

## The effects of Integrative and Complementary Practices on labor

### Os efeitos das Práticas Integrativas e Complementares no trabalho de parto

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#### **ABSTRACT**

**OBJECTIVE:** Although the birth process has undergone important transformations, pain is a central element, because it influences the experiences experienced by the mother and the baby during and after labor, with an important role in the care and watch of maternal and child health. Integrative and Complementary Practices is a technical innovation in the health area, recommended worldwide by the World Health Organization since the middle of the last century and, in Brazil, by the Ministry of Health. The aim of this study is to analyze the effects of Integrative and Complementary Practices on labor pain.

**METHODS:** systematic review of the literature. **RESULTS:** 17 articles were considered of great relevance and are related to the following practices: Acupressure, Sacral Massage, Aromatherapy, Auriculotherapy, Swiss Balls, Crenotherapy, Immersion Baths, Acupuncture, Music Therapy, Reflexology and Respiratory Practices. **CONCLUSIONS:** The study corroborated the positive effects of Integrative and Complementary Practices on pain relief during labor.

**Keywords:** Childbirth, Pain, Integrative and Complementary Practices.

## **RESUMO**

**OBJETIVO:** Embora o processo parir/nascer tenha passado por importantes transformações, a dor é um elemento central, pois influencia as experiências vivenciadas pela mãe e pelo bebê durante e após o parto, com importante papel no cuidado e na vigilância da saúde materno-infantil. Práticas Integrativas e Complementares é uma inovação técnica na área da saúde, recomendada mundialmente pela Organização Mundial da Saúde, desde meados do século passado e, no Brasil, pelo Ministério da Saúde. O objetivo deste estudo é analisar os efeitos das Práticas Integrativas e Complementares na dor do trabalho de parto. **MÉTODOS:** revisão da literatura. **RESULTADOS:** 17 artigos foram considerados de grande relevância e estão relacionados às seguintes práticas: Acupuntura, Massagem Sacral, Aromaterapia, Auriculoterapia, Bolas Suíças, Crenoterapia, Banhos de Imersão, Acupuntura, Musicoterapia, Reflexologia e Práticas Respiratórias. **CONCLUSÕES:** O estudo corroborou os efeitos positivos de Práticas Integrativas e Complementares no alívio da dor durante o trabalho de parto.

**Palavras-chave:** Parto, Dor, Práticas Integrativas e Complementares

## **1 INTRODUCTION**

Childbirth is a set of mechanical and physiological phenomena that lead to the expulsion of the fetus and its attachments from the mother's body. Repetitive contractions associated with progressive dilation of the cervix which result in the expulsion of the fetus and placenta, constitute a painful process called "labor". The first stage begins with cervical dilation and ends in complete dilation of the cervix.<sup>(1)</sup> The second phase goes from there until the complete expulsion of the fetus when the final period of labor or third phase begins, which extends to the expulsion of the placenta.<sup>(2,3)</sup>

Although physiologic and natural, childbirth is a complex phenomenon. Each labor is a unique process, with its own rhythm, with a future influence on the relationship between the people involved.<sup>(4)</sup> Pain is a physiological defense mechanism, which can be fired by a real or potential aggression.<sup>(5)</sup> The lived experiences at the time of delivery, positive or negative, influence in order to intensify or mitigate the painful perception. Fear, loneliness, disappointment, shame, sadness or anguish; as well as welcoming,

listening or understanding are pointed out in the literature, influencing not only the relationship of the mother with her baby during childbirth but later during breastfeeding, in the affective life of the woman, the child and/or the couple. Thus, pain is an individual expression which results from emotional interpretation and requires an attentive look at the sociocultural aspects involved.<sup>(4,5)</sup>

Over millions of years human childbirth has left the intimate scope and passed on to the collective. The passage of individual experience through the stage of family experience, at the beginning was shared only among women until it became an institutionalized practice by professionals and hospitals and being regulated by public policies of many natures caused a clear transformation in personal experience for the mother and baby within the process and as it began to involve other individuals resulted in a relocation of the leading role among the various identities involved including the techniques used in the birth/birth phenomenon. Although the technical advances in scientism of recent centuries have been strongly legitimized by society they have not been sufficient to exclude maternal and child health from a problem zone.<sup>(6,7)</sup>

The literature states that the best possible physical, emotional and psychological outcomes for women and their babies require care techniques in which health systems can provide the autonomy of all women or, in other words, the health system must provide the necessary resources for access to the best care during labor centered not only on the child but on the satisfaction of the mother choices.<sup>(4)</sup>

The Brazilian Unified Health System (SUS) is based on the right to humanization of obstetric and neonatal care as a central condition for the adequate follow-up of childbirth and the puerperium. Humanization consists, among others, two fundamental aspects. The first concerns the duty of Primary Health Care (PHC) services to receive with dignity the woman, the baby and the family. The institution and health professionals based on ethics and solidarity are required to organize the environment in a welcoming way both in the Basic Health Units (BHU) and in the hospital; that in the other hand must adopt conducts in order to solve the isolation proposed to women in the traditional care model. Beneficial practices should be implemented for the monitoring of childbirth and birth giving rise to traditional interventionist practices which although widely legitimized in the previous health model do not bring benefits to women and babies.<sup>(8)</sup>

Complementary and Integrative Traditional Medicines (CITM) have resurged worldwide as a way to represent this new look at the health of the populations.<sup>(9)</sup> The term has been worked by the WHO concomitant with the concept of PHC. Since Alma-Ata,

through Astana the practices are included in the Global Action Program (GAP) for 2030.<sup>(9-11)</sup> In Brazil is called ICP and its concept brings in the bulge the pillars of support of the SUS.<sup>(12)</sup> The new culture of care rescues the individual experiences of care, attention, well-being and quality of life individual and of the communities letting the protagonist leave the institutions and professions for the individual who demands care, in this case, for the parturient and her baby.

The National Policy of Integrative and Complementary Practices in Health (PNPIC) was published in the Official Gazette (DOU) in 2006, with two important expansions in 2017 and 2018.<sup>(13)</sup> Currently 29 practices are contemplated by the policy to be inserted in the SUS: Acupuncture, Homeopathy, Phytotherapy, Anthroposophy and Termalism or Crenotherapy, included in 2006; Art therapy, Ayurveda, Biodance, Circular Dance, Meditation, Music Therapy, Naturopathy, Osteopathy, Chiropractic, Reflexotherapy, Reiki, Shantala, Integrative Community Therapy and Yoga; included in 2017 and Apitherapy, Aromatherapy, Bioenergetics, Family Constellation, Chromotherapy, Geotherapy, Hypnotherapy, Hand Enforcement, Ozone Therapy and Floral Therapy, included in 2018.<sup>(12,13)</sup> The NPICP is considered a major jump for the pluralism in the health area promoting epistemological enlargement and greater balance of power in the health area and is part of a health model based on inclusion. It is considered a technical innovation in health which admits the gaps left by scientism and to make up for them seeks techniques or other successful experiences of the past in which many of them the scientific method has nothing to say. However, although they have been widely validated by humans experience as many of them have been passed from one generation to another for thousands of years they are a great challenge for the academy which has the need to train health professionals in a culture very different from the scientific from the one that has been predominant in the academic environment of health until then.<sup>(14)</sup> The aim of this work was to analyze contemporary academic literature with a look at the effects of ICP in the pain during labor.

## 2 METHODOLOGY

The study is a systematic review of the literature, a set of evidence from studies that seek to answer the following guide question: How ICP influences pain during the labor of pregnant women? The components of the research question followed the acronym PICO as described in Table 1.<sup>(15)</sup>

Table 1 - Components of the research question, according to the acronym PICO

Description	Abbreviation	Question components
Population	P	Pregnant woman in labor
Intervention	I	Integrative and Complementary Practices (ICP)
Comparison	C	No comparison
Outcome	O	Pain improvement

For the selection of articles we used the thematic electronic base specialized in the area of ICP, the Virtual Library in Health in Traditional Medicine (VLH TM) which covers Medline (Medical Literature Analysis and Retrieval System Online), LILACS (Latin American and Caribbean Literature in Health Sciences). In addition, the Scielo, Pubmed and Capes databases were used.

At first, to ensure reproducibility and avoid biases in research a search was conducted separately among the researchers, based on the search strategy which included pre-established terms (Medical Subject Heading terms) related to each other by: (labor obstetric) OR (obstetric labor) AND (therapies, complementary) OR (therapy, complementary) OR (complementary medicine ) OR medicine (complementary) OR (alternative medicine) OR (medicine alternative) OR (alternative therapies) AND(pain).

The articles were identified and then randomized controlled trials in English and Portuguese were included as well as articles published in the last 5 years (2016, 2017, 2018, 2019 and 2020).

Exclusion criteria were articles that did not cover the time of labor but other periods of pregnancy, such as antepartum and puerperium periods. We also excluded studies that performed pharmacological measures of anesthesia, other systematic reviews, other types of study such as qualitative and pre-experimental study, unrelated themes and duplicate articles.

The evaluation for selection of articles followed an order of identification, selection, eligibility and inclusion. It was structured from the identification of the articles; elimination of duplicate work; filtering from reading titles, summaries and keywords; and filtering from the full reading of the articles.

With this research, 1,173 articles were found, 267 in Pubmed, 482 in Scielo, 188 in the VLH and 236 in the Capes Platform. At the end of the first stage, 295 articles were in Portuguese and/or English and have been published in the last 5 years. 56 articles related to the theme through the reading of abstracts besides being randomized or controlled clinical trials (Flowchart).

### 3 RESULTS

After reading entirely the papers a total of 17 articles were considered of great relevance according to the inclusion criteria and used in the systematic review presented in summary in Table 2.

Table 2: Summary table of the articles selected for systematic review, containing reference, sample, treatment, control treatment, pain scales used and the main result.

Quote	Sample	Treatment	Control Treatment	Pain scales used	Main Result
(MAFETONI; SHIMO, 2016). <sup>(16)</sup>	156 pregnant women (n=52 intervention, n=52 placebo and n=52 control)	Bp6 acupressure for 20 minutes	Placebo: acupressão Control group: obstetric routine	VAS reapplied immediately after treatment and 60 minutes after treatment.	Significant smaller VAS in the intervention group immediately after acupressure (p<0.0001) and after 1 h of treatment (p=0.0001) when compared placebo and control group.
(TÜRKMEN; ÇEBER TURFAN, 2020). <sup>(17)</sup>	60 pregnant women (n=30 placebo and n=30 intervention)	Effective acupressure at SP6 point during contraction	Lightly touched the SP6 point during contraction	NRS immediately after each acupressure	There was no significant difference in pain perception between groups (p>0.05) There was a significant difference between the groups during the active phase of TP (p=0.002)
(OZGOLI et al., 2016). <sup>(18)</sup>	105 pregnant women (n=35 LI4, n = 35 BL32 and n= 35 control group).	One group received acupressure at THE LI4 point and the other at bl32	Obstetric routine	NRS in three cervical dilations before and after the intervention	There was a significant reduction in pain in the LI4 and BL32 groups when compared to the control group (p<0.001)

					in all study periods
(YILDIRIM; ALAN; GOKYILDIZ, 2018). <sup>(19)</sup>	72 pregnant women (n=36 experimental group and n=36 control group)	Pressure with ice at LI4 point for 80 minutes	Obstetric routine	VAS before the procedure, with 40 and 80 minutes of application	Significant pain reduction in the experimental group compared to the control group (p=0.001)
(TANVISUT; TRAIRISILP; TONGSONG, 2018). <sup>(20)</sup>	104 pregnant women (n=52 experimental group and n=52 control group)	Application of aromatic oil (lavender, geranium rose, citrus and jasmine)	Rotina obstétrica	NRS in the latent phase, initial and late active phase of labor	Significant reduction of pain in the aromatherapy group compared to the control group in the initial phase and latente do TP (p<0,001). Pain in the final active phase did not have statistically significant values.
(ESMAELZADE H-SAEIEH et al., 2018). <sup>(21)</sup>	126 pregnant women (n=63 experimental group and n=63 control group)	Application of <i>Boswellia carterii</i> essential oil every 30 minutes until full dilation	Placebo	Numerical classification scale before the intervention and with dilations 3-4, 5-7 and 8-10 cm.	Intensity of pain in the delivery of aromatherapy was significantly lower than in the control group in dilations 3-4, 5-7 and 8-10 cm (p<0.05)
(HAMDAMIAN et al., 2018). <sup>(22)</sup>	110 pregnant women (n=55 control group and n=55 experimental group)	Damascena Rose Essence every 30 min starting with 4 cm dilation	Normal saline solution	NRS 10 minutes after inhalation in 3 dilations (4-5, 6-7 and 8-10 cm) between uterine contractions	Pain severity in the intervention group was significantly lower than in the control group in dilations (4-5, 6-7 and 8-10 cm) (p<0.05).
(MAFETONI et al., 2015). <sup>(23)</sup>	30 pregnant women (n=10 auriculotherapy, n=10 control group and n=10 placebo)	Auriculotherapy with crystal microspheres	Placebo (auriculotherapy with glass microspheres) and control group.	VAS on admission, 30, 60 and 120 minutes after the	There was no significant difference in pain between the groups before treatment

				intervention	( $p < 0.318$ ) with 30 minutes ( $p = 0.199$ ), with 60 minutes ( $p = 0.219$ ) and 120 minutes ( $p = 0.271$ ).
(MAFETONI et al., 2019). <sup>(24)</sup>	102 pregnant women (n=34 auriculotherapy, n=34 control group and n=34 placebo)	Auriculotherapy microspheres of crystals	Placebo (auriculoteapia at Sham points) and control group	VAS applied on admission, reapplied with 30, 60 and 120 minutes after intervention	Significant increase in pain scores in 60 ( $p = 0.0060$ ) and 120 minutes ( $p = 0.039$ ) in the control and placebo groups.
(VALIANI et al., 2018). <sup>(25)</sup>	84 pregnant women (n=42 control group and n=42 intervention)	Auriculotherapy with seeds and tips	Obstetric Routine	VAS applied during contractions in dilations 3-5, 6-8 and 9-10 cm and after 30 minutes of each intervention	Pain in the auriculotherapy group was significantly lower than in the control group in interventions of 3-5 cm ( $p = 0.001$ ), 6-8 cm ( $p = 0.001$ ), 9-10 cm ( $p = 0.001$ ) and in the second stage of delivery ( $p = 0,001$ ).
(AKKÖZ ÇEVİK; KARADUMAN, 2020). <sup>(26)</sup>	60 pregnant women (n=30 experimental group and n=30 control group)	Sacral massage for 30 minutes	Obstetric Routine	VAS after massages at all stages	The pain score in the active phase was considered low compared to the control group ( $p < 0,001$ ). In the transition phase, the pain levels of the experimental group were considered significantly low compared to the control group ( $p < 0,05$ ).
(TAAVONI et al., 2016). <sup>(27)</sup>	90 pregnant women (n=30 thermotherapy, n=30 Swiss)	Use of birth ball and heat use	Obstetric Routine	VAS before the intervention and all 30	Pain score in the thermotherapy group 30

	ball and n=30 control group)			minutes until cervical dilation of 8 cm.	min after intervention was not significant (p=0.056), but the mean thermotherapy intensity score was significantly lower than the score in the control group in the periods of 60 and 90 min after the intervention. There was a significant decrease in pain scores in women in ball use after 30 min (p=0.001), 60 min (p=0.001) and 90 min (p=0.001) when compared with the control group.
(CAVALCANTI et al., 2019). <sup>(28)</sup>	128 women (n=44 hot shower bath, n=45 Swiss ball and n=39 hot bath+Swiss ball)	Swiss shower bath and swiss ball isolated and group with hot bath and swiss ball combined	Absent	VAS before and 30 minutes after the intervention	Pain perception increased in all groups after therapies, showing statistically significant difference in the group that received the shower bath (p=0,001).
(ASADI et al., 2015). <sup>(29)</sup>	63 pregnant women (n=32 study group and n=31 control group)	Acupuncture at POINTS SP-6 and LI-4	False acupuncture at SP-6 and LI-4	VAS before the initiation of the procedure during the active phase of delivery and immediately after the end of	The decrease in pain in the study group was slightly higher than in the control group but did not reach statistically significant variation (p=0,850).

				acupunctur e	
(GOKYILDIZ SURUCU et al., 2018). <sup>(30)</sup>	50 pregnant women (n=25 experimental group and n=25 control group)	Listen to music in Acemasiran mode with headphones for 3 hours from 4 cm dilation	Obstetric routine	EAV with 30 minutes after you start listening to the songs and 1 hour apart during TP	Pain level was similar in both groups at the beginning and in the first 30 minutes of PT, however, there was a significant difference in reducing pain after 1 hour of labor (p<0,005) not experimental group.
(MOGHIMI-HANJANI; MEHDIZADEH-TOURZANI; SHOGHI, 2015). <sup>(31)</sup>	80 primiparous pregnant women (n=40 experimental group e n=40 control group)	Foot reflexology for 40 minutes	Obstetric routine	PRI 30, 60 and 120 minutes and immediately after the intervention	There was no statistically significant difference in the measurement of pain intensity before and immediately after the intervention in both groups (p>0.05), but there was significant statistical difference in the reduction of pain in the intervention group at 30, 60 and 120 minutes.
(YUKSEL et al., 2017). <sup>(32)</sup>	250 participants (n=125 intervention group and n=125 control group)	Receive instructed breathing exercise	Obstetric Routine	VAS during the second stage of childbirth	Breathing exercises were effective in reducing pain by comparing control group and intervention (p<0,001).

Among the 17 final articles 5 of them use the term "Acupressure" to designate the ICP studied, 3 have "Aromatherapy" associated with "Floral Therapy", 3 use "Auriculotherapy techniques", 2 studies use the association between "Swiss Balls",

"Crenotherapy" and "Immersion Bath", 1 uses the term "Acupuncture", 1 "Music Therapy", 1 "Reflexology" and 1 "Respiratory Methods".

#### 4 DISCUSSION

The articles in the most part showed positive results supporting the statement that ICP are tools that help in pain relief during labor. However, although Brazil has had a NPICP since 2006 with two important expansions in 2017 and 2018, institutionalizing 29 different practices, among them, only 13 were objects of studies in the articles resulting from the search and out of the 17 articles that resulted for the final review only four are Brazilian and the same author is present in 3 of them.<sup>(12,13)</sup>

The practices used to relieve pain during childbirth in the 17 studies on this review are already institutionalized by the NPICP and are described in Table 3.<sup>(33)</sup>

Table 3: Description of Integrative and Complementary Practices (ICP) found in the articles, according to the Thematic Glossary of ICP, published by the Brazilian Ministry of Health, in 2018. <sup>(33)</sup>	
<b>Practices for pain relief in labor</b>	
<b>Practice</b>	<b>Definition</b>
Acupressure	Therapeutic technique that generates physical pressure on acupuncture points to promote the psychic-organic regulation of the individual. It can be used as a therapeutic alternative in patients with needle phobia, such as children. In portuguese: acupressão.
Acupuncture	Health intervention technology that is part of the therapeutic resources of traditional Chinese medicine (TM) and stimulates points scattered throughout the body, along the meridians, through the insertion of fine metallic filiform needles, aiming at the promotion, maintenance and recovery as well as the prevention of injuries and diseases. Acupuncture may be of isolated or integrated use, with other therapeutic resources of TM or with other forms of care. The World Health Organization (WHO) establishes, member states, training and practice guidelines through the Benchmarks for Training and Practice in Acupuncture. In portuguese: acupuntura.
Aromatherapy	Therapeutic practice that uses the properties of essential oils to regain the balance and harmony of the body aiming at promoting physical and mental health. In portuguese: aromaterapia.
Auricular acupuncture	Synonymous with ear acupuncture. Therapeutic technique that promotes the psychic-organic regulation of the individual through stimuli in the energy points located in the ear – where the whole organism is represented as a microsystem. Ear acupuncture stimulates neuroreactive zones by means of needles, steel spheres, gold, silver, plastic, or mustard seeds, previously prepared for this purpose. It originates in the Chinese and French schools, and the Brazilian one is constituted from the merger of these two. In portuguese: auriculoterapia
Crenotherapy	Therapeutic practice using mineral waters with medicinal properties, preventively or curatively. In portuguese: crenoterapia.
Music therapy	Expressive practice that basically uses music and/or its elements in its broadest sense - sound, rhythm, melody and harmony - in groups or individually. Music therapy facilitates and promotes communication, relationship, learning, mobilization, expression and other relevant therapeutic objectives, in order to promote the achievement of the physical, emotional, mental, social and cognitive needs of the individual. Develops potentials and restores functions so that the individual can achieve better inter-or intra-personal integration, improving the quality of life. In portuguese: musicoterapia.
Reflexotherapy	Therapeutic practical that uses the microsystems and reflex points of the body, existing in the feet, hands and ears, to assist in the elimination of toxins, pain sedation and relaxation. In portuguese: reflexoterapia.
Thermalism	Therapeutic practice consisting in the use of water with physical, thermal, radioactive and other properties – and eventually submitted to hydromechanical actions – as an agent in health

	treatments. The efficiency of thermalism in health treatment is associated with the chemical composition of water (which can be classified as sulfur, radioactive, bicarbonate, ferruginous, etc.), the form of application (bath, sauna, etc.) and temperature. In portuguese: termalismo.
Floral Therapy	Therapeutic practice that uses flower-derived essences to act in mental and emotional states. Bach's floral therapy, created by Englishman Dr. Edward Bach (1886-1936), is the precursor system of this practice. Examples of other floral systems: Australians, Californians, Minas Gerais, Saint Germain, cerrado, Joel Aleixo, Mystica, Alaska, Hawaii. See Acupuncture; Aromatherapy; Aromatology; Essential oils factors; Integrative and Complementary Practices in Health. In portuguese: terapia floral.

In the thematic glossary of ICP the terms Swiss Balls, Immersion Bath and Breathing Methods were not found. However, these terms appear in the academic literature as possible facilitators during labor. The "SwissBall" initially created to be a children's toy in Italy came to be called "Birth Ball" after been used in Swiss rehabilitation clinics for children with neurological problems began to be considerate a promoter of stretching, relaxation and strengthening of the musculature of the pelvic floor providing freedom to change position to the parturient which contributes to the active participation of the woman in the process of birth. The movement of the pelvis promotes the relaxation of the musculature which associated to the enlargement of the pelvis helps in the descent of fetal presentation in the delivery canal. Academic studies on the use of the Swiss Ball in labor, although scarce, present experiences in the scope of public policies for childbirth care in Brazil. Health professionals and researchers have a growing interest in this practice although there is still no consensus regarding its use.<sup>(33-35)</sup>

Breathing Methods and Immersion Baths are very ancient practices in the history of humanity. The first are practices that consist of performing organized breaths instructed with the objective of reducing stress, anxiety and pain and, therefore, also considered in processes such as labor where deep, broad and rhythmic breaths are performed during contractions. Immersion baths, in its turn, can influence the pattern of uterine contractions and the duration of labor. Anthroposophy is a ICP institutionalized by NPICP which houses a specific type of bath, the "Anthroposophical Therapeutic Bath". This anthroposophical-based practice uses bathing as a complementary resource in health promotion. In this case, the therapeutic bath can occur with or without the use of heat or substances such as essential oils, plant emulsion and teas. It obeys a rhythmic sequence respecting a period of rest after bathing. It can be brush, friction, seat, among others. In portuguese: banho terapêutico antroposófico.<sup>(36-37)</sup>

Analyzing the articles, by practice, we found the following results:

## ACUPRESSÃO

With a sample of 156 pregnant women the randomized study of Mafetoni and Shimo (2016) used the Acupressure in the BP6 point during contractions for a period of 20 minutes, and the intensity of pain was evaluated by the Visual Analog Scale (VAS) in the acupressure, placebo or control groups. VAS was applied at admission, reapplied immediately after treatment and 60 minutes after treatment. The mean pain due to VAS were not different in the three groups at admission ( $p$ -value=0.0929) but were lower in the acupressure group immediately after ( $p$ =<0.0001) and with 1 h of treatment ( $p$ =0.0001) when compared with placebo and control group.<sup>(16)</sup>

In the study by Türkman and Çeber Turfan (2020) 60 pregnant women in the active stages (cervical dilation: 4-7 cm) and in the transition stage (8-10 cm) of labor received effective acupressure in the experimental group and touched lightly in the control group at the SP6 point during the contractions. The severity of labor pain was measured using a numerical classification scale (NRS) immediately after each acupressure/touch SP6 in the active and transition stages. There was no significant difference in pain perception among women in the experimental and control group ( $p$  > .05). There was a statistically significant difference found between the experimental group and the control group in the perception of pain in the active phase of labor ( $p$  = .002). There was no statistically significant statistic on the mean pain level of the groups in the transition phase of labor.<sup>(17)</sup>

In the randomized study of Ozgoli et al. (2016) with 105 women divided into: an experimental group that received acupressure at the LI4 point, another that received acupressure at BL32 and the control group. Three cervical dilations (4-5, 6-7 and 8-10cm) were performed in 6 contractions. Pain measurement tests demonstrated pain relief from three interventions in three study groups ( $P$  = 0.001,  $P$  = 0.009). The three groups were statistically different in relation to pain relief. The Mann-Whitney test showed a significant difference in pain relief between LI4 and the control group ( $P$  = 0.001,  $P$  = 0.001), BL32 and control group ( $P$  = 0.001,  $P$  = 0.001), and LI4 and BL32 groups ( $P$  = 0.01,  $P$  = 0.03) in the first and second intervention periods, respectively. In the third intervention period, the acupressure groups (LI4 and BL32) were not significantly different according to pain relief ( $P$  = 0.18) but experienced an improvement in pain level compared to the control group ( $P$  = 0.001).<sup>(18)</sup>

In the randomized clinical trial of Yildirim, Alan and Gokyildiz (2018) 72 pregnant women were included, 36 in the experimental group and 36 in the control group

to evaluate pain and delivery process with ice pressure applied in the large intestine. VAS was used to assess the pain level. Pain was evaluated before the procedure within 40 and 80 minutes of application. Ice pack was applied to both hands in the LI4 region during all contractions from beginning to end totaling 80 min. The result showed a tendency to a fall in pain level in the experimental group compared to the control group ( $p=0.001$ ).<sup>(19)</sup>

#### AROMATHERAPY AND FLORAL THERAPIES

The study by Tanvisut, Traisrisilp and Tongsong (2018) involving 104 pregnant women were randomized for application of aromatic oil (lavender, geranium rose, citrus and jasmine) at the same concentration, according to the patient's preference. Numerical pain scale was used in different stages of delivery, being 0 (without pain) and 10 (greater pain) in the latent phase, initial and late active phase of labor. Pain scores during the latent phase ( $p < 0.001$ ) and initial active phase ( $p = 0.010$ ) were significantly lower in the aromatherapy group when compared to the control group ( $p = 0.031$ ). Pain in the final active phase did not have statistically significant values.<sup>(20)</sup>

According to Esmaelzade – Saeieh et al. (2018) and their work in which 126 pregnant women were accompanied by a trained midwife who used essential oil from *Boswellia Carterii* (BC) or placebo randomly. The intervention was repeated in each woman every 30 minutes until total dilation (10 cm). Pain was questioned before the intervention and with dilations 3–4, 5–7 and 8–10 cm. During the comparison of the groups, it was observed that the intensity of labor pain in the aromatherapy group was significantly lower than in the control group in dilations 3–4, 5–7, and 8–10 cm ( $p < 0.05$ ).<sup>(21)</sup>

In the randomized study of Hamdamian et al. (2018) 110 parturients received damascene rose essence in the group of aromatherapy and normal saline in the control group every 30 minutes starting with 4 cm of cervical dilation and continued until birth. Pain severity was measured 10 minutes after inhalation of the essences at 3 moments of dilation 4–5, 6–7 and 8–10 cm between uterine contractions. The severity of pain in the Aromatherapy group with damascene rose was significantly lower than the control group after the evaluation of the score during the cervical dilation process (4–5, 6–7, and 8–10 cm;  $p < 0.05$ ).<sup>(22)</sup>

## AURICULOTHERAPY

The randomized controlled clinical trial study of Mafetoni et al. (2015) used a sample of 30 pregnant women, who were allocated in 3 groups: auriculotherapy with crystal microspheres (ACM), auriculotherapy with glass microspheres (AGM) (placebo), and control group. Pain scale was applied at the admission of the study and reapplied with 30, 60 and 120 minutes by the team of evaluators. As the point was located in the "point map" the crystals were inserted in the parturients of group ACM and pressed individually for one minute or until it caused a bearable pain to induce the stimulus. In the placebo group, the glass microsphere was also allocated according to the "point map" but the material did not exert pressure stimulus at the site at any point in the study. Pain was measured in the 3 groups by a VAS applied at the admission of the study and reapplied with 30, 60 and 120 minutes by the team of evaluators. Differences in VAS scores and pain assessment between the group before treatment ( $p=0.318$ ), with 30 minutes/treatment ( $p=0.199$ ), with 60 minutes/treatment ( $p=0.219$ ) and with 120 minutes/treatment ( $p=0.271$ ) showed no statistically significant results. Although there were no differences between the groups in relation to pain scores the perception of increased pain during contractions was higher in the placebo and control groups, which may show some beneficial effect of treatment with auriculotherapy.<sup>(23)</sup>

In the randomized triple-blind study of Mafetoni et al. (2019) with 102 parturients 3 groups were established: intervention (auriculotherapy), placebo (sham points) and control. Auriculotherapy applied with crystal microspheres at four strategic points and pain intensity was evaluated by VAS. The crystals in the parturients of the Group of Auriculotherapy were pressed individually for one minute or until it caused a bearable pain to induce the stimulus. The pre-elaborated questions and VAS were applied in the admission of the women in the study and after, reapplied with 30, 60 and 120 minutes, by the team of evaluators. The mean pain intensity was similar at admission ( $p=0.4475$ ), but at 60 minutes ( $p=0.0060$ ) and 120 minutes ( $p=0.039$ ) there was a significant increase in pain scores among the parturients of the placebo and control groups with that this study concluded that the parturients who received auriculotherapy during labor showed a reduction in pain intensity.<sup>(24)</sup>

In a study by Valiani et al. (2018) 84 nulliparous pregnant women were randomly divided into 2 groups, control and intervention (auriculotherapy). Several points in the interventional group were stimulated with seeds and tips in the active phase of delivery for 1 minute and with 9-10 cm of dilation for 5 minutes. VAS was applied during

contractions in dilations 3-5 cm, 6-8 cm and 9-10 cm in both groups, and in addition, after 30 minutes of each intervention in the group of Auriculotherapy. The mean severity of pain before the intervention of study group 2(1.51) and control group 3.05 (1.36) had no statistically significant difference ( $p=0.371$ ). The pain of the group receiving auriculotherapy was significantly lower than that of the control group after the first intervention of Auriculotherapy with 3-5 cm ( $p=0.001$ ) of dilation, in the intervention with 6-8 cm ( $P= 0.001$ ), with 9-10 cm ( $P=0.001$ ) and in the second stage of delivery ( $p=0.001$ ).<sup>(25)</sup>

### SACRAL MASSAGE

The study of Akköz Çevik; Karaduman, (2020) obtained a sample of 60 pregnant women who were randomized into an experimental group and control group to determine the effect of sacral massage on labor pain. The pain level was assessed by VAS. In the women of the experimental group massages were performed in the sacral region for 30 minutes (15 minutes by hand slip page and 15 minutes by vibration), in the latent phase (3-4cm), active (5-7cm) and transition (8-10cm) of labor. VAS was applied after massages in all phases in both groups. The score in the active phase was considered statistically low compared to the control group ( $P< .001$ ). In the transition phase pain levels in the experimental group were considered significantly low compared to the control group ( $P< .05$ ).<sup>(26)</sup>

### SWISS BALL WITH MESSAGES (SACRAL AND PERINEAL) AND HOT BAG

In his randomized study of 90 women, Taavoni et al. (2016) studied pain relief in labor in two intervention groups (use of Birth Ball and heat) and control group. The pain score was recorded using the VAS before the intervention and all 30 min until cervical dilation reached 8 cm in the 3 groups. There was no statistically significant difference between pain scores in women before the intervention in the three groups. There was also no statistically significant difference between women in pain scores in thermotherapy and control group after 30 minutes of intervention ( $p 1/4 0.056$ ), but the mean pain intensity score in the thermotherapy group was significantly lower than the score in the control group in other periods (60 and 90 minutes after the intervention). There was a significant difference in pain scores among women in ball use after 30 minutes ( $P 1/4 0.001$ ), 60 minutes ( $P 1/4 0.001$ ) and 90 minutes ( $P 1/4 0.001$ ) after intervention when compared to the pain scores of women in the control group. The mean

pain severity score in the Birth Ball group was significantly lower than in the control group.<sup>(27)</sup>

#### THERMALISM AND BIRTH BALL

The randomized clinical trial of Cavalcanti et al. (2019) had 128 parturients allocated in three groups of therapies: hot shower bath (n=44), swiss ball (n=45) isolated and hot shower group and swiss ball combined (n= 39). Pain and anxiety perception was assessed before and thirty minutes after therapeutic intervention using VAS. Pain perception was similar in the three groups before the intervention and increasing in all groups after therapies, showing a statistically significant difference in the group that received the shower bath (p=,001). The therapies used did not interfere in the reduction of pain during labor.<sup>(28)</sup>

#### ACUPUNCTURE

In the study by Asadi et al., (2015) with a sample of 63 pregnant women acupuncture was performed at points SP-6 and LI-4 in the studied group and false acupuncture at the same points in the control group. VAS was used. The groups received acupuncture for 20 minutes at the beginning of the active phase of labor ( $\geq 4$ cm of dilation and 3 or more contractions lasting 40 seconds in 10 minutes). The pain scale was measured by VAS before the beginning of the procedure, during the active phase of delivery and immediately after the end of acupuncture. There was no statistical variation in the initial pain scores between the two groups (p=0.470). The decrease in pain in the studied group was slightly higher than that of the control group (2.5 vs. 2.38) but did not reach statistically significant variation (p=0.850).<sup>(29)</sup>

#### MUSIC THERAPY

In the study by Gokyildiz Surucu et al., (2018) 50 Turkish primiparous pregnant women were randomized in experimental group and control to analyze the effect of music on pain. VAS scale was used to analyze pain during childbirth. The women in the experimental group were placed to listen to music in Acemasiran mode with headphones for 3 hours (20 minutes listening and 10 minutes resting) from 4 cm of dilation in which they were starting the active phase of labor. 30 minutes after listening to the songs and with 1 hour break during labor, pain perception was measured by VAS. Women in the control group were also evaluated in the same periods. After analyzing the results it was observed that the pain level was similar in both groups at the beginning and during the

first 30 minutes of labor. However, there was a significant difference in pain reduction after 1 h of labor ( $p < 0.005$ ) in the experimental group.<sup>(30)</sup>

#### PODAL REFLEXOLOGY

Moghimi-Hanjani et al. (2015) analyzed in his randomized clinical trial the effect of reflexology to reduce pain intensity during labor. The study included 80 pregnant women who were randomly divided into the experimental group that received 40 minutes of foot reflexology and the control group. Pain intensity was scored by the Questionnaire for Pain Rating Index (PRI) immediately after the end of the intervention, and 30, 60 and 120 minutes after the intervention in both groups. There was no statistically significant difference in the measurement of pain intensity before and immediately after the intervention in both groups ( $p > 0.05$ ) but there was a statistically significantly lower difference in pain reduction in the experiment group at 30, 60 and 120 minutes.<sup>(31)</sup>

#### BREATHING METHODS

In the study by Yuksel et al. (2017) which evaluated the efficacy of breathing exercises in labor pain, 250 participants were randomized in intervention group which received instructed breathing exercises, and control group. In the intervention group respiratory training was performed in the first stage of delivery. Patients were observed during the second stage of delivery and breathing was monitored. VAS was used to measure pain during the second stage of delivery. The result of the study was that respiratory exercises were effective to reduce pain, comparing the intervention and control group ( $p < 0.001$ ).<sup>(32)</sup>

### 5 CONCLUSION

After a review of the literature based on the last 5 years several studies were found studying the effects of the use of ICP on the pain relief during labor. All practices used in the studies, both those already legitimized by the NPICP, and those that have not yet been contemplated by the Brazilian Ministry of Health, were shown to be positive results for the pregnant women during labor. However, to ensure the effectiveness of the use of ICP and expand pluralism in the care and health care of users of the Brazilian Health System, as well as to evaluate and manage national public policies, which support the SUS, further studies would be needed. The scope of practices to be considered in these studies should also be expanded. Qualitative studies should be taken into account, considering that the health paradigm, in which the SUS has been building its main concepts, such as

humanized childbirth, for example, is the same in which the concept of ICP has been approached worldwide. In this paradigm, individual experiences matters and scientific evidence matters as much as evidence of man's experiences on the surface of the earth in the millions of years preceding the Scientific Method.

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