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Relationship between chronic back pain, disability and quality of life after auriculoacupuncture and cupping therapy and satisfaction with treatment: a cross-sectional study*

Relação entre dor crônica nas costas, incapacidade e qualidade de vida após auriculoacupuntura e ventosaterapia e satisfação com o tratamento: estudo transversal

La relación entre el dolor de espalda crónico, la discapacidad y la calidad de vida después de la acupuntura auricular y la terapia con ventosas y la satisfacción con el tratamiento: un estudio transversal

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ABSTRACT
Objective: to evaluate the relationship between pain intensity, physical disability and quality of life after auriculoacupuncture and cupping therapy with satisfaction with treatment, need for it to control pain, perception of improvement and medication consumption. **Method:** cross-sectional study conducted with 198 people with chronic back pain. The following were investigated: pain intensity, physical disability, quality of life, satisfaction with treatment, need for intervention to control pain, perception of improvement and medication consumption. Spearman's correlation was performed at 5% of significance. **Results:** There were low magnitude negative correlations of pain intensity and physical disability with treatment satisfaction, need for intervention, perception of improvement after treatment and medication consumption, and low magnitude positive correlations of quality of life perception with satisfaction with treatment, need for intervention, and perception of improvement. **Conclusion:** The improvement in pain intensity, physical disability and quality of life resulted in better general health status, satisfaction with treatment and lower consumption of medication among study participants.
Descriptors: Patient Satisfaction; Auricular Acupuncture; Cupping Therapy.

RESUMO
Objetivo: avaliar a relação da intensidade da dor, incapacidade física e qualidade de vida após tratamento de auriculoacupuntura e ventosaterapia com a satisfação com o tratamento, necessidade dele para controle da dor, percepção de melhora e consumo de medicação. **Método:** estudo transversal conduzido com 198 pessoas com dor crônica nas costas. Foram investigadas: intensidade da dor, incapacidade física, qualidade de vida, satisfação com o tratamento, necessidade da intervenção para o controle da dor, percepção de melhora e consumo de medicação. Foi realizada correlação de *Spearman* a 5% de significância. **Resultados:** Houve correlações negativas de fraca magnitude da intensidade da dor e da incapacidade física com a satisfação com o tratamento, necessidade da intervenção, percepção de melhora após o tratamento e consumo de medicamentos, e correlações positivas de fraca magnitude da percepção da qualidade de vida com a satisfação com o tratamento, necessidade da intervenção, e percepção de melhora. **Conclusão:** A melhora da intensidade da dor, da incapacidade física e da qualidade de vida ocasionou melhor estado geral de saúde, satisfação com o tratamento e menor consumo de medicamentos entre os participantes do estudo.
Descritores: Satisfação do Paciente; Acupuntura Auricular; Ventosaterapia.

RESUMEN
Objetivos: evaluar la relación de la intensidad del dolor, la discapacidad física y la calidad de vida después de la acupuntura auricular y la terapia con ventosas con la satisfacción con el tratamiento, la necesidad del mismo para controlar el dolor, la percepción de mejoría y el consumo de medicamentos. **Método:** estudio transversal realizado con 198 personas con dolor de espalda crónico. Se investigó: la intensidad del dolor, la discapacidad física, la calidad de vida, la satisfacción con el tratamiento, la necesidad de intervención para el control del dolor, la percepción de mejoría y el consumo de medicamentos. Se realizó la correlación de Spearman al 5% de significancia. **Resultados:** Hubo correlaciones negativas de baja magnitud de la intensidad del dolor y de la discapacidad física con la satisfacción con el tratamiento, necesidad de intervención, percepción de mejoría después del tratamiento y consumo de medicamentos, y correlaciones positivas de baja magnitud de la percepción de la calidad de vida con la satisfacción con el tratamiento, necesidad de intervención y percepción de mejora. **Conclusión:** La mejora en la intensidad del dolor, la discapacidad física y la calidad de vida llevaron a un mejor estado general de salud, satisfacción con el tratamiento y menor consumo de medicamentos entre los participantes del estudio.
Descriptores: Satisfacción del Paciente; Acupuntura Auricular; Terapia de Ventosas.

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INTRODUCTION

Chronic pain, a multifactorial condition that encompasses biological, psychosocial and economic factors, is one of the main sources of human suffering[1]. There are people who experience minimal disturbances, even those who are severely disabled and for whom participation in work and social and family activities becomes severely restricted.

Due to this negative impact that chronic pain has on people's lives, it is considered a nursing problem. And the nurse, through nursing interventions, can contribute to solving it. In this context, acupuncture and its therapeutic resources, such as auriculoacupuncture and cupping therapy, stand out. These interventions are promising methods for managing chronic pain[2-3] and can be carried out by these professionals, through specific training.

Through the application of these therapeutic resources, it is essential that nurses carry out a comprehensive assessment of their impacts on people's lives, including, for example, pain intensity, physical disability and quality of life.

Self-reported pain intensity is considered the gold standard for measuring this phenomenon[4]. And generally, the increase in its intensity and its spread coincides with the increase in physical and mental stress and physical disability. The latter is related to limitations and restrictions on activities that a person may face in different life situations. Finally, health-related quality of life involves physical aspects (such as pain, mobility, dependence on medication or treatment and ability to work), psychological aspects (such as feelings, self-esteem, body image and appearance), social relationships and environmental aspects (such as availability and quality of health care)[5].

It is also important to assess the person's perceptions of the treatment received, through variables such as satisfaction, which refers to the participant's feeling about the treatment (if they feel that the positive characteristics of the treatment outweigh the negative ones)[6], the need for treatment and the perception of improvement after it. The result of these assessments makes the user the protagonist of their care plan, in addition to influencing the way these treatments are offered in health services, enabling greater quality and resolution.

Also, verifying medication consumption through non-pharmacological pain control interventions is another way of assessing the impact of the intervention on people's health. Pharmacological management is still one of the most used strategies to control chronic pain; however, patients rarely experience long-term pain relief as side effects tend to limit the maximum dosage[7]. It is believed, therefore, that acupuncture can also impact medication consumption, bringing benefits not only to patients, but also to health services, by reducing medication expenses.

Therefore, the present study aimed to evaluate the relationship between pain intensity, physical disability and perception of quality of life with satisfaction with the treatment received, with the need for intervention for pain relief, with the overall perception of improvement and with the consumption of medication after auriculoacupuncture treatment and cupping therapy.

METHOD

Study design

Analytical cross-sectional study.

Context

The study was carried out between November 2017 and December 2018, with a population of 686 people with chronic back pain enrolled in Family Health Strategies in a city in the interior of Minas Gerais, Brazil. This study is part of a project that offered the exclusive application of auriculoacupuncture and cupping therapy for this population (that is, the participants did not receive any other type of treatment concomitant with the proposed interventions), and was approved by an Ethics Committee on Research with Human Beings (Opinion nº 2,277,176).

Participants

The following inclusion criteria were adopted for the selection of participants: 1) age between 18 and 70 years, since the incidence of chronic back pain in this age group is high[8-9], in addition to being more likely to have preserved skin turgor, an important condition for treatment with cupping therapy; 2) preserved cognitive function, verified using the Six-Item Cognitive Impairment Test (score between zero and 10). In it, zero is assigned for each correct answer and one for each incorrect answer, up to the maximum amount of errors allowed; then, the number of errors of each item must be multiplied by its weight, to obtain the final score. The maximum total grade is 28; a grade of 10 or higher is significant of some impairment[10]; 3) presence of chronic back pain for three months

or more[1], regardless of its cause; 4) self-report of moderate or severe pain intensity (≥ 4)[1] in the last seven days, verified by 11-point and Faces numerical scales. This score was selected since patients with very low levels of pain tend not to respond to some therapies[11]; 5) accept treatment with auriculoacupuncture and cupping therapy for pain management. People who had severe chronic diseases, cancer, neurological or psychiatric diseases and pregnant or puerperal women were excluded from the study.

Variables

The evaluation was performed two weeks after the end of treatment with auriculoacupuncture and cupping therapy. Sociodemographic (sex; age; marital status; and occupation) and clinical (time in pain) variables were collected. The patient's perception of the treatment received was also investigated, through the variables: satisfaction with the treatment ("extremely dissatisfied"; "dissatisfied"; "not sure"; "satisfied"; "extremely satisfied"); need for intervention to control pain ("totally unnecessary"; "unnecessary"; "not sure"; "necessary"; "totally necessary"); overall perception of improvement with the treatment applied (which was verified using the seven-point "Patient's overall impression of change" scale, ranging from "much better" to "much worse", or "no change" as a midpoint[12]); and the frequency of pain relief medication consumption - analgesics, anti-inflammatory drugs and/or muscle relaxants ("does not use this type of medication"; "sporadically"; "once or twice a month"; "once or more a week"). In addition, the following variables were collected: pain intensity, using a numerical rating scale[13]; physical disability, using the Roland Morris Disability Questionnaire (RMDQ) for pain in general[14]; and perception of quality of life, through the World Health Organization Quality of Life-Bref (WHOQOL-Bref)[5].

Data sources/measurement

Pain intensity was assessed using a numerical rating scale, numbered from zero to 10, where zero=no pain; 1 to 3 = mild pain; 4 to 6 = moderate pain; 7 to 10 = severe pain[13]. To facilitate the research participants' understanding of pain intensity, they were presented with a ruler with numerical and Faces graduation [13] at the time of evaluation. It is noteworthy that the numerical scale, which has already been translated and culturally adapted for the Brazilian population[15], it is considered the standard instrument in studies on chronic pain[13]. In the present sample, Cronbach's alpha for this item was 0.830, which gives a high internal consistency of the instrument[16].

The RMDQ was developed to measure physical disability in patients with pain. It has 24 items with scores from zero or one (yes or no) and the total ranging from zero (no disability) to 24 points (severe disability). This instrument was translated, adapted and validated for the Brazilian version and has adequate psychometric properties[14]. In the present sample, Cronbach's alpha for the RMDQ was 0.827, which denotes high reliability of the instrument[16].

Finally, the perception of quality of life was verified using the World Health Organization Quality of Life-Bref (WHOQOL-Bref). This is one of the most influential field instruments used to assess the quality of life, in addition to the physical and mental health of the individual[5]. The instrument consists of two general quality of life questions (quality of life perception and health satisfaction), in addition to four domains (physical, social, psychological and environment) that assess specific aspects of a person's life[5]. Each WHOQOL--Bref question has a score from one to five, on a Likert-type scale, which are transformed into a linear scale from zero (least favorable quality of life) to 100 points (most favorable quality of life)[5]. The instrument was translated and validated for the Brazilian version and has adequate psychometric properties[5]. It is noteworthy that for the present study, only the question referring to the 'perception of quality of life' was used. In the present sample, Cronbach's alpha for this scale is 0.796, indicating a high reliability of the instrument[16].

Study size

The initial population consisted of 686 people with chronic back pain. To estimate the sample size, a sample calculation was performed through the website (http://calculoamostral.bauru.usp.br/), in the option 'Sample size – correlation between two variables'. By adopting a Pearson correlation coefficient of 0.2 between the variables pain intensity and satisfaction with the treatment (which was based on a pre-test carried out with 20 people), a significance level of 5%, power of 80% and correction of 20% to avoid losses, a sample of 194 people was estimated.

Quantitative variables

The pain intensity[13]; physical disability[14]; and perception of quality of life[5] variables were processed as continuous. And, the patient's perception of the treatment received; the need to carry out the intervention for pain control; the overall perception of improvement with the applied treatment[12]; and frequency of pain relief medication consumption were processed as categorical variables.

Statistical methods

Data were organized in Microsoft Office Excel® software (2013 version) by two independent researchers and subsequently had their consistency checked. For statistical analysis, the Statistical Package for the Social Sciences® software (version 23.0) was used. Quantitative variables were described using medians and interquartile ranges (p25-p75). Relative frequency was used to describe categorical variables. The relationship between the variables was determined by Spearman's correlation at 5% significance. Correlation strengths were analyzed considering correlation coefficients < 0.4 (weak magnitude correlation), > 0.4 to < 0.7 (moderate magnitude) and > 0.7 (strong magnitude)[17]. The correlation coefficient varies between zero and one and its sign (positive or negative) defines the direction of the relationship.

RESULTS

In this study, 183 volunteers underwent auriculoacupuncture and cupping therapy for the management of chronic back pain. Of these, 153 (83.6%) were women, with a mean age of 48.03 years (standard deviation: 12.41). The mean study time was 8.25 years (standard deviation: 4.13), 113 (61.7%) participants were married, 45 (24.6%) were single, 17 (9.3%) were divorced and eight (4.4%) were widowed; and, in relation to professional characterization, 104 (56.8%) volunteers were employed and working.

The mean duration of pain was 99.20 months (standard deviation: 116.59; minimum time: three months; maximum time: 600 months/50 years).

Table 1 presents data on pain intensity, physical disability and perception of quality of life after treatment, as well as participants' satisfaction with the treatment received, the need for intervention to relieve pain, overall perception of improvement after treatment and consumption of pain relief medication. It is noteworthy that 105 (57.4%) participants reported no pain at the end of treatment; 35 (19.1%) reported mild pain; 40 (21.9%) moderate pain; and 3 (1.6%) severe pain.

-Low-magnitude negative correlations were found between pain intensity and physical disability with satisfaction with the performance of auriculoacupuncture and cupping therapy, the need for interventions to relieve pain, the overall perception of improvement and the consumption of medication after the interventions (Table 2). Low-magnitude positive correlations were also found between the perception of quality of life with satisfaction and the need for interventions and the overall perception of improvement with the treatment applied (Table 2).

DISCUSSION

In the present study, most participants were satisfied or completely satisfied with the treatment received; felt that the intervention was necessary for pain relief; reported improvement with treatment and that they no longer used pain relief medications. In addition, low magnitude negative correlations were found between pain intensity and physical disability with satisfaction with the treatment received, the need for intervention, perception of improvement after treatment and medication consumption, and low magnitude positive correlations between the perception of quality of life and satisfaction with the treatment, the need for intervention and the perception of improvement after its completion.

In fact, integrative and complementary health practices, such as acupuncture and its therapeutic resources, are considered an important health care strategy, as they establish a broader view of the health-disease process. In this field of action, the focus is on the individual's health and the search for balance, valuing the integrality of human care.

In this context, the World Health Organization recognizes the use and importance of traditional Chinese therapies, including acupuncture, for primary health care, prevention and health promotion. However, there are still challenges in its implementation, access, use and also in the training of professionals[18], since the number of nurses who practice these intervention modalities is relatively small.

Another point worth mentioning is the importance of evaluating the satisfaction with the treatment received, the need for intervention to

Table 1 – Profile of participants regarding: pain intensity, physical disability, perception of quality of life, satisfaction, need for intervention, overall perception of improvement and medication consumption after auriculoacupuncture and cupping therapy. Mariana, MG, Brazil, 2018 (n=183)

Variable	Scale	median (p25*-p75†)
Pain intensity	0-10	0.00 (0.00-3.00)
Physical disability	0-24	3.00 (0.00-7.00)
Perception of quality of life	0-100	75.00 (50.00-75.00)
		f‡ (%§)
Satisfaction with the treatment	Very dissatisfied	0 (0.00)
	Dissatisfied	1 (0.50)
	Not sure	8 (4.40)
	Satisfied	114 (62.30)
	Totally satisfied	60 (32.80)
Need for intervention	Totally unnecessary	0 (0.00)
	Unnecessary	1 (0.50)
	Not sure	4 (2.20)
	Necessary	105 (57.4)
	Totally necessary	73 (39.9)
Overall perception of improvement after treatment	Much worse	0 (0.00)
	Worse	1 (0.50)
	No changes	2 (1.10)
	Better	108 (59.00)
	Much better	72 (39.30)
Consumption of pain relief medication after treatment (Analgesic, myorelaxant and/or anti-inflammatory)	Does not use this type of medication	9 (4.90)
	No longer uses this type of medication	137 (74.90)
	Sporadically	29 (15.80)
	One or more times a week	8 (4.40)

Source: Prepared by the authors, 2018.
*p25: 25 percentile; †p75: 75 percentile; ‡f: frequency; §%: percentage

overall perception of improvement with the treatment applied. Regarding auriculoacupuncture, no studies were found, so far, that evaluated this variable and its association with pain intensity and physical disability, which reflects the innovations of the present study. On the other hand, 40.9% of participants who received cupping, medication and physical therapy reported at least slightly improved health after treatment; whereas most participants in the control group, who received only medication and physical therapy, rated their health the same as before and some even slightly worse[22].

It is known that people who live with the experience of frequent pain, especially if it is more intense and disabling, seek relief strategies, and medication consumption tends to be frequent[23] and even abusive, due, for example, to the ease of acquisition or inappropriate prescriptions[24]. However, prolonged use of medications can lead to several side and adverse effects, in addition to dependence[24].

In this context, auriculoacupuncture was identified as a possible therapy that can help reduce the consumption of these medications[25]. In fact, at the end of treatment, it was observed that approximately 75% of the sample reported no longer using analgesics, muscle relaxants or anti-inflammatory medications; and it was also found that the lower the intensity of pain and physical disability, the lower this consumption. Corroborating these results, researchers also found that both auriculoa-

Table 2 – Correlation between satisfaction and need for intervention, overall perception of improvement and medication consumption after treatment with pain intensity, physical disability and perception of quality of life. Mariana, MG, Brazil, 2020 (n=183)

Variable	Satisfaction with the intervention received		Need for intervention		Overall improvement with treatment		Medication consumption after the intervention	
	R*	p value 95% CI†	R*	p value 95% CI †	R*	p value 95% CI †	R*	p value 95% CI †
Pain intensity	-0.181	0.014 (-0.321/-0.030)	-0.282	<0.001 (-0.401/-0.148)	-0.288	<0.001 (-0.416/-0.157)	-0.211	0.004 (-0.363/-0.053)
Physical disability	-0.313	<0.001 (-0.446/-0.170)	-0.276	<0.001 (-0.406/-0.130)	-0.303	< 0.001 (-0.428/-0.167)	-0.294	< 0.001 (-0.422/-0.150)
Perception of quality of life	0.172	0.020 (0.028/0.305)	0.225	0.002 (0.087/0.355)	0.241	0.001 (0.100/0.380)	0.053	0.476 (-0.109/0.224)

Source: Prepared by the authors, 2018.
*R: Spearman's Correlation Coefficient; †95% CI: Confidence Interval at 95%.

cupuncture[23] and cupping therapy[21] contributed to reducing the consumption of analgesics, when pain is actually relieved. Consequently, there is also a reduction in the occurrence of side effects resulting from its use.

It was also found in the present study that an improvement in quality of life, resulting from the relief of pain triggered by the application of interventions, is associated with greater satisfaction and need for interventions and a greater perception of improvement with the treatment applied.

Similar results were also found in patients with chronic low back pain who received auriculoacupuncture associated with a physical exercise program; they demonstrated improved quality of life compared to the group that received only the exercises[25]. In addition, about 90% of the participants were very satisfied with the treatment and considered that the intervention brought at least some benefit for pain relief[25].

In turn, a systematic review with meta-analysis concluded that, depending on the type of control group (no treatment or active control), cupping therapy is associated with a significant improvement in quality of life in patients with neck pain[26]. However, to date, no study was found that evaluated the quality of life, satisfaction with treatment and the overall perception of improvement resulting from the application of cupping therapy.

Still, in this investigation, no statistically significant correlation was found between quality of life and medication consumption after treatment. A systematic review of the literature that evaluated the effects of auricular acupressure for pain management found that the therapy significantly improved the consumption of analgesic drugs and the adverse effects resulting from them[27]. Thus, there is preliminary evidence that auricular acupressure may be a beneficial adjunctive therapy for patients with pain, in addition to enabling patients to self-manage their pain[27]. This fact was also observed in the present study, in which approximately 75% of the participants reported not consuming more pain relief medication after treatment. This can be considered an extremely positive result, as the reduction in medication consumption can be considered an indicator of the effectiveness of the intervention, in addition to the fact that the side effects resulting from its use can be minimized. However, further studies are suggested, with a more expressive sample, in order to verify whether or not there is a correlation between quality of life and medication consumption after auriculoacupuncture and cupping therapy.

It is important to highlight, at this point, that the cross-sectional nature of the study did not make it possible to establish a causal relationship between the related variables, which reflects a limitation of the present study. However, the data presented here were statistically significant, making them pioneers in the investigation of this phenomenon, although with weak correlations between the variables, suggesting caution in their

use. It is noteworthy, however, that evaluations such as these can contribute to the generation of indicators that favor the implementation of these resources in health services, reflecting the importance of carrying them out.

CONCLUSION

There were correlations between pain intensity, physical disability and quality of life with satisfaction with treatment, with the need for pain relief intervention and with the overall perception of improvement after auriculoacupuncture and cupping therapy. And, only pain intensity and physical disability were correlated with medication consumption. In this way, it can be seen that, despite the weak correlations between the variables, it is believed that the improvement in pain intensity, physical disability and quality of life led to better general health status, satisfaction and need for treatment and lower consumption of medication among the participants in this study.

*Paper extracted from the doctoral thesis "Effects of the association of cupping therapy with auricular acupuncture on chronic back pain: a randomized clinical trial", presented to the Federal University of Minas Gerais, Belo Horizonte, MG, Brazil.

CONFLICT OF INTEREST

The authors have declared that there is no conflict of interest.

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