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RESEARCH ARTICLE

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ACUPRESSURE AS A POTENTIALLY EFFECTIVE STRATEGY FOR REDUCING THE INTENSITY AND LENGTH OF LABOUR PAIN

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ABSTRACT

Introduction: Labor is a process that occurs in many types and unlike other acute and chronic pain, labor pain is not related to any disease or pathology. Stress and anxiety, prolonged labor, irregular heart rate in the fetus, increased caesarean section and a low Apgar score in the newborn are all complications of pain. Non-pharmacological applications can be performed independently by a midwife and a nurse in consultation with the pregnant woman. Acupressure is a non-invasive technique used to speed up labor, relieve pain, and shorten the time of delivery. **Objective:** The main objective of the literature review is to see how effective acupressure is in reducing the intensity and duration of labor pain in primigravid and multigravid women. **Methods:** From 2000 to 2021, Pub Med, Web of Science, Cochrane, Google Search, and Research Gate were used to conduct a comprehensive search of databases and internet search engines for information on the effects of acupressure on duration and intensity of labor pain. **Result:** A total of 52 literatures were found, 35 of them were inspected, and 20 articles were included in the review, both in abstract and full text. According to the inclusion criteria, a total of 2577 people were included in the study. Randomized Control Trials (RCTs), single or double blinded trials, and experimental research were included in review. **Conclusion:** The acupressure was more effective in the early stages of labour, and the effects of the intervention were more obvious right away. Furthermore, acupressure reduces symptoms of pain during the first stage of labour without causing any harm to the mother or the foetus.

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INTRODUCTION

Childbirth is without a doubt one of the most unpleasant experiences a woman can have. Pain can occur anywhere in the body, including the abdomen, back, pelvic floor, perineum, and other areas (<http://www.iasp-pain.org/Taxonomy#Pain> (Accessed on February 27, 2017; Whitburn, 2019). Factors such as uterine contractions, cervical dilation, and fetal pressure are physiological causes of labor pain. An abnormal position of the fetus, intrauterine infections such as chorioamnionitis, and other pathological conditions, including placental abruption, can also exacerbate labor problems (<http://www.iasp-pain.org/Taxonomy#Pain> (Accessed on February 27, 2017). Cognitive, environmental, and social factors all influence pain perception (Lowe, 2002). Excessive pain increases the mother's anxiety during labor, leading to increased pain, prolonged labor, and dissatisfaction with the birthing process. Prolonged labor leads to more cesarean sections, a lower fetal heart rate, and both maternal and

infant problems (Osório, 2014; Mafetoni, 2014; Lee, 2003). Intrapartum treatment focuses on managing work problems. Today, many drug and non-drug treatments are used to reduce labor pain. The goal of pharmacological methods is to eliminate or reduce the physical sensation of labour pain (Mafetoni, 2014; Lee, 2003). Non-pharmacological methods, on the other hand, are primarily aimed at increasing comfort and allowing the woman giving birth to cope with pain. Non-pharmacological applications can be carried out independently by a midwife and a nurse in cooperation with the pregnant woman (Smith, 2011). Since the assessment of labor pain and the performance of appropriate non-pharmacological therapies place midwives and caregivers responsible for managing the labor process, the use of non-pharmacological pain relief techniques such as touch, massage, aromatherapy and acupressure are essential. Acupressure, a type of massage therapy established in ancient China, is one of those non-drug approaches (Lee, 2003; Smith, 2011; Chung, 2003; Lee, 2004). Acupuncture, moxibustion, acupressure, and the usage of herbs are some of the alternative pain management procedures utilised in traditional Chinese medicine.^{10, 11} Acupressure

is a holistic treatment with a 5,000-year history. Acupressure is similar to acupuncture in that it aims to maintain the balance of energy in the body's meridians, which are connected to certain body organs, but without the use of needles. To have the best effect of reducing pain or placing someone in a relaxed condition, certain spots on the hands and fingers are stimulated (Hjelmstedt, 2010; Kashanian *et al.*, 2018). Some researchers suggest that the reduction in pain experienced after stimulating acupuncture points is related to the prevention of pain stimulant transmission and an increase in blood endorphin levels (Salehian *et al.*, 2011). Acupressure, according to Park *et al.*, increases the severity of uterine contractions. In a similar study (Marzieh Akbarzadeh, 2015), Skilnand *et al.* discovered that acupressure participants had a shorter first stage of labour. Different acupressure spots are used to induce and control labour in general, with BL32 being one of them. Four randomized controlled trials using acupressure for pain reduction during childbirth have recently been published. People, who were randomized to acupressure group during labour, reported decreased pain scores in all four studies. Shorter labours were also discovered in studies that looked at the length of labour (Park, 2003). The Sanyinjiao point (SP6), Hegu point (IG4), Zhiyin point (B67), LI4, and BL32 are some of the most common acupressure points identified in randomized and controlled acupressure investigations. Acupressure was often used during contractions. These stitches are generally not recommended during pregnancy or before giving birth as they can trigger labor. According to a 2017 review, there is no convincing evidence that acupressure can induce labor. Acupressure did not induce labor, did not shorten its duration, or improve its results compared to a sham control. Another study published in 2017 found that acupressure does not induce labor (Salehian, 2011; Marzieh Akbarzadeh *et al.*, 2015; Park, 2003).

Objectives: The main objective of the literature reviews is to evaluate the effectiveness of acupressure on labor pain's intensity and duration among primi or multigravida women.

MATERIALS AND METHODS

This brief review focused on papers that is published between 2000 to 2021 and entails all research studies that are published in English language. The review used the key phrases effect of acupressure in labour pain, progress of labour, labour outcome, intensity of labour pain, duration of first stage of labour and second stage of labour length of delivery in the following databases: Google Scholar, Science Direct, PubMed, Research Gate and Scopus. A total of 52 literatures were retrieved, 35 were screened and 20 were included in the mini-review both in abstract and full-text review. A total of 2577 participants were included in the review according to the inclusion criteria. The literatures included are Published and unpublished randomized controlled trials, single or double blinded trials and experimental studies comparing acupressure with placebo, no treatment or other non-pharmacological forms of pain management in labour among women whether primiparous or multiparous, and in spontaneous labour. Around 20 published articles had been covered on this brief evaluation, from different parts of the country. The inclusion criteria of the study were participants had cervical dilatation at the time of admission or in labour was 3-4 cm, primigravida and multigravida women, singleton pregnancy in 38-42 weeks of gestation, cephalic presentation, and spontaneous uterine contractions, sample size study /literature which has > 40 participants, study published in English language and publication date of literatures between 2000 to 2021, Whereas the exclusion criteria for the study involved only acupuncture and its effect on labour, not from the authentic source, studies articles published earlier than 2000 and research with less than 40 samples.

RESULTS

The included literatures were dispersing in methods and focus. After assessing the quality of the abstract and full texts of potential relevant

literature and studies, 20 studies with a total of 2577 participants were included in the review.

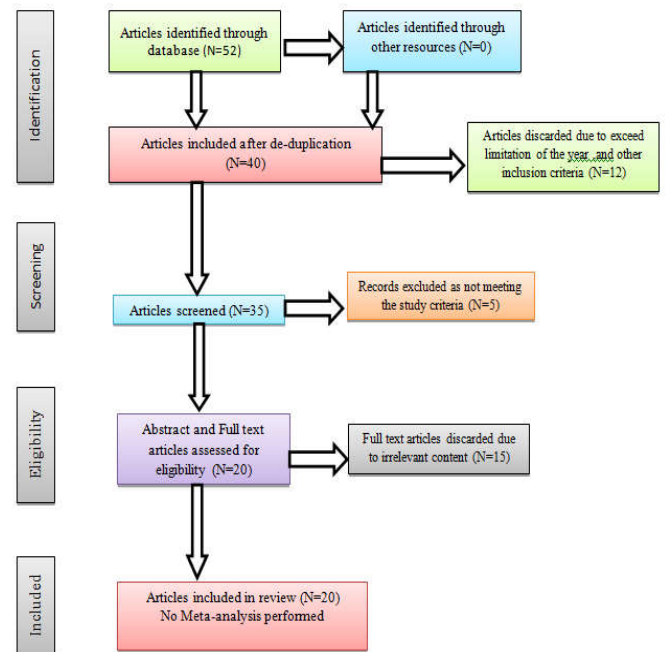


Figure 1. Prisma flow diagram of short review

DISCUSSION

Twenty original publications were used to investigate the research findings. This research, which used quantitative methodology, yielded comparable and varied outcomes across a number of countries. The researcher, on the other hand, adds an analytical conclusion to the findings, linking them to existing literature, developing their significance, and addressing the study's shortcomings. This review of the literature was conducted with the goal of determining the impact of acupressure on labour pain severity and duration. The purpose of all randomized clinical study included in this review was to see how acupressure affected the intensity and length of labour pain. When acupressure was applied for 20 to 30 to the SP6 point on both legs and was evaluated through pain scale three times that is before, immediately after the intervention, and between 30 to 120 minutes afterwards. Acupressure was found more beneficial in the early stages of labour. The intervention's effect was more noticeable right after it had occurred. During the active and transitional phases of labour, acupressure is applied for four minutes per hour (Qun Wan *et al.*, 2018). In a randomized clinical trial study that aimed to examines and compares the effect of LI4 and BL32 acupressure with each other and control group on labor pain. The results indicated that the significant decrease in pain after each period of intervention in acupressure groups and significant differences between acupressure and control groups in pain relief supports the effectiveness of applying pressure to IG4, B67, LI4 and BL32 points in reducing labor pain. Thus, the author of the current review agreed with the result of the study (Qun Wan *et al.*, 2018; Halime Oncu Celik, 2019).

Furthermore, the difference in pain alleviation between the IG4, B67, LI4 and BL32 groups during the first and second periods of intervention revealed that acupressure on the BL32 points is somewhat more effective than acupressure on the IG4, B67, LI4 points in alleviating labour pain. It was also identified through this review of RCT that if acupressure is combined with other non-pharmacological methods like supportive care, touch therapy, music therapy and so on it showed highly effective result in reducing the intensity of labour pain, cut short the duration of first stage labour and enhance maternal satisfaction (Halime Oncu Celik, 2019).

Table 1. Table on findings and conclusion from the included literatures

Authors	Title	Methodology	Findings	Conclusion
Mi Kyeong Lee , Soon Bok Chang, Duck-Hee Kang ¹⁶	Effects of SP6 acupressure on labor pain and length of delivery time in women during labor	Design: Randomized clinical trial. Sample Size: 75 women in labor Intervention: Acupressure or touch on SP6 acupoint	The total labour time in the SP6 acupressure group was considerably shorter than the control group (p = 0.006).	For women in childbirth, SP6 acupressure can be an useful nursing management technique.
Azam Hamidzadeh , Farangis Shahpourian, Roohangiz Jamshidi Orak, Akram Sadat Montazeri, Ahmad Khosravi ¹⁷	Effects of LI4 acupressure on labor pain in the first stage of labor	Design: Single, blind, randomized clinical trial Sample Size: 100 antenatal women Intervention: LI4 Acupressure	Subjective labour pain scores were significantly different between the groups immediately, 20, 60, and 120 minutes after intervention (P.001). The acupressure group had shorter active phase and second stage durations.	LI4 acupressure was found to be useful in reducing labour pain and duration.
Hulya Turkmen , Esin Ceber Turfan ¹⁸	The effect of acupressure on labor pain and the duration of labor when applied to the SP6 point: Randomized clinical trial	Design: Single blind, randomized controlled experimental trial Sample Size: 60 pregnant women Intervention: Acupressure,	The experimental group reported less pain throughout the active stage than the control group (labour pain: 7.17 + 0.89 vs. 7.66 + 0.71, p =.002). The experimental group (4.88 + 0.85 hr vs. 5.56 0.66, p =.001) had a shorter first stage of labour than the control group (4.88 + 0.85 hr vs. 5.56 0.66, p =.001).	Women who received acupressure reported better levels of satisfaction with the treatment than women who just received touch on SP6, which could be due to reduced labour pain and/or shorter labour length.
Zahra Hajiamini, Sirati Nir Masoud, Abbas Ebadi, Afzali Mahboubh, Ali Asgari Matin ¹⁹	Comparing the effects of ice massage and acupressure on labor pain reduction	Design: Quasi-experimental study Sample size: 90 pregnant women Intervention: Acupressure at the Hegu point	A comparison of pain intensity immediately, 30 minutes and 1 hour after the intervention in the three groups showed a significant difference between the groups. 30 minutes after the intervention (p <0.05).	It is a simple, easy-to-use, low-cost, and non-invasive method for reducing the severity of labour pain.
Anna Hjelmstedt, Sheela T Shenoy, Elisabeth Stener-Victorin, Mats Lekander, Mamta Bhat, Leena Balakumaran, Ulla Waldenström ²⁰	Acupressure to reduce labor pain: a randomized controlled trial	Design: Randomized controlled trial Sample size: 212 nulliparous women's during the active phase of labor Intervention: Acupressure at SP6	The acupressure group experienced less in-labor discomfort, which was particularly obvious just after treatment (acupressure group vs. standard care group, p 0.001; acupressure group vs. touch group, p 0.001).	In nulliparous women, acupressure appears to lessen discomfort during the active phase of labour.
Mi-Kyeong Lee ²¹	Effects of San-Yin-Jiao(SP6) acupressure on labor pain, delivery time in women during labor	Design: Randomized controlled clinical trial using a double-blinded method Sample size: 48 women Intervention: SP6 acupressure and SP6 touch	There was a significant difference in subjective labour pain scores between the two groups (p=0.042). The total delivery time in the SP6 acupressure group was shorter than in the SP6 touch group (p=0.036).	These data revealed that SP6 acupressure was beneficial in reducing labour pain and reducing delivery time.
Reginaldo Roque Mafetoni, Antonieta Keiko Kakuda Shimo ²²	The effects of acupressure on labor pains during child birth: randomized clinical trial.	Design: Single-blind controlled clinical trial Sample size: 156 pregnant women Intervention: Acupressure at sanyinjiao point	The mean pain values measured with the VAS were not different for the three groups that participated in the study (p-value = 0.0929), but were lower in the acupressure groups immediately after treatment (p-value = <0.0001).	The application of acupressure to the sanyinjiao point is a non-invasive method of pain relief. It has the potential to improve the care provided to pregnant women in labour.
Soon-Bok Chang, Yong-Won Park, Jae-Sung Cho, Mi-Kyeong Lee, Byung-Chul Lee, Su-Jeong Lee ²³	Differences of cesarean section rates according to San-Yin-Jiao (SP6) acupressure for women in labor	Design: Nonequivalent control group pre test-post test design Sample size: 209 women Intervention: SP6 acupressure	Cesarean section rates for the SP6 acupressure group, SP6 touch group, and control group were 12.8 percent, 29.8 percent, and 22.4 percent, respectively. There was a statistically significant difference between the groups (p=0.049). The SP6 acupressure and non-SP6 acupressure groups had significantly different caesarean section rates (p=0.035).	This finding indicates that 30 minutes of SP6 acupressure was successful in lowering the rate of caesarean section and might be used as a nursing intervention.
Marzieh Akbarzadeh, Zahra Masoudi, Najaf Zare, Maryam Kasraeian ²⁴	Comparison of the Effects of Maternal Supportive Care and Acupressure (at BL32 Acupoint) on Labor Length and Infant's Apgar Score	Design: clinical trial Sample size: 150 women with low-risk pregnancy Intervention: Acupressure	The difference between the duration of the work phases was significant in the three study groups (P <0.001). Furthermore, the frequency of Apgar scores ≥8 in the first and fifth minutes in the supportive care and acupressure groups was higher than in the control group, and the difference was statistically significant (P <0.001)	These methods can be introduced to medical staff as effective non-pharmacological strategies to improve delivery results.

Continue ...

Ue-Lin Chung, Li-Chiao Hung, Su-Chen Kuo, Chun-Liang Huang ²⁵	Effects of LI4 and BL 67 acupressure on labor pain and uterine contractions in the first stage of labor	Design: Experimental study with a pretest and posttest control group design Sample size: 127 parturient women Intervention: LI4 and BL67 acupressure	There was a significant difference in decreased labour pain across the three groups during the active part of the first stage of labour, according to the findings. The efficiency of uterine contractions during the initial stage of labour did not differ significantly between the three groups.	The study's findings supported the effectiveness of LI4 and BL67 acupressure in reducing labour pain during the active phase of labour.
Maryam Kashanian, Shadab Shahali ²⁶	Effects of acupressure at the Sanyinjiao point (SP6) on the process of active phase of labor in nulliparas women	Design: single blind randomized clinical trial Sample size: 120 eligible nulliparas women Intervention: Acupressure at Sanyinjiao point	The case group had a shorter active phase length (252.37 +/- 108.50 min vs. 441.38 +/- 155.88, p = 0.0001). Six patients in the case group (10%) and 25 patients (41.7%) in the control group (p = 0.0001) had their babies via caesarean section. The case group had less pain severity than the control group (5.87 +/- 1.77 vs. 6.79 +/- 1.52, p = 0.003).	The duration and severity of pain during the active phase of labour were reduced with acupressure at Sanyinjiao point (SP6).
Kordi M, Firoozi M, Esmaili H ²⁷	Effect of LI4 Acupressure on Labor Pain in the First Stage of Labor in Nulliparous Women	Design: single blind randomized clinical trial Sample size: 83 primipara women Intervention: LI-4 acupressure	The acupressure group experienced less labour pain in the active portion of the first stage of labour than the other groups (P=0.026), according to the findings.	This therapy can be utilised to relieve labour discomfort in a straightforward, safe, and cost-effective manner.
Salehian T, Dehcheshmaei FS, Pirak A, Kazemian A, Atarodi Z, Righi SDN ²⁸	Comparison of the effect of Hoku Point (LI4) acupressure with that of San-Yin-Jiao (SP6) acupressure on labor pain and the length of delivery time in primiparous women	Design: Randomized controlled trial Sample size: 90 primiparous women Intervention: Hoku Point (LI4) acupressure and San-Yin-Jiao (SP6) acupressure	The results showed that in the 3 groups (p <0/001) there was a significant difference between the severity of pain before and after the intervention with 4 cm dilation and after the intervention with cervical dilation of 4, 6 and 8. There was a significant difference in the duration of the active phase of labor between 3 groups (p <0/001). There was no significant difference in the length of delivery time between the groups (p = 0.7).	Acupressure reduces the severity of labour pain and shortens the active period of labour without having any negative side effects.
Young Ran Kim, Soon Bok Chang, Mi Kyeong Lee, Woong Jaeg Maeng ²⁹	Effects on Labor Pain and Length of Delivery Time for Primipara Women treated by San-Yin-Jian(SP-6) Acupressure and Hob-Gog(LI-4) Acupressure	Design: Nonequivalent control group non-synchronized post test only design Sample size: 192 primiparas woman Intervention: San-Yin-Jiao(SP-6) and Hob-Gog(LI-4) acupressure	Differences in the acupressure effect for SP-6 and LI-4 revealed statistically significant differences in the control group vs. the SP-6 group and the control group vs. the LI-4 group (p0.05). The delivery time in the SP-6 or LI-4 acupressure groups was significantly lower (400.77153.34; 379.10127.60) than in the control group (528.68239.08).	To generalise the findings, the study must be replicated with a larger number of people.
Gönenç, İlknur Munevver, Terzioğlu, Füsün ³⁰	Effects of Massage and Acupressure on Relieving Labor Pain, Reducing Labor Time, and Increasing Delivery Satisfaction	Design: Randomized controlled trial Sample size: 120 Pregnant women Intervention: Massage only, acupressure only, and massage + acupressure	The mean VAS scores of the massage-only group, the acupressure group, and the massage + acupressure group were substantially lower than those of the control group during the active and transition phases (p0.01 and p0.001, respectively). The massage + acupressure group's mean VAS score was lower (2.30 0.70) than the control group's (2.96 0.72; p = 0.003) after delivery.	The findings of this study show that combining massage and acupressure is more beneficial than using either therapy alone.
Fatemeh Dabiri , Arefeh Shahi ³¹	The Effect of LI4 Acupressure on Labor Pain Intensity and Duration of Labor: A Randomized Controlled Trial	Design: Single-blinded, randomized, clinical trial Sample size: 149 Parturient women Intervention: LI4 acupressure	The difference in the pain scores between the acupressure and control group was statistically significant (p<0.001) but there was no statistically significant (p=0.942) difference in the duration of the first stage of labor between the three groups	Acupressure is a simple, non-invasive, and effective therapy for reducing labour discomfort.
Giti Ozgoli, Sedigheh Sedigh Mobarakabadi, Reza Heshmat , Hamid Alavi Majd , Zohreh Sheikhan ³²	Effect of LI4 and BL32 acupressure on labor pain and delivery outcome in the first stage of labor in primiparous women: A randomized controlled trial	Design: Randomized controlled trial Sample size: 105 primiparous women Intervention: acupressure in LI4 or BL32 points	In all trial periods, pain reduction was considerably larger in the LI4 and BL32 groups than in the control group. Acupressure on the BL32 point was also superior to the LI4 point in pain alleviation in the first and second interventions, but not in the third.	Acupressure on these points could be used to relieve labour discomfort in a cost-effective and simple way.
Marzieh Akbarzadeh, Zahra Masoudi, Mohammad Javad Hadianfard, Maryam Kasraeian ,Najaf Zare ³³	Comparison of the Effects of Maternal Supportive Care and Acupressure (BL32 Acupoint) on Pregnant Women's Pain Intensity and Delivery Outcome	Design: Randomized clinical trial Sample size: 150 pregnant women Intervention: Supportive care and Acupressure	The results showed a significant difference between the three groups in terms of pain intensity after the intervention (P <0.001), while the highest rate of cesarean deliveries was associated with the control group (40%) and the difference it was statistically significant (P <0.001).	These techniques can be presented to the medical team as successful pain-reduction options during delivery.
Qun Wan , Fang-Yuan Wen ³⁴	Effects of acupressure and music therapy on reducing labor pain	Design: Randomized clinical trial Sample size: 241 pregnant women Intervention: Acupressure and music therapy	Acupressure had an advantage in reducing uterine pressure compared to music therapy, while music therapy had more advantages than acupressure in reducing postnatal anxiety. Furthermore, the combination therapy was able to greatly reduce the intensity of pain during labor and appeared to be superior to individual therapies in some parameters.	The use of acupressure and music therapy in combination could be a cost-effective, safe, and accessible treatment for easing the pain of labour.
Halime Oncu Celik , Filiz Okumus ³⁵	The effect of acupressure at the Sanyinjiao point on the labor pain relief and duration of labor in Turkish nulliparous women	Design: Single-blinded, prospective, placebo controlled Sample size: 100 Nulliparous women Intervention: Acupressure	Acupressure at the Sp-6 point was found to lower pain intensity and shorten the duration of the active phase of labour in this study. There was no significant difference in the duration of the second stage of labour or the rate of caesarean section between the groups.	According to the findings of this study, if midwives use acupressure during childbirth, the experience is made easier.

Limitations: The major drawback of this review is that only English articles were considered in this review due to a lack of resources. As a result, even though the research technique is based on the major databases, it's possible that not all relevant studies have been found. The findings of the review cannot be applied to all pregnant women, especially those with high-risk pregnancies, because only healthy women were included in the research, gestational age below 37 weeks of pregnancy and cervical dilatation with 1 or 2 cm.

CONCLUSION

Acupressure can provide significant pain relief in the early stages of labor. However, more clinical studies with standardized intervention procedures are required for the creation of evidence-based guidelines. In conclusion, there is a great need for higher quality acupressure research to alleviate pain and progression of labor. Currently, the evidence on acupressure for pain relief in labor is limited and available in small groups, so repeating the study with a larger sample is recommended. But on the same page, the results also suggest that the internships can be helpful. Acupressure has been shown to help shorten the duration of labor. All twenty randomized controlled trials published in recent years have documented at least one or more benefit from acupressure.

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