

# Nursing and advanced acupuncture for relief of low back pain during pregnancy

Enfermagem e a prática avançada da acupuntura para alívio da lombalgia gestacional  
Enfermería y práctica avanzada de la acupuntura para alivio de lumbalgia en el embarazo

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## Keywords

Acupuncture; Pregnant women; Low back pain;  
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## Descritores

Acupuntura; Gestante; Dor lombar; Promoção da  
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## Descriptores

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## Abstract

**Objective:** To evaluate the effects of acupuncture practice on the relief of low back pain in pregnant women in the second and third trimesters of pregnancy and in the performance of daily activities.

**Methods:** Quasi-experimental, before and after study performed with 56 pregnant women at gestational age between 14 and 37 weeks, who complained of low back pain. Six acupuncture sessions were performed twice a week lasting 30 minutes each and application of systemic and auricular points. The Visual Analog Scale (VAS) was used to assess pain. Absolute and relative frequency were calculated for categorical variables and mean and standard deviation for numerical variables. The tests used for the association were the Wilcoxon for paired measurements, and the McNemar's test.

**Results:** There was a significant reduction ( $p < 0.05$ ) in pain index scores. The mean pain score decreased in the evaluation of the second (4.92), fourth (3.24) and sixth (1.00) sessions. For some women, the pain ceased before completing the six sessions and there was improvement in performance of activities impaired by pain.

**Conclusion:** Acupuncture provided favorable effects for the health of participants, because their pain reduced after the second session. Nurses can review the quality of care to pregnant women based on the knowledge of techniques that contribute to comprehensive care. The holistic care of clients is part of the essence of nursing, aims at patients' needs and contributes that nurses' actions as Traditional Chinese Medicine professionals are performed in a qualified, efficient and humanized way.

## Resumo

**Objetivo:** Avaliar os efeitos da prática de acupuntura realizada no alívio da dor lombar em gestantes que se encontram no segundo e terceiro trimestre de gravidez, bem como na execução das atividades diárias.

**Métodos:** Estudo quase experimental, antes e depois, realizado com 56 gestantes com idade gestacional entre 14 e 37 semanas e queixa referida de dor lombar. Foram realizadas seis sessões de acupuntura, duas vezes por semana, com 30 minutos, cada uma, com a aplicação de pontos sistêmicos e auriculares. Para avaliação da dor utilizou-se a Escala Analógica Visual. Foram calculadas frequência absoluta e relativa para variáveis categóricas e média e desvio padrão para variáveis numéricas. Os testes utilizados para associação foram o Wilcoxon, para medidas pareadas, e teste de McNemar.

**Resultados:** Encontrou-se redução significativa ( $p < 0,05$ ) dos escores do índice de dor. A média da dor diminuiu na avaliação da segunda (4,92), quarta (3,24) e sexta (1,00) sessão. Algumas mulheres tiveram sua dor cessada antes de completar as seis sessões e houve melhora nas atividades prejudicadas pela dor.

**Conclusão:** A acupuntura proporcionou efeitos favoráveis à saúde das participantes, pois houve redução na dor logo a partir da segunda sessão. Acredita-se que os enfermeiros possam rever a qualidade da assistência às gestantes, a partir do conhecimento de técnicas que contribuem a um cuidado integral, pois a enfermagem tem na sua essência o processo de cuidado holístico do cliente, visando suas necessidades, contribuindo para que suas ações, enquanto profissionais de Medicina Tradicional Chinesa, sejam realizadas de maneira qualificada, eficiente e humanizada.

## Resumen

**Objetivo:** analizar los efectos de la práctica de acupuntura realizada para aliviar el dolor lumbar en embarazadas que están en el segundo y tercer trimestre de embarazo, así como en la ejecución de las actividades diarias.

**Métodos:** estudio cuasi experimental, antes y después, realizado con 56 mujeres embarazadas entre 14 y 37 semanas de edad gestacional y quejas de dolor lumbar. Fueron realizadas seis sesiones de acupuntura, dos veces por semana, de 30 minutos cada una, con la aplicación de puntos sistémicos y auriculares. Para evaluar el dolor, se utilizó la escala análoga visual. Se calculó frecuencia absoluta y relativa de variables categóricas y promedio de desviación típica de variables numéricas. Las pruebas utilizadas para asociación fueron Wilcoxon, para medidas pareadas, y la prueba de McNemar.

**Resultados:** se encontró una reducción significativa ( $p < 0,05$ ) de la puntuación del índice del dolor. El promedio del dolor se redujo en la evaluación de la segunda (4,92), cuarta (3,24) y sexta (1,00) sesión. Algunas mujeres dejaron de tener dolor antes de terminar las seis sesiones y hubo una mejora en las actividades perjudicadas por el dolor.

**Conclusión:** la acupuntura proporcionó efectos favorables a la salud de las participantes, ya que hubo una reducción del dolor a partir de la segunda sesión. Se cree que los enfermeros pueden rever la calidad de la atención a mujeres embarazadas a partir del conocimiento de técnicas que contribuyen a un cuidado integral, pues la esencia de la enfermería es el proceso de cuidado holístico del cliente, con el objetivo de atender sus necesidades y contribuir para que sus acciones, en tanto profesionales de la Medicina Tradicional China, sean realizadas de manera cualificada, eficiente y humanizada.

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## Introduction

In the spine, is triggered one of the most disabling symptoms in an individual: low back pain (LBP). This condition is more common in the female gender and a villain for women during pregnancy,<sup>(1)</sup> because it affects more than two thirds of pregnant women, and is the most common discomfort in pregnancy,<sup>(1-4)</sup> especially in the third trimester.<sup>(3)</sup>

There is a high prevalence of low back pain in Northern Europe (61-84%), Australia (96%), North America (69%) and East Asia (75-77%).<sup>(3)</sup> Research in Brazil found a high prevalence of LBP in pregnant women, since 93% reported its presence.<sup>(5)</sup> In a study conducted with 97 pregnant women in the state of Pernambuco, was identified a prevalence of LBP of 68%, and of this total, 43.9% reported that it started in the second trimester.<sup>(6)</sup>

The treatment of LBP in pregnancy is more complex, meticulous and delicate, because therapeutic options are limited by implications for the mother and the fetus. A form of LBP therapy during pregnancy is acupuncture, which can be effective in reducing symptoms, pain relief and consequently, improve the quality of life (QoL) of these women compared to usual care.<sup>(1)</sup>

Acupuncture and auriculoacupuncture are Traditional Chinese Medicine (TCM) techniques. They are based on structures of the organism that must be in balance by the action of negative and positive energies, Yin and Yang, respectively.<sup>(7)</sup>

This health intervention technology can be used in isolation or associated with other therapies, and involves a set of procedures based on the stimulation of precise anatomical points of the body through the insertion of metallic needles that assist in the promotion, maintenance, recovery of health and prevention of diseases and disorders.<sup>(8)</sup> It is safe, simple, atoxic, has few contraindications and minimal adverse reactions.<sup>(9)</sup>

It is commonly used for musculoskeletal problems and recommended in several countries as a therapeutic alternative. The UK has guidelines for the management of non-specific diseases and acupuncture is a treatment approach for pain. However, the use of acupuncture for pregnancy-re-

lated low back pain has been evaluated in few studies, which have been summarized in two systematic reviews.<sup>(10,11)</sup> A pilot study with 124 pregnant women testing the effects of acupuncture was published in England recently.<sup>(12)</sup> There is evidence of promising benefits of acupuncture, but its use is still limited in pregnant women, because more high quality studies are needed.

After the benefits of acupuncture in pregnant women are known and proven, trained nurses will be able to use it as a non-pharmacological treatment for LBP relief. In 1997, the Federal Nursing Council (Portuguese acronym: COFEN), through the first Article of resolution COFEN-197/1997, recognized acupuncture as a specialty and/or qualification of the nursing professional, and it was revoked in 2015 by resolution 0500/2015.<sup>(13)</sup> Nurses have the process of holistic care of clients in their essence, which contributes to their actions as professionals of Traditional Chinese Medicine towards promotion of prenatal health, physical and emotional wellbeing of pregnant women, and prevention of complications.

The aim of this study was to evaluate the effects of acupuncture practice on low back pain relief in pregnant women in the second and third trimesters of pregnancy, and in the performance of daily activities.

## Methods

A quasi-experimental, before and after study conducted in Fortaleza at the Family Development Center of the Universidade Federal do Ceará, where routine prenatal nursing consultations are performed.

The population and sample of the study comprised 180 women attending prenatal care in the unit, because when the population is less than 200, the sample size should consider the entire population.<sup>(14)</sup> Pregnant women were approached while awaiting their consultation.

The sample included all women who met the inclusion criteria: gestational age between 14 and 37 weeks, in normal risk prenatal care, who com-

plained of LBP and were willing to visit the study site twice a week. The exclusion criteria were: to present some diagnosed mental deficiency, speech or hearing problem; having used analgesic drugs in the prior eight hours, having needle phobia, clinical or obstetric conditions, injury or absence of a limb at the site of application, and spinal conditions prior to gestation.

Data were collected between June and October 2016, and up to six acupuncture sessions were performed with each pregnant woman. Sessions were conducted by the main researcher, who is an acupuncturist and obstetric nurse with five-year experience in Traditional Chinese Medicine. Before starting the first session, were collected sociodemographic, clinical and obstetrical data and from the visual analogue scale (VAS) for assessment of LBP. The VAS was reapplied before the second, fourth and sixth sessions for pain reassessment.

This instrument is a very useful one-dimensional nominal scale. The adjectives are easy to understand and can express the quality of pain accurately in a line with extremities numbered from zero to ten (0-10), in which one end marks 'no pain' and the other 'worst pain imaginable'. The marks between zero and two indicate mild pain, three to seven indicate moderate pain, and eight to ten means intense pain. The professional should ask patients to evaluate their pain and record on the line how much is being represented at that moment.<sup>(15)</sup>

For the investigation of daily activities impaired by low back pain, was asked a question in the clinical and obstetric questionnaire about what they felt was being impaired (before and after treatment) with the following options of answers: weight lifting, walking, sitting for too long, sleeping, housework, other activities or no option.

For a better description of the intervention, were followed some items from the Standards for Reporting Interventions in Clinical Trials of Acupuncture (STRICTA) that detail how the acupuncture technique was performed in the study participants.<sup>(16)</sup>

Upon entering the office, pregnant women were invited to remove their clothes, wear the appropriate clothing, and lie down on the bed on their left

side. The seal of needle containers was broken in the presence of the participant. After 70% alcohol antiseptics, stainless steel 25X30mm sized needles (Dong Bang manufacturer) were applied with use of a guide at the chosen points and remained in place for 30 minutes.

Treatment is based on protocol for low back pain in pregnant women.<sup>(17)</sup> The following points were tested: B57- for relaxation of muscles, relief of sciatica; B40- relief of low back pain, sciatica, blood cooling; VB30 - stimulation of the circulation of Qi and blood, relief of low back pain, sciatica, sacroiliac dysfunction; B23 - invigorates the kidneys, lumbago, dizziness, tiredness; B60- eliminates internal wind, dominates the Qi of the head, invigorates blood, headache, sciatica, low back pain, back pain; VG20- eliminates internal wind, soothes, relaxes muscles and tendons, calms the shen, sleep disorders, dizziness, headache; and Yintang - calms the mind, lessens fear, headache, feeling of heaviness in the head, anxiety, sleep disorders.<sup>(18)</sup>

Because of the participant's position, the systemic points applied bilaterally were: B57, B40 and B23. The other points were inserted unilaterally. There was no manipulation of the needles after insertion.

During the session, systemic needles were also applied unilaterally at the following auriculotherapy points located according to the Chinese school techniques: Shemen, lumbar and sciatic. The Shemen point is widely used in auricular acupuncture for stabilizing the system as a whole and acting on analgesic and anti-inflammatory responses.<sup>(19)</sup> The right ear was manipulated because pregnant women were lying on their left side. The needle size was the same as that of systemic acupuncture, 25X30mm.

Pregnant women who did not present any more pain (VAS=0) before completing the six sessions, were released from the study after discharge.

At certain times, patients had to be reminded of the sessions by means of calls or messages at least one day in advance, since some of them forgot the scheduled day of the following sessions. If the participant did not attend on the appointed day, the session was rescheduled in order to maintain the frequency of two sessions per week.

Data analysis, statistical analysis and cross-checking of variables were done in the Statistical Package for the Social Sciences (SPSS) version 21.0. Absolute and relative frequency were calculated for categorical variables and mean and standard deviation for numerical variables. The tests used were the McNemar's and the Wilcoxon's test for paired measurements.

The study complied with ethical recommendations of research with human beings of the National Council of Health and was approved by the Research Ethics Committee of the Maternidade Escola Assis Chateaubriand under number 1.553.641.

## Results

The mean age of participants was 25.5 years, but more than half were in the 20-29 age group (58.9%). Mixed race (76.8%) was prevalent, they had 11.9 years of study on average and schooling until high school prevailed (44.6%).

The average income was of R\$ 2,016.3, but the majority had income of one to two minimum wages (35.7%). Most participants reported being homeworkers (42.9%) and 30.4% reported to have activities both at home and outside the home. Of the interviewees, 45 (80.4%) women reported having a partner. There was an association between the socio-demographic and socioeconomic profile of women and their pain level, although with no statistical significance ( $p > 0.05$ ).

More than half of pregnant women were in the first gestation (55.4%). Of those who had previous pregnancies, the main route of delivery was caesarean section (48%). Eight women (14.3%) had previous history of abortions. The mean gestational age was 27.9 weeks (98.2%).

The majority (85.7%) did not practice physical activity and, of those who practiced (14.3%), the main ones were walking and pilates (37.5%). Regarding the time they have felt LBP, 42.9% reported being since the first gestational trimester, followed by the second (39.3%) and third (17.9%).

Before initiating the intervention, 58.9% reported using methods for relief of LBP. Massage

(28.6%) and lying down (10.7%) were the most practiced methods, in addition to using a compress (7.1%), stretching (5.4%) and using drugs (5.4%), even though they claimed the alleviation of pain was transient.

Women were informed that throughout the study they could not use other means to reduce their pain, such as medications, massages, physical therapy, physical activities, among others to avoid bias in the exact assessment of the effects of acupuncture on LBP. With each new encounter, they were reminded of this warning.

Regarding pain assessment scores, before any intervention, was found a mean pain score of 6.77 ( $\pm 1.83$ ), close to the limit of moderate pain (3 to 7) and close to intense. Figure 1 shows the study design flowchart according to the number of participants in each session.

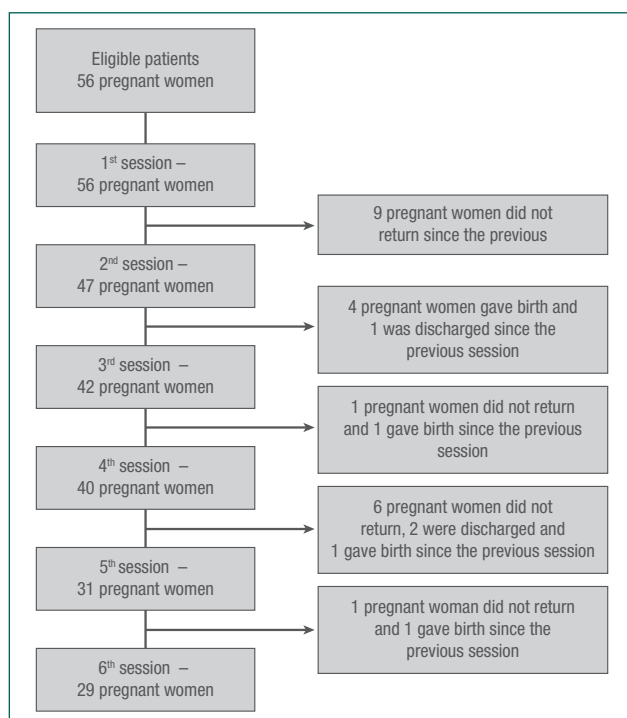


Figure 1. Number of participants in each session

Considering the number of participants in the second session (47), at that time, the mean pain was 4.92 ( $\pm 2.17$ ). In the fourth session, the mean pain scores were 3.24 ( $\pm 1.87$ ) (37) and 1.00 ( $\pm 1.07$ ) in participants who did all the six sessions (29), which is considered as no pain or mild pain, and the mean pain has reduced considerably. The LBP measure-



ment was calculated weekly and in pairs for understanding the progressive effects of the acupuncture technique in detail, as shown in table 1.

**Table 1.** Evaluation of the VAS\* from one session to the other

Initial moment	Final moment	Initial measurement/SD <sup>†</sup>	Final measurement/SD <sup>†</sup>	p-value <sup>‡</sup>
Start	2 <sup>nd</sup> session	6.53/ ± 1.80	4.92/ ± 2.17	<0.001
Start	4 <sup>th</sup> session	6.73/± 1.71	3.24/ ± 1.87	<0.001
Start	6 <sup>th</sup> session	6.62/± 1.70	1.00/ ± 1.07	<0.001
2 <sup>nd</sup> session	4 <sup>th</sup> session	5.08/± 1.92	3.24/ ± 1.87	<0.001
2 <sup>nd</sup> session	6 <sup>th</sup> session	5.03/± 1.74	1.00/ ± 1.07	<0.001
4 <sup>th</sup> session	6 <sup>th</sup> session	3.43/± 1.86	1.00/ ± 1.07	<0.001

VAS- Visual Analogic Scale; <sup>†</sup>SD- Standard Deviation; <sup>‡</sup>p- Wilcoxon test

A significant difference was found in the initial and final measurements in all comparisons ( $p < 0.001$ ). According to the analogue scale, the LBP gradually regressed as the number of sessions progressed. As shown in table 2, in addition to the previous results and according to the pain records in the scale, some women had total absence of pain after the sessions.

**Table 2.** Total absence of pain per session according to VAS\*

VAS*=0	Frequency	% <sup>†</sup>
2 <sup>nd</sup> session (n=47)	1	2.1
4 <sup>th</sup> session (n=40)	2	5.0
6 <sup>th</sup> session (n=29)	14	48.3
Total	17	36.2

VAS- Visual Analogic Scale; <sup>†</sup>%- Percentage

These data indicate the acupuncture technique helps in the reduction or cessation of LBP, especially if the individual attends the sessions as indicated by the therapist. Some activities mentioned by pregnant women were impaired because of the pain, which affected their quality of life. Table 3 shows the activities performed with the most difficulty, before and after the acupuncture intervention.

**Table 3.** Daily activities impaired by low back pain before and after the acupuncture intervention

Activity	Before <sup>†</sup>	After <sup>†</sup>	p-value <sup>‡</sup>
Weight lifting	16(28.6)	2 (3.6)	0.125
Walking	13(23.2)	1 (1.8)	0.016
Sitting for a long time	30(53.6)	3 (5.4)	0.013
Sleeping	31(55.4)	-	-
Domestic activities	25(44.6)	1 (1.8)	<0.001
All activities impaired	7(12.5)	-	-
No impaired activity	1(1.8)	23 (41.1)	<0.001

<sup>†</sup>n(%)- total number and equivalent percentage; <sup>‡</sup>p- McNemar's test

After the sessions, there was a statistically significant reduction ( $p < 0.05$ ) in almost all activities mentioned as difficult because of pain. The highlights were domestic activities ( $p < 0.001$ ), sleeping (no woman reported impairment by pain after acupuncture sessions), and sitting for a long time ( $p < 0.013$ ). Expected local effects such as drowsiness, mild bleeding spot, pain at stinging, burning, weight or numbness were observed in some participants, but disappeared after a few minutes.

## Discussion

The age of most participants was between 20 and 29 years. Another study also showed that gestational LBP occurred in younger women.<sup>(20)</sup> This may be related to the largest number of pregnant women in this age group, which is also women's most fertile period.

As this is a public service, most pregnant women have few years of study and low family income. This corroborates with another study, in which was observed that the family income of most pregnant women was also between one and two minimum wages.<sup>(21,22)</sup>

Most pregnant women lived with their partner. A similar result was found in a study, in which 53.3% of participants also reported living with the partner.<sup>(21)</sup> These data may be related to the importance of partners' support, including to improve their QoL and help with daily activities in periods of pain.

All these data were also observed in a study with a higher prevalence of LBP in pregnant women aged between 20 and 29 years of mixed race, housewives with monthly family income between one and two minimum wages and schooling until high school.<sup>(22)</sup>

Studies on gestational low back pain found that women were in the first pregnancy and had a frequency of abortion of 13.3%,<sup>(6,21)</sup> which is in line with results of this study. There was also similarity with a study on LBP conducted in São Paulo with 45 pregnant women, which revealed a higher prevalence of low back pain in primiparous women (90%) compared to multiparous women (60%) ( $P = 0.05$ ).<sup>(20)</sup>

In a study, it was found that most pregnant women with LBP were in the last trimester (48%), followed by the second (43%).<sup>(20)</sup> This fact was also demonstrated in this study, when observing that on average, most participants were at 27.9 weeks of gestation. In contrast, in a study where acupressure was performed in pregnant women with LBP, 60% of them were in the second trimester of pregnancy.<sup>(21)</sup> Gestational age is a risk factor for LBP, because the more advanced the gestation the higher the risk of presenting LBP.<sup>(6)</sup>

Considering that most pregnant women did not perform physical activities, LBP can be one of the obstacles for performing them, because of the limited strength and movement. These data are similar to those of a study on gestational LBP, in which no participant practiced physical activity during pregnancy.<sup>(5)</sup>

In other studies, most pregnant women reported that low back pain began in the second trimester,<sup>(6,22)</sup> which differs from pregnant women in this study that felt it since the first trimester. In another study, 71.43% of pregnant women reported that pain started before the pregnancy. This fact could not be observed in this study, because one of the exclusion criteria was the presence of pathologies in the spine before pregnancy.<sup>(5)</sup>

Before acupuncture for pain relief, pregnant women reported doing massages or simply lying down. The same was found in other studies, because for the alleviation of symptoms in the lumbar region, the most adopted attitude by pregnant women was resting, followed by massages and medications.<sup>(6,20,22)</sup> The VAS pain score reported by pregnant women before treatment was moderate, which corresponds to three to seven points.

In a study, the average intensity of VAS found was around seven points (6.75).<sup>(22)</sup> The acupuncture performed in participants of the present study had positive effects related to pain relief and health well-being, because the discomfort has substantial impact on pregnant women's lives due to its varying intensity and duration.

Many pregnant women presented total absence of pain after only one or more sessions. The effects of acupuncture points tested could be felt not only

in the medium term, since some women felt a significant reduction of pain already in the first session.

Concerning the fact that not all pregnant women did the six sessions, a similar situation occurred in a study in Sweden. The aim of that study was to evaluate the analgesic effect of acupuncture for pelvic and lumbar pain during the last trimester of pregnancy with 72 pregnant women. Even though only 72% of participants completed the study, the statistical power was still considered sufficiently high.<sup>(23)</sup>

Overall, the pain score reduction in the VAS was of five or more points in more than half of cases (55.3%), followed by three to four points (21.3%), which demonstrates significant positive effects of acupuncture on LBP.

An important finding of the present study is that in all cases, there was a decrease of more than 50% in LBP with no exceptions. This reveals the considerable positive effects on symptom relief achieved with acupuncture therapy at the points tested with no need for using drugs.

All pregnant women felt pain relief measured by intensity (VAS) after treatment. Acupuncture is a continuous growth procedure and its indication in some pain pathologies is favorable to individuals given its proven efficiency in acute or chronic LBP demonstrated by scientific evidence.<sup>(24)</sup>

Research indicates that acupuncture was effective for the considerable relief of LBP in pregnant women compared to usual care.<sup>(1,4)</sup> This information corroborates with results found in the present study. Acupuncture does not provide miraculous cures of any pathology, because the restoration of health is a continuous and gradual process.<sup>(25)</sup>

In line with another study, auricular acupuncture and systemic acupuncture used in this study showed a good result in relation to the intensity of LBP. However, data of that other study indicated a greater efficacy of treatment with systemic acupuncture compared to auricular acupuncture.<sup>(19)</sup>

Corroborating with data in table 5, a study showed that the following activities were impaired or aggravated the LBP: domestic, such as washing and ironing and cleaning the house (64%); sitting or standing for a long time (30%); and bad posture

habits (3%).<sup>(20)</sup> A study states that 62.8% of pregnant women reported that at some point, their routine domestic activities had already been impaired by low back pain.<sup>(22)</sup>

Of pregnant women who reported that pain disrupted all activities (7), after treatment, none reported still feeling impaired. Before the sessions, only one woman did not feel impaired in any activity by pain, and at the end of the treatment, this number rose to 23 participants ( $p < 0.001$ ).

Women reported feelings of relaxation during and after the session. The auriculotherapy points were the most disturbing, but only in the first few minutes. At the end, participants were questioned about the recommendation of acupuncture for other pregnant women, and the answer was a unanimous yes (100%). The same was found by other authors,<sup>(21)</sup> who affirmed that some pregnant women interviewed stated they would recommend the technique to other pregnant women given the decrease or disappearance of discomforts in the lumbar region.

The treatment contributes to the recognition of acupuncture in the nursing profession.<sup>(26)</sup> Nurses working with Traditional Chinese Medicine can be directly linked to actions of disease prevention and promotion, and recovery of health, because individuals start to trust in the improvement of their physical, spiritual and mental wellbeing.

The limitations of this study were the placebo effect of the intervention with acupuncture, that is, patients know they are being treated and report the improvement. In addition, acupuncture may have a cumulative effect,<sup>(27)</sup> because even if a number of sessions is not delineated for improvement of an individual's symptoms, most often, the more sessions the more beneficial effects can be expected.

## Conclusion

Acupuncture practice by nursing professionals in normal risk prenatal care had positive effects on participants' health. There was a statistically significant reduction in the LBP of pregnant women from the second session and a gradual decrease as

the number of sessions progressed. The LBP before treatment was moderate and close to severe pain with an overall mean intensity of 6.77 points. The mean score decreased in the evaluation of the second (4.92), fourth (3.24) and sixth (1.00) sessions. Comparing the pain by means of a pairing from one session to the other, P-values were significant ( $P < 0.001$ ). Among pregnant women, 36.2% stated their pain had ceased before finishing all sessions (VAS=0), especially those who attended all sessions (48.3%). The conclusion is that the more sessions they underwent, the better the results in decreasing pain intensity. There was improvement in activities impaired by LBP after treatment, especially in sleeping and remaining seated. No serious adverse events were observed in the treatment. The studied sample showed a reduction of more than 50% of pain. In general, participants expressed satisfaction and wellbeing.

## Collaborations

Martins ES, Costa N, Holanda SM, Castro RCMB, Aquino PS and Pinheiro AKB declare they have contributed to the design of the study, analysis and interpretation of data, relevant critical review of the intellectual content and approval of the final version to be published.

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