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Miyuki do Prado, Juliana; Sato Kurebayashi, Leonice Fumiko; Paes da Silva, Maria Júlia
Eficácia da auriculoterapia na redução de ansiedade em estudantes de enfermagem
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Auriculotherapy effectiveness in the reduction of anxiety in nursing students

EFICÁCIA DA AURICULOTERAPIA NA REDUÇÃO DE ANSIEDADE EM ESTUDANTES DE ENFERMAGEM

EFICACIA DE LA AURICULOTERAPIA EN LA REDUCCIÓN DE ANSIEDAD EN ESTUDIANTES DE ENFERMERÍA

Juliana Miyuki do Prado[1], Leonice Fumiko Sato Kurebayashi[2], Maria Júlia Paes da Silva[3]

ABSTRACT

The objective of this single-blinded randomized controlled trial was to assess anxiety levels in nursing school students of the Beneficência Portuguesa Hospital (São Paulo) and the effectiveness of auriculotherapy in the reduction of these levels. The Trait-Anxiety Inventory State was applied at the beginning of the study, after 8 and 12 sessions, and at follow-up (15 days). The sample was comprised of 71 students divided into 3 groups: control without intervention (25), auriculotherapy (24), and placebo (22). The analysis of variance (ANOVA) showed statistically significant differences post hoc between the control and auriculotherapy groups at 2nd (p=0.000), 3rd (p=0.012) and 4th assessments (p=0.005), and between placebo and control groups at 2nd assessment (p=0.003). Auriculotherapy with Shenmen and Brain Stem points was more effective (20.97%) than sham points (13.74%) for reduction of anxiety levels in Nursing students, but studies with more representative samples are recommended.

DESCRIPTORS

Students, nursing
Auriculotherapy
Anxiety
Complementary therapies

RESUMO

Este Ensaio Clínico Randomizado simples-cego verificou níveis de ansiedade dos estudantes de Enfermagem de nível médio da Escola de Enfermagem São Joaquim, do Hospital Beneficência Portuguesa, e a eficácia da auriculoterapia na redução desses níveis. Foi aplicado o Inventário de Ansiedade Traço-Estado no início, após 8 e 12 sessões e no follow-up (quinze dias). A amostra foi composta por 71 indivíduos divididos em três grupos: Controle sem intervenção (25), Auriculoterapia (24), e Placebo (22). Resultados: Na análise de variância (ANOVA) houve diferença estatisticamente significativa pelo Post Hoc entre os grupos controle/auriculoterapia na segunda (p=0.000), terceira (p=0.012) e quarta avaliações (p=0.005); e entre grupos placebo/controle, somente na 2a avaliação (p=0.003). A auriculoterapia com os pontos Shenmen e Tronco Cerebral foi mais eficaz para a diminuição dos níveis de ansiedade em estudantes de Enfermagem (20,97%), em comparação com os pontos sham (13,74%), porém, estudos com amostragem mais representativa se fazem necessários.

DESCRITORES

Estudantes de enfermagem
Auriculoterapia
Ansiedade
Terapias complementares

RESUMEN

Ensayo clínico randomizado simple-ciego verificando niveles de ansiedad de estudiantes de Enfermería de nivel medio de la Escuela de Enfermería São Joaquim del Hospital Beneficencia Portuguesa y la eficacia de auriculoterapia en reducción de tales niveles. Se aplicó Inventario de Ansiedad Estado-Rasgo al inicio, luego de 8 y 12 sesiones y en follow-up (15 días). Muestra compuesta por 71 individuos divididos en tres grupos: Control (25), Auriculoterapia (24) y Placebo (22). Resultados: En análisis de varianza (ANOVA) existió diferencia estadísticamente significativa por el Post Hoc entre los grupos control/auriculoterapia en la segunda (p=0,000), tercera (p=0,012) y cuarta (p=0,003) evaluación, y entre los grupos placebo/control, sólo en la segunda evaluación (p=0,003). La auriculoterapia en puntos Shenmen y Tronco Cerebral fue más eficaz para disminuir niveles de ansiedad en estudiantes de Enfermería (20,97%) en comparación con los puntos Sham (13,74%), no obstante, se expresa la necesidad de estudios con muestras más significativas.

DESCRIPTORES

Estudiantes de enfermería
Auriculoterapia
Ansiedad
Terapias complementarias

[1] Acupuncturist Nurse. Professor of the Mid-Level Professional Technical Qualification Course for Auxiliary Nurses and Nursing Technicians Member of the Complementary and Alternative Health Practices Study Group, registered at CNPq. São Paulo, SP, Brazil. jumiyuki@yahoo.com.br [2] Acupuncturist Nurse. Doctoral student of the University of São Paulo School of Nursing. Member of the Complementary and Alternative Health Practices Study Group, registered at CNPq. fumie_ibez@yahoo.com.br [3] Registered Nurse. Full professor of the University of São Paulo School of Nursing. Coordinator of the Complementary and Alternative Health Practices Study Group, registered at CNPq. juliaps@usp.br

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INTRODUCTION

The school evaluation is a time of great anxiety for the students, as it traditionally assumed a classificatory purpose among them. To evaluate is also related to measuring. While the measurement indicates how much of a particular skill the student has, the evaluation reports on the value of this skill. Evaluation includes the definition that measurements and criteria must be used to judge performance. Therefore, the aims of the evaluation of learning are to inform and guide the improvement of the teaching-learning process[1].

In the São Joaquim School of Nursing of the Beneficência Portuguesa Hospital of São Paulo, the evaluation is procedural. It is based on criteria which compare the observed performance of each student, i.e. the profile of competence and the criteria of excellence for each educational unit are used as the reference. The criterion-referenced evaluation encourages collaboration and discourages competition between students, and establishes a dialogue of great educational depth between the teachers and students. Although the evaluation, in an integrated curriculum guided by competence, provides a reflection on the teaching-learning process, it still generates great fear among students, due to the historical origin of the assessment.

Students enrolling on the professional course present difficulties when entering an unknown context, which contribute to the emergence of tensions and anxieties. As well as experiencing an unknown world during the formation process, they are subject to emotional wear based on their past school experiences and concerns related to their entrance into the labor market. Even with all these difficulties, the student support services of the educational institutions generally only provide administrative-pedagogic information. There is a lack of attention for the student as a person who experiences a difficult situation, whether in the physical, psychological or socio-economic contexts[2].

Anxiety is a universal human experience and is defined as a persistent feeling of fear, apprehension and impending disaster, or tension and restlessness[3]. The term anxiety disorder is used for various conditions, including panic disorder, phobias, obsessive-compulsive disorder, generalized anxiety, post-traumatic stress and anxiety due to a general medical condition[4]. In general, anxiety is regarded as a natural physiological response, but may be related to certain diseases, among them asthma, gastrointestinal disorders and coronary artery disease. This has caused anxiety to become a major target of studies, since these diseases are of high incidence in the general population.

In order to overcome these altered emotional states, people often seek complementary therapies. As these imbalances are extremely common in the modern age and these therapies gain credibility in scientific circles with the increasing use of traditional practices of popular culture, it becomes important to verify the efficacy and the scope of therapeutics such as auriculotherapy. The complementary practices have proven effective in the control and treatment of many diseases, as well as providing a better quality of life.

Auriculotherapy or auricular acupuncture, is part of a set of therapeutic techniques based on the principles of Traditional Chinese Medicine (TCM). Auriculotherapy is believed to have been developed in conjunction with systemic acupuncture, which is currently one of the most popular Eastern practices in various countries and has been widely used in the preventive and curative aspects of healthcare[5].

The ear and auriculotherapy are mentioned in the oldest book of Chinese medicine, the Yellow Emperor's Classic of Internal Medicine, published 2000 years ago. The pinna is associated with all the body parts and all the meridians converge at the ear[6]. In 1957, Paul Nogier, a French neurosurgeon, made a careful study of the of the ear and auricular innervations, drawing a picture of an inverted fetus that corresponded to the shape of the ear, finding different points for neural stimulation and the treatment of various diseases[7]. Due to disagreements over nomenclature and locations of acupuncture points, since 1982 the World Health Organization (WHO) has ordered, along with other institutions, the standardization of systemic and auricular acupuncture points[8].

The present study proposed the use of auriculotherapy as a safe, fast, inexpensive treatment, which is easily adaptable to environmental conditions and places for its realization, in the expectation of providing an improvement in the quality of life and the academic and pre-professional performance of the students.

It has also been asked whether the selected protocol points would be more effective in relation to the points of the placebo group, since there is still no consensus on the different locations and indications for the auricular points, which makes the selection of the *sham* points difficult.

It should be remembered that the exercise of acupuncture by the nurse is assured by the Federal Council of Nursing (COFEN), which recognized alternative therapies, including acupuncture, as a specialty and/or qualification of the professional nurse, by the COFEN Resolution No. 197/97[9], fixing the specialties of Nursing by the COFEN Resolution No. 290/2004[10]. From Regulation 971, complementary and integrative practices were adopted in the Brazilian National Health System (SUS), among which, acupuncture stands out as achievable by all healthcare professionals as specialists[11].

OBJECTIVE

To identify the anxiety levels of mid-level nursing students of the São Joaquim School of Nursing of the Beneficência Portuguesa Hospital of São Paulo and to evaluate the therapeutic efficacy of auriculotherapy in reducing the anxiety levels identified.

METHOD

This is a single-blind randomized controlled clinical trial, with three groups: control group (no treatment), auriculotherapy group (intervention) and placebo group (using *sham* points), performed in the School of Nursing cited above, from January to July 2011.

Data were collected after approval by the Research Ethics Committee of the Beneficência Portuguesa Hospital of São Paulo under protocol No. 672-11 and CONEP/CAAE 0107.0.360.000-11. There was an explanation about the study and the consent of the subjects was gained by them signing the Terms of Free Prior Informed Consent.

A sample calculation was not made for this study because the population was small and it was decided to invite all the students of the Nursing School to participate in the trial. The inclusion criteria were: to be a Nursing student of the Mid-Level Professional Technical Education Course for Auxiliary Nurses and Nursing Technicians of the institution, to participate voluntarily, to have time available for the auriculotherapy sessions, to not be pregnant, to complete the State-Trait Anxiety Inventory (STAI) and the social-demographic form, and to not be performing any other treatment for anxiety. After the necessary exclusions were made a sample of 71 Nursing students was obtained. The reasons for dropouts are shown in the flow diagram (Figure 1). The Control Group was constituted by 25 subjects, the Auricular Group 24 subjects and Placebo Group 22 subjects. Data collection was carried out at the school and all the sessions were conducted by the same interventionist, a nurse acupuncturist with over 5 years experience in auriculotherapy (first author of the work).

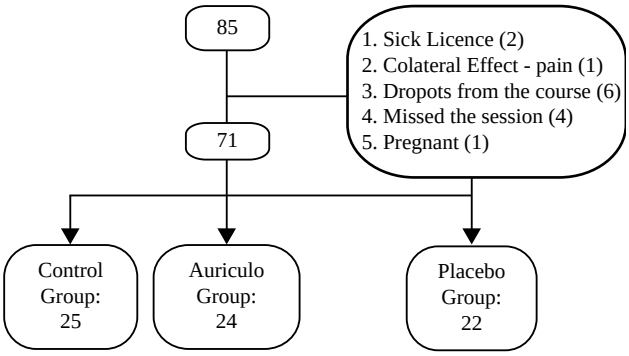

Figure 1 – Flow diagram of the subjects - São Paulo, 2011

The instrument used was the State-Trait Anxiety Inventory (STAI), which is composed of two scales: the anxiety-trait scale, which consists of 20 statements that describe how the person feels in general and the anxiety-state scale that is also composed of 20 statements, through which a scores is obtained regarding how the person is feeling at a given time. The STAI was designed to be self-administered and can be performed individually or in groups. Each statement is composed of a score from 1 to 4. In both scales, higher scores indicate higher levels of anxiety. The score for each questionnaire ranges from 20 to 80, with scores between 20 and 34 indicating low anxiety, between 35 and 49 moderate levels of anxiety, between 50 and 64 high anxiety, and between 65 and 80 very high anxiety, in both scales . The instrument was applied at the beginning, before the treatment, after 8 and12 sessions and 15 days after the end (follow-up)[12].

The auriculotherapy group received 12 sessions (1 per week), with each session lasting 5 to 10 minutes, in the Shenmen and Brainstem points (Figure 2). These points present tranquilizing and sedative effects[5]. The placebo group also received the same number of sessions in sham points, points not indicative for the proposed treatment. The points chosen were the Wrist and External Ear points. Regarding the placement of semi-permanent needles, after the proper location of the reactive points using a point locator, the pinna was cleaned with cotton and 70% ethyl alcohol and the needles were applied and affixed with micropore tape.

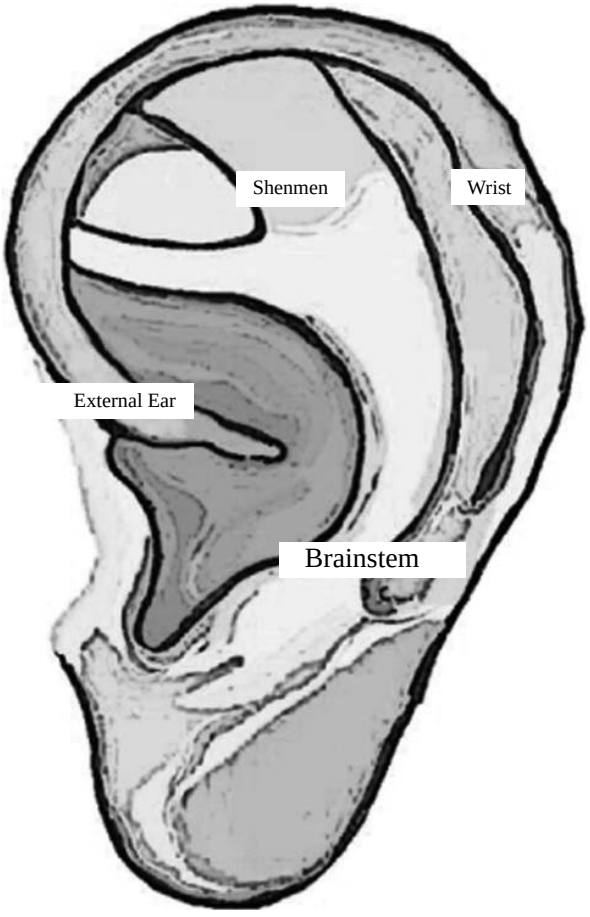

Figure 2 - Auricular points and Sham points - Sao Paulo, 2011

RESULTS

Of the participating subjects, 5.63% (4) had low anxiety levels, 36.62% (26) moderate levels, 43.66% (31) high levels and 14.08% (10) very high levels. After randomization of the subjects, the following distribution percentage of students into the three groups was obtained, according to levels of anxiety, with 50% of the auriculotherapy group subjects with moderate levels of anxiety and 41% of the placebo group subjects with high levels. A total of 60% of the subjects of the control group had high levels of anxiety.

The mean and standard deviation for the descriptive statistics were calculated. The data regarding age, gender and anxiety trait and state are presented in Table 1. Statistical analysis showed that the data presented normal distribution in the three test groups with regard to these aspects (p>0.05).

Table 1 - Distribution of means and standard deviations according to age and baseline levels of anxiety trait and state - São Paulo, 2011

	Control Mean (SD)	Auriculotherapy Mean (SD)	Placebo Mean (SD)	p
Age (years)	28.68 (6.57)	27.21 (5.97)	30.91 (8.34)	0.307
STAI trait	49.48 (7.57)	52.58 (9.29)	51.18 (10.32)	0.491
STAI state	50.16 (10.79)	54.04 (10.74)	51.59 (11.70)	0.468

Regarding the distribution of males and females and complaints of anxiety in the three groups statistically homogeneous data were also obtained (p>0.05), with frequencies of women in the groups of 88% (control), 83.33% (auriculotherapy) and 100% (placebo) (p=0.154). Regarding complaints of anxiety, 92% (control), 91.66% (auricular) and 100% (placebo) were obtained, with p=0.391. This satisfied the preconditions for the inferential statistical analysis: adherence to the normal curve of the means of the three groups, based on the Kolmogorov-Smirnov test and the Levene's homogeneity of variance test. As a normal distribution was obtained for the data, parametric tests were used in the statistical analysis, the Analysis of Variance (ANOVA) for repeated measures. These tests were performed using the SPSS 17.0 statistical program.

The p values for the test of adherence to the normal were found to be p>0.05, confirming the normality of the data and allowing the continuity of the tests. Concerning the result of the ANOVA test for repeated measures, statistical differences were found between the differences of the means of the groups at the three times, when compared between STAI2/STAI1 (P=0.000), STAI3/STAI1 (P=0.016) and STAI4/STAI1 (P=0.006).

In Tukey's Post hoc test for multiple comparisons, it was observed that the statistically significant difference was between the Control and Auriculotherapy Groups between STAI2/STAI1 (P=0.000), STAI3/STAI1 (P=0.012) and between STAI4/STAI1 (p=0.005). The Placebo Group also resented significant differences between STAI2/STAI1 (P=0.003). There were no differences between the auriculotherapy and placebo groups, as shown in Figure 3.

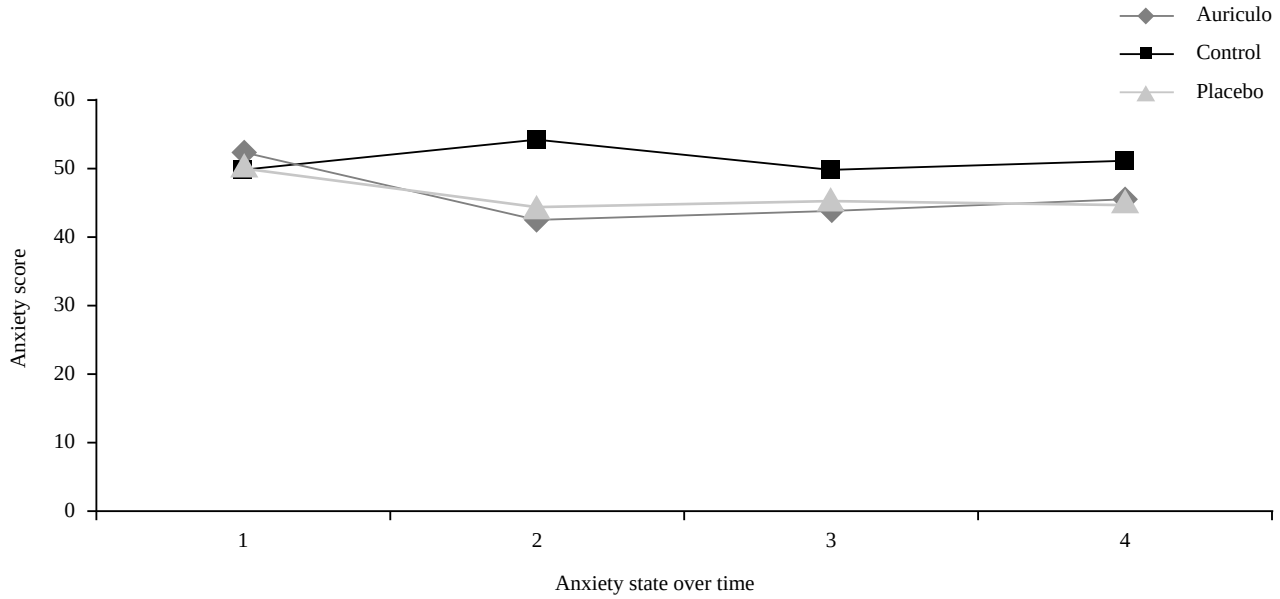

Figure 3 - Evolution of state-anxiety levels of the according to the groups - Sao Paulo, 2011

* Statistically significant difference (p<0.05) in the STAI 2-1 between the control and placebo groups.
* Statistically significant difference (p<0.05) in the STAI 2-1, STAI 3-1, STAI 4-1 between the control and auricular groups.

The improvements in the auricular and placebo groups were obtained in terms of percentages, as shown in Table 2.

Table 2 - Percentage of improvement at the three times, for the auriculotherapy and placebo groups - São Paulo, 2011

	STAI 2-1	STAI 3-1	STAI 4-1
Auricular	20.97%	19.19%	16.96%
Placebo	13.74%	11.63%	12.33%

DISCUSSION

This study showed that the Shenmen and Brainstem auriculotherapy points were effective in reducing anxiety. The Shenmen point, located in the fossa triangularis of the pinna, is commonly used as an analgesic, sedative and anti-inflammatory point and the Brainstem point, located at the upper edge of the intertragic notch, is characterized by the function of sedation, due to being stimulating for the mind and calming for the spirit[13].

In the comparative analysis, statistically significant reductions in anxiety were obtained when differences between the means of the control group, without the intervention, and the auriculotherapy group were observed, after the three evaluations (8, 12 sessions and in the follow-up). The best result was obtained at the first evaluation, after eight sessions, with an improvement of 20.97%, showing that 8 sessions seem to be sufficient to evaluate the efficacy of the technique in the control of symptoms of anxiety. In fact, the Shenmen and Brainstem points were used successfully in 14 university students, applied with mustard seeds, showing statistically significant differences in anxiety levels before and after 7 sessions twice a week ($p<0.05$)[14].

The same points were also used for stress with 41 Nursing professionals from the Intensive Care Unit of the Samaritano Hospital. The results show that the symptoms presented were: deterioration, back pain, excessive eating, fatigue, and 85.4% of the population presented improvements in the symptoms after treatment[15]. Although this study was not performed for the treatment of anxiety, it can be stated that there is an intrinsic relationship between anxiety and stress. Anxiety can be an presage of stress and high levels of anxiety are accompanied by high levels of stress[16].

Regarding the Placebo Group, an improvement of 13.74% was found in in the first evaluation only, with no significant differences in the other evaluations. For the Placebo Group two sham points were used: the Wrist point and the External Ear point. The articulation of the wrist point is located approximately 5 mm below the flange point and is indicated for carpal tunnel syndrome and tenosynovitis. The Outer Ear point is located around the area that forms the depression between the scaphoid fossa and the helix and it is used for treatment for disorders of the ear, such as: tinnitus, hypoacusis, deafness, labyrinthitis, and vertigo[13]. Therefore, neither of the two points would, in principle, be indicated for the treatment of anxiety.

The reasons for the improvements presented by the Placebo Group are questionable, even though they were smaller than in the Auriculotherapy Group. After surveying other auricular maps, a point called the Insomnia point was found, which is also indicated for the treatment of sleep disorders and presents anxiolytic action. Also in relation to another sham point used, the Outer Ear point, a similar nearby point, the Interferon point, was found in a French map, which presents immunomodulatory effects and anti-inflammatory activity[17]. The positive results of the sham group can be justified as a result of this bias, i.e. the inappropriate choice of false points. The different auriculotherapy maps, without consensus in the literature regarding the locations of the points and their indications, make it difficult to choose sham auricular points.

It should be considered that the literature indicates that a placebo effect can be expected, in acupuncture or body practices, of up to 30%, thus, the selection of points for this purpose is rather difficult[18]. Acupuncture studies using a placebo commonly use: minimal or superficial acupuncture (insertion of a needle in the skin), placebo acupuncture (needles into acupuncture points that have no effect), or placebo acupuncture needles (the needle tip breaks off and touches the skin without penetrating). However, the light touch on the skin can stimulate mechanoreceptors, resulting in activity in the tissue region, leading to the stimulation of the somatic sensory cortex and the limbic system. This will trigger hormonal and emotional responses. These reactions can explain the fact that acupuncture with placebo needle presents positive responses. However, this fact does not diminish acupuncture as a treatment as the technique shows similar results when compared with pharmacological treatments[19].

Regarding the potential of auriculotherapy for the control of anxiety, further studies can be cited. A study of auricular acupressure was carried out in Austria, for treatment of anxiety in patients with gastrointestinal problems, who needed an ambulance to reach the hospital. The authors found that auricular acupuncture is an effective treatment for reducing stress and anxiety displayed by patients during transport to the hospital[20].

Another study compared the efficacy of auriculotherapy in relation to intranasal midazolam medication to reduce anxiety related to odontological treatment. A total of 67 patients who underwent tooth extraction were randomized into auriculotherapy, placebo-auriculotherapy and intranasal midazolam groups, compared with a group that received no treatment (the control group). The auriculotherapy group and the midazolam group were less anxious after 30 minutes compared with the placebo group of patients. Furthermore, the patient adherence, evaluated by the dentist, was significantly better with auricular acupuncture or intranasal midazolam application[21].

In Cuba, in 2008, a cross-sectional descriptive study used auriculotherapy associated with phytotherapy for the treatment of generalized anxiety disorder. The subjects were 30 patients who came to a natural and traditional medicine consultation in a clinic in a province of Havana, with the data processed by the Department of Neurophysiology of the Havana Psychiatric Hospital. Among the results, it was found that 86.7% of the patients responded positively to the treatment, with improvements in the initial symptoms and perceived satisfaction[22].

The three studies reported on the control of anxiety by auricular using other points and achieved positive results, showing that there are indeed other points that could be used for the same purpose. The present study did not evaluate the change in the quality of life and academic and professional performance of the undergraduate students with the presence and a decreased in levels of anxiety, however, there were subjective reports of improvements that were not formally analyzed. In future studies it would be important to define what the aspects of improvement are, evaluating in greater detail the scope of the technique in the psychic, mental and physical aspects, and which points have the best indications for anxiety and stress in auriculotherapy, considering the different existing maps.

Regarding the results obtained with the Shenmen and Brainstem points, the efficacy of these points for anxiety may be extensible and generalizable, not only for students but also for professionals, as demonstrated by this trial and other previously cited studies with significant improvements for students and Nursing professionals. However, the improvement obtained in 8 sessions seems to be the therapeutic limit of the points protocol. There was no statistically significant difference between the 8th and 12th session. In the daily clinical practice, the acupuncturist does not only use closed protocols, because the treatment consists of matching the points to the change obtained, i.e. the evolution of the treatment depends on the signs and symptoms presented. Further studies are suggestive about the use of protocols or not, with a medium and long term period of follow-up to evaluate more fully the benefits of the auriculotherapy. In the present study, the improvements obtained with 8 sessions were maintained for the following 15 days, however, in decline.

The limitations of this study were the sample and sham point protocol chosen. Further studies need to be performed in order to ascertain whether such points (Wrist and Outer Ear) are really effective in controlling anxiety, as indicated by the positive result achieved in the second evaluation, or if this finding was due to the placebo effect, the belief, and the therapeutic relationship established between the interventionist and the research subjects.

CONCLUSION

It was concluded that, of the subjects studied, 43.66% of the students presented high levels of anxiety and 36.62% moderate levels. From the auriculotherapy treatment, using semi-permanent needles, a reduction in anxiety levels was obtained after eight sessions, 12 sessions and 15 days after the end of the applications for the Auriculotherapy Group and a reduction in anxiety after 8 sessions for the Placebo Group compared with the Control Group. The first group presented an improvement of 20.97%, compared to 13.74% of the Placebo Group. Therefore, the Shenmen and Brainstem points were more effective in reducing the anxiety of the Nursing students. To better comprehend the effects of the sham points used, further studies are recommend with greater numbers of subjects.

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Correspondence addressed to: Leonice Fumiko Sato Kurebayashi
Rua Capote Valente, 879 - Apto 22
CEP 05409-002 – São Paulo, SP, Brazil