most experts, at least four auriculotherapy sessions are necessary to obtain positive effects with the usspeciae of an auricular point protocol.

Regarding the devices used in auriculotherapy in pregnant women, studies carried out during pregnancy and childbirth describe the exclusive use of non-invasive devices, such as crystals[20,22-24], gold spheres[20,22] and yellow mustard seeds (rapeseed)[18]. Among these, the radionic crystal was chosen due to its good acceptance and its indication for use in emotional problems. In this study, one third of the experts recommended the use of semi-permanent needles, while two thirds preferred non-invasive devices. In general, preferring the use of seeds or spheres over acupuncture needles can be an effective alternative for auriculotherapy, maintaining the safety of the technique[25].

It was observed that two-thirds of the experts recommend manual stimulation of the auricular points, instructing pregnant women to perform the stimulation three to five times a day, for 10 to 30 seconds. The stimulation was also described in studies that applied the technique to women during childbirth and abortion[18,20,22-23]. In the literature, the recommended stimulation time varied from ten seconds[22-23] to 60 seconds[20], as needed[22] or up to ten times a day[18]. The unilateral application of the auricular points is the most common, as indicated by the authors and described primarily in the articles that analyzed the technique in pregnant women in the perinatal period[18,20,23].

Through the clinical evaluation of an auriculotherapy protocol with radionic crystals, a decrease in the average level of anxiety in pregnant women was observed. This finding reinforces the results of a clinical trial that evaluated the effect of auriculotherapy on anxiety during prenatal care[18]. Therefore, the protocol validated by experts proved to be effective in the treatment of gestational anxiety, paving the way for future research to evaluate its effect in this context.

From the perspective of nursing practice, this study sought to contribute by proposing a protocol of

auriculotherapy points for the control and treatment of anxiety during pregnancy. Considering the vast role of nursing, especially in the context of primary health care in Brazil, where nurses are responsible for caring for pregnant women in their area of scope, it is essential to conduct studies to validate the face and content of interventions that can be performed autonomously by these professionals, using the protocol of points validated here.

Regarding limitations, we highlight the scarcity of studies on the safety and efficacy of auriculotherapy in gestational anxiety, which may have limited the identification of specific auricular points in previous studies. Despite these limitations, the research presented sufficient methodological rigor to mitigate or eliminate potential biases, in addition to consulting the main health databases on the subject, including platforms that cover texts in Chinese.

Despite the Brazilian and international recognition of acupuncture as a safe and effective practice and the absence of reports of adverse events related to the use of auriculotherapy in pregnant women, it is not possible to fully guarantee the safety and effectiveness of the technique. Therefore, it is suggested that experimental studies be carried out to evaluate the effect of the use of auriculotherapy on anxiety in pregnant women.

CONCLUSION

The auricular points Anxiety, Shen Men, Heart, Kidney and Visceral/Sympathetic Nervous System, after validation of appearance and content, achieved an agreement rate of over 90%. In addition, the points protocol demonstrated a statistically significant difference in reducing anxiety in pregnant women, as assessed by the STAI-State, in the comparison before and after the application of the established protocol.

REFERENCES

1. Herdman TH, Kamitsuru S, Lopes, CT. Diagnósticos de enfermagem da NANDA-I: definições e classificação - 2024-2026. Porto Alegre (RS): Artmed; 2024.

2. Kazemi A, Dadkhah A. Changes in prenatal depression and anxiety levels in low risk pregnancy among Iranian women: A prospective study. Asia Pac Psychiatry [Internet]. 2022 [cited 2023 Oct 25];14(1):e12419. Available from: https://doi.org/10.1111/appy.12419.

3. Nomura RMY, Ubinha ACF, Tavares IP, Costa ML, Opperman MLDR, Brock MF, et al. Increased Risk for Maternal Anxiety during the COVID-19 Outbreak in Brazil among Pregnant Women without Comorbidities. Rev Bras Ginecol Obstet [Internet]. 2021 [cited 2023 Oct 25];43(12):932-9. Available from: https://doi.org/1055/s-0041-1740234

4. Registered Nurses Association of Ontario. Assessment and interventions for perinatal depression. International Affairs and Best Practice Guidelines. 2021 [cited 2023 Oct 23]. Available from: https://rnao.ca/sites/rnao-ca/files/bpg/Perinatal_Depression_FINAL_web_0.pdf.

5. Silva MMJ, Nogueira DA, Clapis MJ, Leite EPRC. Anxiety in pregnancy: prevalence and associated factors. Rev Esc Enferm USP [Internet]. 2017 [cited 2023 Oct 23];51:e03253. Available from: https://doi.org/10.1590/S1980-220X2016048003253.

6. Bulechek GM, Butcher HK, Dochterman JM. Nursing Interventions Classification NIC. 7ª ed. Rio de Janeiro (RJ): Guanabara; 2020.

7. Alnuaimi K, Oweis A, Habtoosh H. Exploring woman: Nurse interaction in a Jordanian antenatal clinic: A qualitative study. Midwifery [Internet]. 2019 [cited 2023 Oct 23];72:1-6. Available from: https://doi.org/10.1016/j.midw.2019.01.008.

8. Azevedo C, Moura CC, Corrêa HP, Mata LRF, Chaves ECL, Chianca TCM. Complementary and integrative therapies in the scope of nursing: legal aspects and academic-assistance panorama. Esc Anna Nery Rev Enferm [Internet]. 2019 [cited 2023 Oct 23];23(2). Available from: https://doi.org/10.1590/2177-9465-EAN-2018-0389.

9. Correa HP, Moura CC, Azevedo C, Bernardes MFVG, Mata LRFP, Chianca TCM. Effects of auriculotherapy on stress, anxiety and depression in adults and older adults: a systematic review. Rev Esc Enferm USP [Internet]. 2020 [cited 2023 Oct 23];54. Available from: https://doi.org/10.1590/S1980-220X2019006703626.

10. Polit DF, Beck CT. Fundamentos de pesquisa em enfermagem: avaliação de evidências para a prática da enfermagem. Porto Alegre: Artmed Editora; 2019

11. Noronha LK, Träsel AR, More AOO, Teixeira JEM, Savi, MGM, Tesser, CD, et al. Evidence-Based Guide to Auriculotherapy for Anxiety. Universidade Federal de Santa Catarina. [Internet] 2020 [cited 2023 Oct 23]. Available from: https://auriculoterapia.paginas.ufsc.br/files/2020/12/Guia-ansiedade-06_12_2020.pdf.

12. Silva CRDT, Felipe SGB, Carvalho KM, Gouveia MTO, Silva Júnior FL, Figueiredo MLF. Construction and validation of an educational gerontotechnology on frailty in elderly people. Rev Bras Enferm [Internet] 2020 [cited 2023 Oct 23];73:e20200800. Available from: https://doi.org/10.1590/0034-7167-2020-0800.

13. Quatrini HCCPG, Pena SB, Lopes JL, Lopes CT, Bottura ALLB. Especialistas for Validation Studies in Nursing: New Proposal and Selection Criteria. Int J Nurs Knowl [Internet]. 2016 [cited 2023 Oct 23];27(3):130-5. Available from: https://doi.org/10.1111/2047-3095.12089

14. Nassif MS, Iunes DH, Sousa L, Costa ICP, Oliveira PE, Moura CC, et al. Validation of a laser auriculotherapy protocol for chronic spinal pain. REME Rev Min Enferm [Internet]. 2020 [cited 2023 Oct 23];24:e1350. Available from: https://doi.org/10.5935/1415.2762.20200087.

15. Vieira TW, Sakamoto VTM, Moraes LC, Blatt CR, Caregnato, RCA. Validation methods of nursing protocols: an integrative review. Rev Bras Enferm [Internet]. 2020 [cited 2023 Oct 23];73(supl 5). Available from: https://doi.org/10.1590/0034-7167-2020-0050.

16. MacPherson H, Altman DG, Hammerschlag R, Youping L, Taixiang W, White A, et al. Revised STandards for Reporting Interventions in Clinical Trials of Acupuncture (STRICTA): Extending the CONSORT Statement. PLoS Med [Internet]. 2010 [cited 2023 Oct 23];7(6):e1000261. Available from: https://doi.org/10.1371/journal.pmed.1000261.

17. Cena L, Mirabella F, Palumbo G, Gigantesco A, Trainini A, Stefana A. Prevalence of maternal antenatal anxiety and its association with demographic and socioeconomic factors: A multicentre study in Italy. Eur Psychiatry [Internet]. 2020[cited 2023 Oct 23];63(1): e84. Available from: https://doi.org/10.1192/j.eurpsy.2020.82.

18. Silva HL, Almeida MV, Diniz JS, Leite FM, Moura MA, Bringuente ME, et al. Effects of auriculotherapy on anxiety of pregnant women receiving low-risk prenatal care. Acta Paul Enferm [Internet]. 2020 [cited 2023 Oct 12];eAPE20190016. Available from: http://dx.doi.org/10.37689/actaape/2020AO0016.

19. World Federation of Acupuncture-Moxibustion Societies. Auricular Acupuncture Point (WFAS STANDARD-002: 2012). WJAM.

2013[cited 2023 Jan 10];23(3). Available from: https://www.sciencedirect.com/science/article/pii/S1003525713600550.

20. Mafetoni RR, Rodrigues MH, Jacob LMS, Shimo AKK. Effectiveness of auriculotherapy on anxiety during labor: a randomized clinical trial. Rev LatinoAm Enferm [Internet]. 2018 [cited 2023 Oct 12];26. Available from: https://doi.org/10.1590/1518-8345.2471.3030.

21. Mirabal ME, Ramos PK, Pulgarón SJ. Auriculotherapy and acupuncture to alleviate the symptoms of anxiety in abortion. Rev Ciencias Médicas [Internet]. 2014 [cited 2023 Oct 12]; 18(4):590-7. Available from: http://scielo.sld.cu/scielo.php?script=sci_arttext&pid=S1561-31942014000400005&lng=es&nrm= iso.

22. Westhoff CL, Nelson IS, Suarez-Rodriguez A, Gold MA. Auricular acupressure and acupuncture as adjuncts for pain management during first trimester medication abortion: A randomized three-arm trial. Contraception [Internet]. 2021 [cited 2023 Oct 12];103(5):348-55. Available from: https://doi.org/10.1016/j.contraception.2020.12.003.

23. Oviedo JD, Marquez E, Gold MA, Westhoff, CL. Auricular acupressure and auricular acupuncture as an adjunct for pain management during first trimester aspiration abortion: A randomized, double-blinded, three-arm trial. Contraception [Internet]. 2021 [cited 2023 out. 12];103(5):342-7. Available from: https://doi.org/10.1016/j.contraception.2021.02.005.

24. Ndubisi C, Danvers A, Gold MA, Morrow L, Westhoff CL. Auricular acupuncture as an adjunct for pain management during first trimester abortion: a randomized, double-blinded, three arm trial. Contraception [Internet]. 2019[cited 2023 Oct 12];99(3):143–7. Available from: https://doi.org/10.1016/j.contraception.2018.11.016.

25. Bleck RR, Gold, MA, Westhoff, CL. Training hour requirements to provide acupuncture in the United States. Acupunct Med [Internet]. 2021 [cited 2023 Oct 12];39(4):327–33. Available from: https://doi.org/10.1177/0964528420939576.