

The applicability of auriculotherapy with needles or seeds to reduce stress in nursing professionals

APLICABILIDADE DA AURICULOTERAPIA COM AGULHAS OU SEMENTES PARA DIMINUIÇÃO DE ESTRESSE EM PROFISSIONAIS DE ENFERMAGEM

APLICABILIDAD DE AURICULOTERAPIA CON AGUJAS O SEMILLAS PARA DISMINUCIÓN DE ESTRÉS EN PROFESIONALES DE ENFERMERÍA

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ABSTRACT

This clinical randomized trial was performed with the objective to evaluate the stress levels of the nursing staff of a hospital and analyze the effectiveness of auriculotherapy with needles and seeds. The 75 participants with mean (44/58.7%) and high (31/41.3%) scores according to the Stress Symptoms List were divided into groups (control, needles, and seeds), who received eight sessions on the Shenmen, Kidney and Brainstem points and were evaluated at the baseline, fourth and eighth sessions and on the 15-day follow-up session. The analysis of variance (ANOVA) showed significant differences among the groups at the third assessment ($F=3.963/P=0.023$) and follow-up ($F=6.136/P=0.003$). These differences occurred between the control and needle groups. The 'seeds' and needles groups both showed differences ($p<0.05$) at the second assessment when compared within the same group. In conclusion, auriculotherapy reduced the stress in the nursing staff, with needles showing better results than seeds for high scores, maintaining the effects for 15 days.

DESCRIPTORS

Stress
Nursing, team
Auriculotherapy
Complementary therapies
Acupuncture

RESUMO

Este estudo clínico randomizado objetivou avaliar os níveis de estresse na equipe de Enfermagem de um hospital e analisar a efetividade da auriculoterapia com agulhas e sementes. 75 pessoas com escores médio (44/58,7%) e alto (31/41,3%) de acordo com a Lista de Sintomas de Estresse foram divididas em grupos (controle, agulhas e sementes), que receberam oito sessões nos pontos Shenmen, Rim e Tronco Cerebral e foram avaliados no início, com quatro, oito sessões e follow-up (15 dias). Na análise de variância (ANOVA), constataram-se diferenças entre os grupos, na 3ª avaliação ($F=3,963/P=0,023$) e follow-up ($F=6,136/P=0,003$). Tais diferenças foram entre o grupo controle e agulha. Os grupos de intervenção mostraram diferenças ($P<0,05$) a partir da segunda avaliação, quando comparados dentro do mesmo grupo. Concluiu-se que a auriculoterapia reduziu o estresse em profissionais de enfermagem, com melhores resultados para agulhas do que sementes, em escores altos, com manutenção de efeitos por 15 dias.

DESCRIPTORIOS

Estresse
Equipe de enfermagem
Auriculoterapia
Terapias complementares
Acupuntura

RESUMEN

Estudio clínico randomizado que objetivó evaluar niveles de estrés en equipo de Enfermería de un hospital y analizar la efectividad de la auriculoterapia con agujas y semillas. 75 personas con puntajes medio (44/58,7%) y alto (31/41,3%) según Lista de Síntomas de Estrés fueron divididas en grupos (control, agujas y semillas), recibieron ocho sesiones en puntos Shenmen, Rim y Tronco Cerebral, y fueron evaluadas al inicio, con cuatro, ocho sesiones y follow up (15 días). En análisis de varianza (ANOVA) se constataron diferencias entre los grupos, en la tercera evaluación ($F=3,963/p=0,023$) y follow up ($F=6,136/P=0,003$). Las diferencias corresponden a grupos control y agujas. Los grupos de intervención mostraron diferencias ($P<0,05$) a partir de segunda evaluación, comparados dentro del mismo grupo. Se concluyó en que la auriculoterapia redujo el estrés en profesionales de Enfermería, con mejores resultados con agujas sobre semillas, en puntajes altos, con mantenimiento de efectos por quince días.

DESCRIPTORES

Estrés
Grupo de enfermería
Auriculoterapia
Terapias complementarias
Acupuntura

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INTRODUCTION

Stress is a state of tension that causes an unbalance in the organism, being present in new or risk situations that exceed the person's adaptive capability. It is a physiological state of tension and is directly related to the demands from the environment. When stress happens, there is a rupture in the body homeostasis⁽¹⁾, caused by a biological reaction of confrontation or escape, generating responses in the organism that affect the bio-psycho-physiology of the subject. Persistent critical situations without resolution affect the subject emotionally and physically, causing consequences such as higher blood pressure, peptic ulcers, cancer, stroke, psoriasis, vitiligo, increase of the adrenal gland, decrease of the thymus and lymph nodes, leading to the depression of the immune system⁽²⁾.

Stress is present in the daily lives of at least 90% of the world population. In face of this fact, specialists and institutions combine efforts to propose means that aim at controlling the negative aspects of stress. The World Health Organization⁽³⁾ considers that high levels of stress at work harm the physical and psychological health of workers, besides having a negative effect on the results of the organizations where they work. In fact, a stressed worker is more subject to diseases, less motivated, less productive and insecure regarding his/her actions.

The hospital environment is recognized as insalubrious, burdensome and also dangerous for those working there. It is a favorable place to cause sickness due to occupational, biological, chemical, physical and psychosocial risks. These conditions determine an environment favorable to developing mental disorders such as anxiety, depression and stress⁽⁴⁾. Besides the working environment of nursing, the profession, itself, is considered stressful due to the direct and continuous contact with the process of pain, death, suffering and due to the unpredictable, and, at times, repulsive and distressing situations he/she experiences.

The theory of Martha Elizabeth Rogers (1970), whose conceptual model focuses on human being as a whole, presents interfaces with the principles that rule the Chinese traditional medicine, mainly in terms of energetic interactions⁽⁵⁾. According to Rogers, in *Science of Unitary Human Beings*, the person is seen as a unified, indivisible being, integrated to the environment, characterized as an energetic field in interaction to a pandimensional universe. This theory allows to restructure nursing care, education and research beyond the analytical and reductionist approach of the western medical model⁽⁵⁾. In this perspective, it is understood that the care task implicates in the exchange and interaction between the energetic fields of those who assist and are assisted, and suggests that caregivers must be attentive to their own energetic

and health condition. Being in balance before providing or promoting care is a responsibility that must be assumed by the professionals that take care of an unbalanced subject, producing more positive outcomes⁽⁶⁾.

In this context, the authors aimed at allying a conceptual nursing model based on the energy and the eastern therapies, which are based on the Qi paradigm — an energy manifested in the physical and spiritual fields that flows in variable states of aggregation. Due to this reason, a complementary health practice (CHP) was chosen, in this case the Chinese auriculotherapy or auricular acupuncture. In this study, this therapy aims at helping to reduce the stress levels in nursing professionals, since it may affect negatively the care offered to the patient, family, team, as well as the workers' well-being and quality of life, also interfering in the quality of care⁽⁷⁾.

Auriculotherapy is one of the techniques used in Chinese traditional medicine, associated to acupuncture, phytotherapy, massage, moxibustion, cupping, diet therapy and physical exercises⁽⁸⁻⁹⁾. Its bases are defined in different principles of conventional western medicine, starting at a conception of the human being as an integral being, with no barriers between the mind, body and spirit. The human organism is understood as a field of energy and this integrative and systemic view agrees with the bioenergetical paradigm extended to all the other fields of health and human knowledge⁽¹⁰⁾.

Both in the East and in the West, there are studies that confirm the effectiveness of the auriculotherapy in the improvement of several psychoemotional cases. Both in the East and in the West, there are studies that confirm the effectiveness of the auriculotherapy in the improvement of several psychoemotional cases. Some of the benefits include: reduced stress and anxiety in undergraduate students⁽¹¹⁾, improved generalized anxiety disorders⁽¹²⁾, reduced anxiety and stress in patients during pre-hospital transportation⁽¹³⁾, among many other studies. In face of the latter, it is understood that auriculotherapy may be very useful in the hospital environment as it is fast, relatively simple to apply, safe and minimally invasive.

As for the ethical-legal aspects of acupuncture and auriculotherapy practice in Brazil, the Federal Nursing Council established, through resolution 197/97, that several complementary health practices (CHP), including acupuncture and auriculotherapy, are nursing specialties. As of 2006, law no. 971, from May 3, 2006, approved the National Policy of Integrative and Complementary Practices (NPICP), which defined acupuncture as a multiprofessional practice, in other words, a specialty of all categories of health professionals with higher education, guaranteeing the action of the acupuncturist nurse⁽¹⁴⁾.

Based on these data, this study aimed at evaluating the applicability of Chinese auriculotherapy to reduce stress in the nursing staff of a public teaching hospital and at analyzing the effectiveness of this technique as a

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therapeutic strategy. Auriculotherapy has been broadly accepted, it is safe and effective for different conditions of energetic unbalance, being recognized for its positive effects in physical, psychic and mental disorders. It has a high preventive and therapeutic value, may be performed in 10 to 20 minutes with different invasive and non-invasive stimulation materials⁽¹⁵⁾. This study questions whether auriculotherapy with needles or seeds would produce similar outcomes regarding the reduction of stress in the nursing staff. There are few studies regarding auriculotherapy in the Brazilian nursing area. Therefore, this study was developed considering the need for methods that help maintain the well-being of the nursing staff, reducing their stress levels.

The main objectives were to analyze the stress level of professionals from the nursing team of the Teaching Hospital and to compare the results obtained by auriculotherapy performed with semi-permanent needles and mustard seeds to reduce stress levels.

METHOD

Study Type and Location:

This randomized controlled clinical experiment was performed with three groups: control group (without any intervention), group of auriculotherapy with needles and group of auriculotherapy with seeds. The study was developed at the Teaching Hospital of the University of São Paulo.

Ethical and Legal Aspects:

The study complied with the resolution 196/1996 of the National Health Council. A Free and Informed Consent Form was given to the study subjects and the participants who were in the Control Group were guaranteed that, after the study, they would have the opportunity to be treated for the same period and for free. The study project was accepted by the Research Ethics Committee of the Teaching Hospital of the University of São Paulo (Resolution CEP-HU/USP 941/09).

Sample:

In order to define the sample of participants, the authors used the Stress Inventory or Stress Symptoms List – SSL⁽¹⁶⁾. This instrument was applied to all subjects who agreed to participate in the study (109); however, only subjects who achieved mean (29 to 60 points), high (61 to 120 points) or very high (>120 points) scores were included in the sample; 75 of them completed the study. As for the distribution of the participants, 22 subjects were placed in the Control Group, 27 in the Needles Group and 26 in the Seeds Group.

Inclusion and Exclusion Criteria:

The inclusion criteria were: belonging to the nursing team; voluntary participation in the study with avail-

ability to attend the sessions; obtaining a minimum SSL score at mean, high and very high stress level; not being pregnant. The authors excluded from the sample all the subjects who went on vacation or medical leave after the beginning of the study; did not show up to the session or gave up due to adverse effects, and those who had low SSL score.

Data Collection Instruments:

The instruments used for data collection were: the Stress Symptoms List (SSL) and a questionnaire with sociodemographic data. Data were collected in the period from January to February 2010 and the sessions were performed in private rooms at the continuing education, outpatient clinic and nursery units of the hospital.

Procedures for Data Collection:

Data were collected in the period from January to February 2010 and the sessions were performed in private rooms at the continuing education, outpatient clinic and nursery units of the hospital. The SSL instrument was applied before the treatment, after four sessions, after eight sessions and 15 days after the end of the treatment (follow-up). The intervention groups received eight sessions (one session a week), with duration of 5 to 10 minutes each session, on the Shenmen, Kidney and Brainstem points (Figure 1). The first two points have calmative properties and the kidney point has energetic function⁽⁹⁾. After the location of the reactive points with a point locator, the ear auricle was hygienized with cotton and ethyl alcohol 70% and, then, semi-permanent needles were applied or seeds were fixed with adhesive plaster, according to the intervention group. In the group of auriculotherapy with seeds, mustard seeds were used and the participants were instructed to stimulate them three times a day, for 15 times, with moderate pressure. The volunteers were instructed to remove the needles or seeds 24 hours before the session and, in case there was any discomfort, itching or signs of allergy, they should remove them before that.

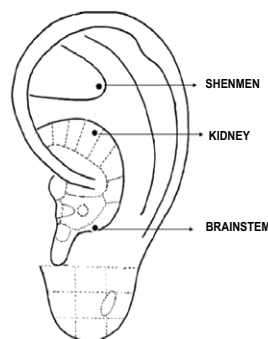


Figure 1 – Identification of the points used in the intervention groups

Data Treatment:

The mean and standard deviation were calculated for the analysis and description of all the data. The normality of data distribution was verified through Shapiro-Wilk's test and, since distribution was normal, parametric tests were used in the statistical analysis. The analysis of variance (ANOVA) was used to evaluate the homogeneity between the intervention groups. As for the comparison among the SSL scores in the different moments of the evaluation, ANOVA was used for repeated measures. These tests were applied with the programs Microsoft Office Excel 2007® and Statistica 7®. The test of Bonferroni's multiple comparisons was also performed to observe statistical differences of the results among the groups.

RESULTS

The total number of participants was 75 nursing professionals, being 12 nursing assistants, 49 nursing technicians and 14 nurses. They were initially distributed according to the stress scores as mean or high level, gender and age. Besides the already mentioned professionals who met the protocol, there was a loss of 34 subjects during the study. Seven professionals went on vacation after the beginning of the study and two on medical leave; 12 missed the session because they had forgotten it, due to

traffic problems or the difficulty to reschedule it and seven did not show up for the first session. One participant gave up due to adverse effects, in this case, nightmares, and five exclusions were due to low score (1), not belonging to the nursing team (3), and not filling out properly the questionnaires (1).

Out of the 75 professionals, 44 (58.7%) presented mean SSL level and 31 (41.3%) presented high stress score. There were no participants with very high stress level. In the following stage, they were randomly distributed into three groups: Group 1 (Control); Group 2 (Needles) and Group 3 (Seeds). The average age of the subjects varied between 39 and 45 years. 71 were female and four male. There were professionals from the three different shifts (morning, afternoon and night), who were treated after their shift. The sectors where the participants worked were: Adult Emergency, Emergency Childcare, Medical Clinic, Surgical Clinic, Surgical Center, Hemodialysis, Nursery, Pediatrics, Rooming-in, Outpatient Clinic, Adult ICU, Pediatric ICU, Material and Sterilization Center, Obstetric Center, Service of Hospital Infection Control and Health Basic Unit.

According to the results described in Table 1, there was homogeneity among the groups regarding age, period of work and initial SSL. As for gender, there was prevalence of the female gender (71), with homogenous distribution of the few men who took part in the study (4).

Table 1 – Mean and standard deviation of age, period of work, initial SSL score and proportion of gender in the sample - São Paulo, 2010

	Control	Needles	Seeds	p
Age (years)	39.25 (13.17)	41.37 (8.23)	45.57 (6.40)	0.51
Period of work (years)	13.91 (10.70)	14.03 (9.34)	15.37 (4.07)	0.29
Initial SSL (points)	54.36 (15.90)	66.82 (18.56)	63.27 (26.06)	0.34
Gender (%F)	91.66	96.29	96.15	0.65

Both the Needles Group and the Seeds Group presented a statistically significant difference ($p < 0.05$) as indicated by the graph represented in Figure 2, with the comparison in time between the sessions in the same group. This difference was found right after the fourth session (SSL2) in the Needles Group and in the follow-up (SSL4). There was also a difference in the Seeds Group between the SSL1 and the other scores.

The outcomes of subjects who presented mean stress level were not statistically significant, both in the seeds and in the needles group. However, in the high stress level, results showed a significant change in the needles group following the first evaluation (SSL2), increasing at each new evaluation (SSL3 and SSL4). In the Seeds Group, there was a significant change after the second evaluation (SSL3), continuing after the third evaluation (SSL4). This indicates that the Seeds Group started presenting a significant difference between the 4th and the 8th session, whereas the Needles Group obtained responses between the 1st and the 4th session.

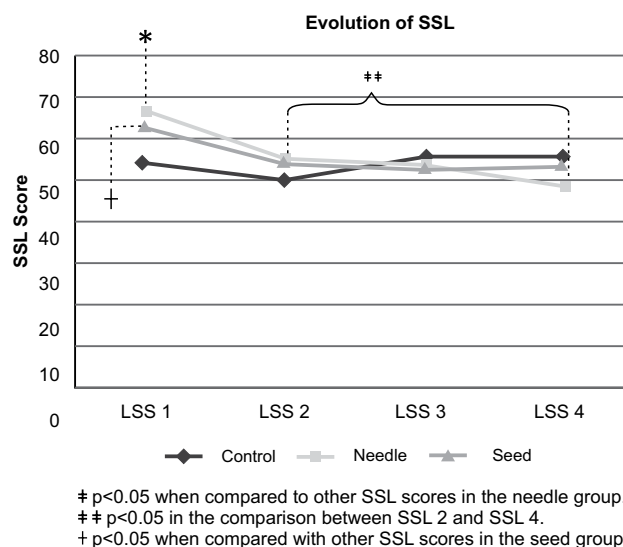


Figure 2 – Mean and standard deviation of the SSL score

As for the results of the ANOVA test for repeated measures, there was a difference in the means among the groups when compared between SSL3/SSL1 ($F=3.963/P=0.023$) and between SSL4 and SSL1 ($F=6.136/P=0.003$). After that, in the *Post hoc* test of Bonferroni's multiple

comparisons, there was a statistically significant difference between the Control and the Needles Group ($P=0.020$), between SSL3/SSL1 and between SSL4/SSL1 in follow-up ($P=0.003$), as shown in Table 3. The Seeds Group did not present significant differences.

Table 2 – Mean and standard deviation of the SSL score in the subjects with high stress level - São Paulo, 2010

	LSS 1	LSS 2	LSS 3	LSS 4
Control	72.75 (12.01)	60.50 (17.48)	67.87 (25.73)	72.62 (31.51)
Needles	82.46 (18.36) *	62.69 (25.58)	59.84 (23.04)	55.54 (25.26)
Seeds	84.70 (23.97) **	74.20 (23.81)	67.10 (23.77) **	69.20 (30.03) **

* $p < 0.05$ when compared to the other SSL scores in the needles group.

** $p < 0.05$ when compared the SSL 1 to the SSL 3 and SSL 4.

Table 3 – Bonferroni's multiple comparisons among the groups — São Paulo, 2010

Dependent Variable	(I) Treatments	(J) Treatments	Mean Difference (I-J)	Std. Error	P
DIF_2_1	Control	Needles	7.02189	4.95874	0.483
		Seeds	2.47203	5.00137	1
	Needles	Control	-7.02189	4.95874	0.483
		Seeds	-4.54986	4.74391	1
	Seeds	Control	-2.47203	5.00137	1
		Needles	4.54986	4.74391	1
DIF_3_1	Control	Needles	14.87542*	5.31053	0.02
		Seeds	9.45804	5.35618	0.245
	Needles	Control	-14.87542*	5.31053	0.02
		Seeds	-5.41738	5.08045	0.87
	Seeds	Control	-9.45804	5.35618	0.245
		Needles	5.41738	5.08045	0.87
DIF_4_1	Control	Needles	20.44613*	5.8792	0.003
		Seeds	9.17832	5.92975	0.378
	Needles	Control	-20.44613*	5.8792	0.003
		Seeds	-11.2678	5.62449	0.147
	Seeds	Control	-9.17832	5.92975	0.378
		Needles	11.26781	5.62449	0.147

DISCUSSION

In this study, it was observed that among the 75 participants, only four were male. These data agree with other studies in nursing, showing that the great majority of these professionals are female. In a study at a Public Hospital of São José do Rio Preto, among the 333 studied nursing professionals, 271 (81.4%) were female⁽¹⁷⁾. It is possible to state that since the beginning, women were the ones who mostly took care of sick people, because they were considered more appropriate, both culturally and socially, for this activity.

In the statistical analysis of variance, it is observed that the results presented significant differences among the groups in SSL3 and SSL4. By performing Bonferroni's

test of multiple comparisons, it was observed that the significant difference occurred between the Needles and the Seeds Group, showing positive results for the auriculotherapy with needles. Nevertheless, in the comparative analysis of SSL scores within each group in time, the Seeds Group presented a significant difference between SSL1 and the other evaluations.

In the Needles Group, the people treated did not need to stimulate the points in order to achieve results, differently from those treated with seeds, which, in part, could justify the inferior results in the patients treated with seeds. Although the use of seeds presents this bias and the necessary participation of the patient in the process may be a limiting factor, the use of seeds has been broadly indicated, together with materials such as mag-

nets, since they are not invasive and patients present more tolerance⁽¹⁸⁾. Traditionally, auricular acupuncture uses both systemic and semi-permanent needles as a means of stimulation.

A study developed with undergraduate students, aimed at verifying the effectiveness of auriculotherapy in the reduction of stress and anxiety levels with seeds, achieved significant improvement in stress levels with the use of seeds comparatively to the control group, using the Shenmen and Brainstem points⁽⁹⁾. These same points were used in other study developed at a private hospital in São Paulo to reduce stress levels in the nursing staff of the intensive care unit⁽¹⁹⁾. In this case, the same points were used, but semi-permanent needles were inserted. The same data collection instrument was used, the Stress Symptoms List (SSL)⁽¹⁶⁾, to evaluate the stress levels. The sample had the participation of 41 professionals and the results showed that 85.4% of the population presented improvement in the symptoms of stress, with a decrease of symptoms like fatigue, backache, excessive eating and tiredness.

The action mechanism of auriculotherapy has been discussed and this technique is considered to work because groups of pluripotent cells contain information from the entire organism, creating regional centers of organization that represent different parts of the body. The stimulation of the reflex point in the ear provides an action of relief in symptoms in distant parts of the body⁽²⁰⁾. Stimulating points may also activate small myelinated nervous fibers that send impulses to the spine, brain, pituitary and hypothalamus, causing the release of endorphins in the blood in the treatment of pain⁽²¹⁾.

Another study regarding auricular acupressure as a treatment for anxiety in patients transported in an ambulance, prior to hospitalization, concluded that the technique was beneficial for several reasons⁽¹³⁾. Firstly, its execution requires minimum equipment, so that doctors, nurses, paramedics or emergency technicians may perform the treatment; secondly, due to the fast training to learn how to locate points and its application, even without previous knowledge on Chinese traditional medicine. And, finally, due to the intervention cost, as it is nearly a cost-free treatment. In this study, which used only one point, it was concluded that the auricular acupressure may be effective not only to reduce anxiety levels but also to prevent complications associated to traumatic stress⁽¹³⁾.

The present study allowed observing that the improvement in the Acupuncture Group lasted for 15 days after

the end of the treatment. In fact, it is possible to state that there was a cumulative effect of the auriculotherapy with needles, because the positive effects remained after the application for approximately two weeks. The same result was not observed in the Seeds Group, which presented a less emphasized response.

Adverse effects

During the auriculotherapy sessions, despite of the fact that the studied participants did not report major problems, some negative responses deserve comments. Auriculotherapy was not positive for a patient who had undergone bariatric surgery and referred effects such as increase in anxiety for food and inquietude. She had lost 40kg, almost a third of her total weight, and although she had not complained, she quit the treatment. There were indications in literature that acupuncture and moxibustion should not be performed in people who have not slept or eaten sufficiently⁽²²⁾. In other words, the effect of these therapeutic methods is to try to restore the balance, to recover the body homeostasis. It is understood, thus, that the patient may have had a contrary reaction, exactly because her body needed more nutrients, increasing appetite. Another patient gave up after the third session, stating she had been having nightmares as of the application of the needles. It is important to highlight that this patient worked the night shift and slept during the day. Some patients also reported discomfort with the application and permanence of the needles, which shows a disadvantage of this material compared to the seeds. A patient referred itching in the application of seeds and another adhesive material was used, which solved the problem.

CONCLUSION

The authors conclude that the stress levels among the nursing professions in the studied sample reached mean (58.7%) and high (41.3%) scores, and that the auriculotherapy treatment with needles and seeds was able to reduce stress levels, with better results for the needles than the seeds and better results for those who presented a high stress score. The positive effect remained for 15 days after the end of the study. New studies are suggested, with a different protocol approach, in order to respect the evaluation and diagnostic criteria in both western and eastern medicines, aimed at assuring more appropriate conditions for studying the Chinese traditional medicine and at achieving more positive results.

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