

## ICASH-A062

### COMPLEMENTARY THERAPIES FOR LABOR INDUCTION AND THEIR LEGALITY IN INDONESIA: A LITERATURE REVIEW

#### ABSTRACT

**Background:** Labor induction is performed using two methods of pharmaceuticals and complementary therapies. The complementary therapies for labor induction in particular, have to be reviewed comprehensively as to come up with the most relevant therapies allowed to be performed by midwives in Indonesia in accordance with the applicable law. This study aimed to identify the effectiveness and safety of complementary therapies for labor induction that can be performed and also allowed by the applicable law.

**Method:** This was a literature review based on the PRISMA protocol guidelines. The full-text articles were obtained from several databases, such as Elsevier, Cochrane, PubMed, and local journals. These chosen articles were then reviewed to figure out the most effective interventions for labor induction. They were then further reviewed for compatibility with applicable midwifery law.

**Results:** Out of 1153 studies obtained, 44 studies were included in this review. The most effective complementary therapies for labor induction are acupuncture and acupressure. The current law does not allow midwives to perform acupuncture, but it states that acupressure can be administered. Acupressure has proven to be a successful intervention when it is coupled with aromatherapy or hypnobirthing.

**Conclusion:** Considering the effectiveness and safety of complementary therapies for labor induction, acupressure along with aromatherapy or hypnobirthing can be used after being administered in accordance with the applicable law. There is a need for further studies focusing on either the holistic therapy alternatives or the legal side of holistic therapy.

**Keywords:** Complementary therapies, labor induction, midwifery law

#### INTRODUCTION

Prior to delivery, mothers feel reservation upon the administration of labor induction using pharmaceuticals as prescribed by physicians. According to *SociedadEspañola de GinecologíayObstetricia* (SEGO) labor induction is a measure to stimulate uterine contraction using any medical procedure or by attempting any mechanical alteration prior to normal uterine contraction for labor[1–4]. A research in 2016 revealed two types of labor induction method. One is mechanical using membrane pressure manipulation, and the other is pharmaceutical using prostaglandin hormone stimulation[4, 5]. The types of pharmaceuticals used in labor induction are oxytocin (66.8%) and prostaglandin (26.6%). However, these pharmaceuticals pose some risks. Among those risks is that the administration of synthetic oxytocin may reach its maximum level that the body can tolerate, which in turn increases the likelihood of cesarean section and hence, greater risk of bleeding. A latest research (2018) finds that the risk of uterine tear due to labor induction is 77% among patients undergoing cesarean section[6].

Getting through the process of labor, delivering mothers are in need of emotional support, as they are also undergoing a transitional period toward motherhood[7]. Therefore, what these mothers need is midwifery holistic care[1, 8]. Holistic care combines both emotional and behavioral support to heal patients both psychologically and physically[9]. Some research mention acupuncture, acupressure, effleurage, hypnobirthing, and aroma therapy as complementary therapies that can be performed as a

single therapy or choice or in combination[7, 10]. Researcher in 2016 and 2010 that the WHO has acknowledged since 1958 that holistic therapies that stimulate some meridian points in the body do help patients safely without any side effect[9, 11].

Indonesia has set a national regulation that allows midwives to perform their practices. Nonetheless, provision of midwifery holistic care is still categorized as complementary therapies, according to Health Law Number 36 of 2009, which is further confirmed by. Article 53 of Health Law Number 36 of 2009, which is further confirmed by Regulation of Health Regulation of the Health Ministry Number 61 of 2016 on empirical traditional therapies Ministry of 2010 states that measures taken by the government to improve people's welfare are carried out using promotional, preventive, curative and rehabilitative methods, both with modern medicines and complementary therapies[12, 13]. The government has set rules that guarantee safe health care for the people with its Regulation of the Health Minister Number 61 of 2014 and Number 103 of 2014. These measures include encouraging universities to establish departments of complementary therapies that are safe, of high quality and effectiveness, and are founded on solid biomedical know-how[14]. Therefore, provision of midwifery health care, be in using pharmaceuticals or contemporary therapies must adhere to applicable regulations and within proper health facilities, primary, secondary or tertiary. Article 59 of Health Law Number 36 of 2009 and Article 25 of Midwifery Law explain that the governments allows the practice of complementary therapies that involve administration of either treatment or traditional medication that adheres to government regulation[12, 15, 16-17].

Article 1 of Midwifery Law of 2019 mentions that the care midwives provide should be holistic care, as further confirmed by Articles 43 and 45 that explain the scope of midwifery care for both pregnancy and labor[15]. Midwifery care must be performed in proper health facilities by professional midwives or vocational midwives with supervision, as mentioned in Articles 1, 14, 19, 25, 26, 31, 40, and 45 of Midwifery Law and Articles 1, 21, and 23 of Health Law Number 36 of 2009[12]. Midwifery care may also be provided by Indonesian midwives graduated overseas or foreign midwives who meet the requirements set in Articles 31, 34, 36, and 38 of Midwifery Law of 2019 that allows foreign graduates and foreign midwives to practice in Indonesia, as long as the adhere to applicable regulations. It can be concluded that holistic therapies or complementary therapies in midwifery care are safe to be performed by midwives[15, 17]. Applicable laws and regulations do not prohibit the practice of complementary therapies, despite the fact that the statements are mostly implicit. Therefore, complementary therapies for labor induction can alternative methods for invasive labor induction[9–11, 18, 19].

## METHODS

### *Search Strategy*

This research is a literature study of some materials *selected based on the PRISMA protocol guidelines*. These materials were taken from 1153 studies found using Google and then filtered into 16 studies that include eight articles from Elsevier, two articles from ScienceDirect, four articles from PubMed, one article from Springer, one article from the American Journal of Clinical Hypnosis, two articles from a local journal, three e-books from Cochran that were published from May 2007 to February 2019, two copies of laws and five regulations from the government that elaborate those laws.

### *Operational Definition*

This review studies some effective complementary therapies based on research on labor induction that are in line with the legal rights of midwives in Indonesia.

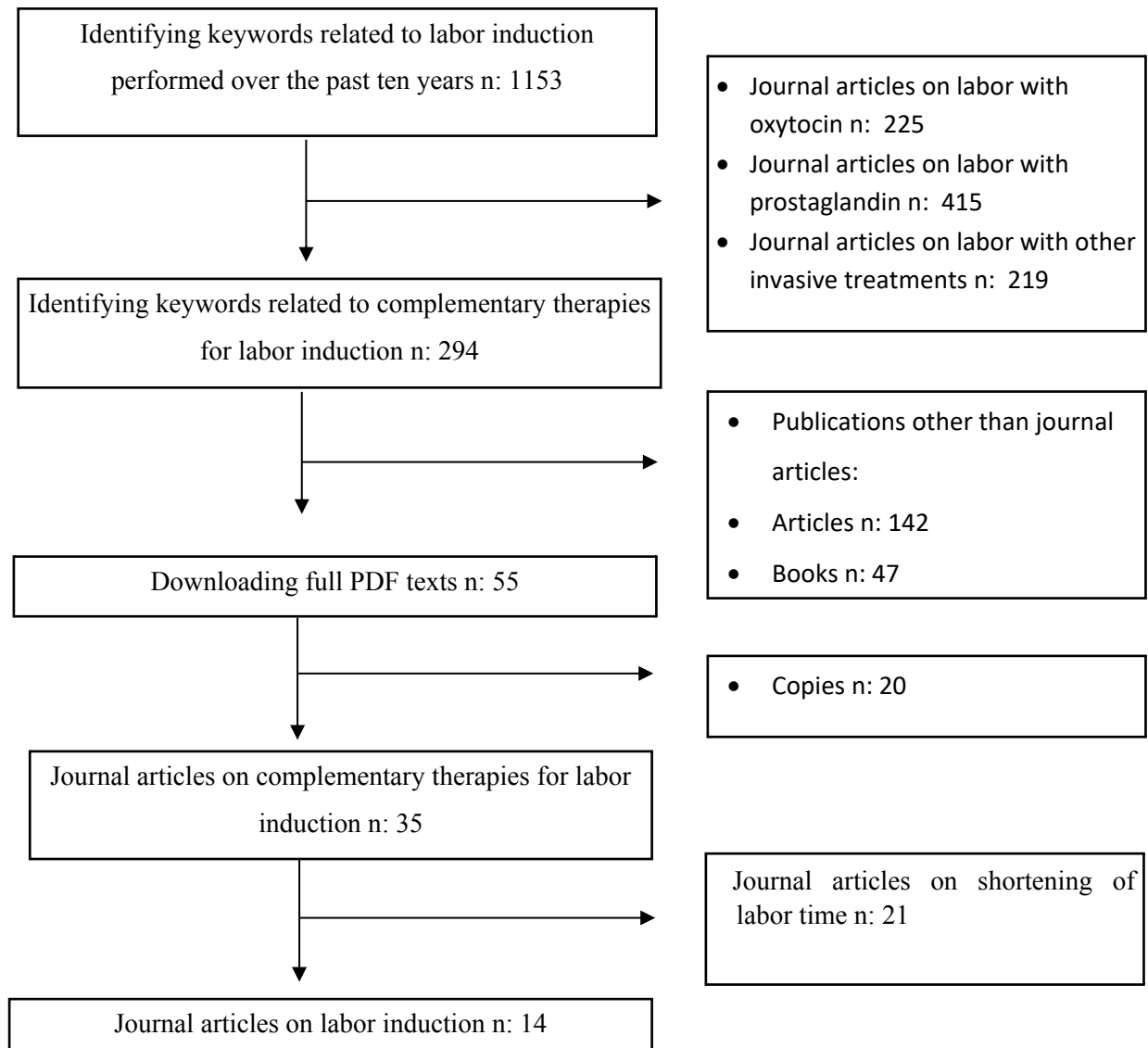
### *Criteria*

The independent variable is labor induction, while the independent variables are complementary therapies that are analyzed from the perspective of applicable laws. There was no limitation in terms of study design.

### Search Result

Results of this review will show some complementary therapies for labor induction that are most effective and in line with the laws and regulations set by the Indonesian government.

#### Part 1. Journal selection





**RESULTS**

A total of 14 articles were reviewed with the following details;3 Articlesdiscussed Acupuncture that stimulates the secretion of oxytocin to shorten labor time, 3 articlesmentioned Acupressure at certain meridian points that can stimulate production and secretion of oxytocin as to speed up labor, 2articlesfocused on effleurage (relaxation) that speeds up labor, 3 articlesstudied the effects of hypnobirthing on speeding up labor, and3 articles looked intoaroma therapy to stimulate oxytocin secretion for improved uterine contraction during labor.

Table 1: Acupuncture stimulates the secretion of oxytocin to shorten labor time

No	Title	Author	Year	Methods	Sample	Intervention	Findings
1.	The current use of acupuncture during pregnancy and childbirth.	Jin Xu and Ian Z. MacKenzie	2012	Reviews subject included nonrandomized studies and some without controls as well as a few randomized studies	No sample as this is a systematic review	No intervention to respondents were involved	Two research groups were separated based on parity and speedier labor was reported after acupuncture. However, this is a qualitative research which means that no figure to signify the effect of acupuncture on oxytocin.



No	Title	Author	Year	Methods	Sample	Intervention	Findings
3.	Effects of acupuncture for initiation of labor: a double-blind randomized sham-controlled trial	Ladan Ajori, Leila Nazari, Dariush Eliaspour	2013	randomized to acupuncture and sham acupuncture groups. All participants received written and oral information about the study and those who agreed gave written consent.	80 women at 38 weeks of gestation or longer who were divided into intervention and control group	Respondents in the intervention group were treated with acupuncture at points LI4, SP6 and BL67 and were needed bilaterally. The trial was registered at irct.ir, number IRCT201111218151N1.	Spontaneous labor was initiated in 94.7 % of acupuncture group and 89.2 % of sham acupuncture group (p = 0.430). There were no statistically significant difference between groups for time from enrollment to delivery (p = 0.06).
2	A summary of a Cochrane review: Acupuncture or acupressure for induction of labor	L. Susan Wielanda, Nancy Santessob	2016	a review of the effects of acupuncture or acupressure for inducing labor	27 researches that were filtered into 7 and then compared	Identifying and analyzing 27 researches on acupuncture, acupressure and labor induction using intervention and placebo groups.	There is a significant difference between the intervention group treated with acupuncture and the placebo group. The intervention group had respondents treated with needles that shift between meridian points in a safe manner.

Table 2: Acupressure at certain meridian points stimulates production and secretion of oxytocin as to speed up labor

No	Title	Autor	Year	Methods	Sample	Intervention	Findings
1	The effect of acupressure on the initiation of labor: A randomized controlled trial	Shahnaz Torzkahrani, Fatemeh Mahmoudikohani, Kiarash Saatchi, Reyhaneh Sefidkar, Mojdeh Banaei	2016	randomized clinical trial	162 nulliparous pregnant women	They were categorized into 3 groups; acupressure, sham acupressure and control. Acupressure points SP6, BL 60 and BL 32 were pressured bilaterally. The intervention	Differences between the intervention group and the control group is not significant, with a p value of < 0.05



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No	Title	Autor	Year	Methods	Sample	Intervention	Findings
						was done by the researcher every other day between 9 am and 11 am. The intervention was carried out on women in the afternoon and the following day	
2.	Acupressure for inducing labor for nulliparous women with Post-dates pregnancy	Sarah Gregson, Consultant Midwife, Denise Tiran, Lecturer, Educational Director, Janine Absalom, Midwife, Lorraine Older, Midwife	2015	A single-blind randomized trial	132 women requiring induction of labor with a post-dates pregnancy	Acupressure: 20 intermittent presses to stimulate each pair of acupressure points; (Large Intestine 4, followed by Spleen 6) or ‘Sham’ treatment: 20 intermittent presses to the patella and then to the olecranon.	Not too significant result with p value of<0.04
3	Impact of acupressure on onset of labor and labor duration: A systematic review	Lyndall J. Mollart a,d,, Jon Adam , Maralyn Foureur	2015	systematic review examines the effects of acupressure on labor onset and duration of labor. searched Medline, Cinahl, Amed, Cochrane Collaboration, and Science Direct from 1999 to 2013 for published randomized controlled trials	Seven trials with data reporting on 748 women using different acupressure points and methods of administration were included in the review.	The Studies were included in the review. One study examined the initiation of labor and six studies examined labor duration and/or pain levels. The two most studied acupoints were Sanyinjiao/Spleen 6 and Hegu/Large Intestine 4. Results suggest acupressure may reduce the length of labor particularly in the first stage.	Further research is required on whether acupressure can shorten labor duration, augment prolonged labor or initiate onset of labor by stimulating uterine contractions



Table 3: Effleurage (relaxation) speeds up labor

No	Title	Autor	Year	Methods	Sample	Intervention	Findings
1	Differences of stage 1 labor between the groups treated with effleurage at the fundus uteri and the one who did not, among multipara women at Halmahera community health center.	Sri Lestari, Yulia Hamarita	2016	Posttest only for the control group respondents taken using accidental sampling who underwent T-test.	32 respondents	Performing effleurage at the fundus uteri for the intervention group	Data were analyzed using t-test with the resulting value of 5.681 and a significance value of 2.132. This means a difference of 1.09 hour labor time between the intervention and the control group
2.	A systematic review and meta-analysis of the effect of massage therapy in pain relief during labor	Jing Hu, Alison Brettle, Ziyang Jiang, Yingchun Zeng	2017	This review searched central, medline, cinahl, allied and Complementary medicine database, and china national knowledge infrastructure from 1 January 2010 to 31 July 2017.	This systematic review includes five RCTs among 386 women.		Two researches showed a P value of <0.0001 in reducing pain. These researchers also found the effect of dilation of the cervix. However, massage did not influence labor of fetus.

Table 4: Effects of hypnobirthing on speeding up labor

No	Title	Autor	Year	Methods	Sample	Intervention	Findings
1	Relationship between Hypnosis for Pain Management in Labor and Adverse Neonatal Outcomes: A Systematic Review	Majid Khadem-Rezaiyan, Reza Saeidi, Masumeh Ghazanfarpour, Mohamadghasem Etemadi Mashhadi, Mona Najaf Najafi	2018	Major databases, including PubMed, Web of Science, Scopus, and Cochrane CENTRAL, were systematically searched up to February 6, 2018.	10 trials	The quality of the studies was evaluated using the Jadad scale. Study appraisal and data extraction were carried out by one of the authors, and then double-checked by another researcher	Hypnosis was found to reduce pain and anxiety, but it does not directly relate to speedier labor. This, despite the fact that now p value was revealed.



No	Title	Autor	Year	Methods	Sample	Intervention	Findings
2.	Hypnotherapy for Labor and Birth	Katleen R. Beebe	2017	Systematic analyses with Evaluating the efficacy of this modality in controlled studies	Observed participants	Carrying out observation and thoroughly analyzing participants on the implementation of hypnosis for labor induction.	One method of accomplishing this under hypnosis is training the mind to “make” a part of the body become insensible, and then using that part of the body (usually a hand or arm) to transfer or extend its insensibility to another body area. Other women can attenuate nociception (pain sensation) through a combination of focused reappraisal and altered sensation. An example of focused reappraisal is reconditioning one’s belief that uterine contractions are painful by offering an alternative positive consideration that the contraction of other muscles (such as the biceps) are not painful, and that the uterine muscle fibers are acting in concert to help achieve the desired goal of birthing the anticipated baby.
3.	The Effectiveness of Hypnosis Intervention for Labor: An Experimental Study	Zuhrah Beevi Wah Yun Low and Jamiyah Hassan	2017	observed during labor and 24 hours postpartum	23 respondents in the intervention group and 22 respondents in the	The participants in the experimental group received the hypnosis intervention at weeks 16, 20, 28, and 36 of pregnancy, while those in the control group received only routine antenatal care.	Hypnotherapy does not really influence labor length.





No	Title	Autor	Year	Methods	Sample	Intervention	Findings
					control group		

Table 5: Aroma therapy to stimulate oxytocin secretion for improved uterine contraction in labor

No	Title	Autor	Year	Methods	Sample	Intervention	Findings
1	Effects of aromatherapy with <i>Rosa damascena</i> on nulliparous women's pain and anxiety of labor during first stage of labor	Sepideh Hamdamian, Soheila Nazarpour, Masoumeh Simbar, Sepideh Hajian, Faraz Mojab, Atefeh Taleb	2018	a randomized clinical trial The tools for data collection were the Spielberger anxiety questionnaire, numerical pain rating scale, demographic and obstetric questionnaire, and an observational checklist. Data analyses included the <i>t</i> -test, Mann Whitney <i>U</i> test and Chi-square test.	110 nulliparous women.	The participants received 0.08 mL of <i>Rosa damascena</i> essence in the aromatherapy group and 0.08 mL of normal saline in the control group, every 30 min. Pain was measured 3 times, once each at three stages of cervical dilation (4–5, 6–7, and 8–10 cm).	Aroma therapy using roses helps to smoothen breast milk production as it stimulates the release of oxytocin that in turn, triggers the production of prolactin



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No	Title	Autor	Year	Methods	Sample	Intervention	Findings
2.	The effect of aromatherapy with lavender essence on severity of labor pain and duration of labor in primipara women	Mansoreh Yazdkhasti a, Arezoo Pirak	2016	randomized clinical trial	120 pregnant women in two groups	A dropper was used to drop the essence on to the patient's palm, and then they were asked to rub their hands together and inhale the inhale the scent for 3 min while the hands were 2.5e5 cm distance from the nose.	The results showed that difference in the labor pain before and after intervention in two groups was significant (P ¼ 0/001). But there was no difference in mean duration of the active phase and the second stage of labor between the two groups

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No	Title	Autor	Year	Methods	Sample	Intervention	Findings
3.	Aromatherapy in childbirth: a pilot randomized controlled trial	E Burns,V Zobbi,D Panzeri,R Oskrochi,A Regalia	2007	a prospective RCT with two arms comparing aromatherapy administration in labor with standard care with- out aromatherapy.	251 women randomized to aromatherap y and 262 controls.	To test the trial's hypothesis, data were collected on the following outcomes: spontaneous and induced labor onset, use of pharmacological and non-pharmacological (apart from aromatherapy) pain relief, spontaneous and artificial rupture of membranes, number of vaginal examinations, labor augmentation commenced in either the first or second stage of labor using intravenous infusion of oxytocin, episiotomy and type of delivery.	Labor augmentation was the reason for aromatherapy administration for the remaining 35 (14%) women. Taper (drop of EO on absorbent paper, attached to woman's clothing) was the preferred mode of aromatherapy application, and two (4%) used aromatherapy compresses (towels dipped in aromatherapy water) They are both proven to influence labor augmentation.

## DISCUSSION

### *Acupuncture stimulates the secretion of oxytocin to shorten labor time*

Acupuncture during pregnancy seems to be safe to perform and significant to stimulate the uterine contraction and cervical effacement, despite different results for primipara and multipara cases [1, 8, 9]. This procedure was applied for mother whom suffering from early amniotic membrane rupture and it managed to put them in inpartu after two weeks of 30-minute treatment once in two days [18]. Acupuncture using moxa (mug wort) is also safe and it is acknowledged by the WHO [8, 9, 20, 21, ].

Articles 59 and 100 of Health Law Number 36 of 2009 state that traditional health care services can be provided for patients. This is further confirmed by Government Regulation No. 103 of 2014 on traditional health care services in Articles 8 and 9 [14]. Another confirmation is from Regulation of Health Minister Number 61 of 2016 traditional health care in reference to acupuncture skills performed by certified professionals. Regulation of Health Ministers Number 34 of 2018 mentions that acupuncture can only be performed by professionals with training in acupuncture and have a degree of at least an equivalent of diploma three. Therefore, acupressure can legally be performed by midwives [13, 14, 18, 21, 22].

### *Acupressure at certain meridian points can stimulate production and secretion of oxytocin as to speed up labor*

In 2017 a research on eastern medication measured the effects of acupressure on types of labor and their length. This meta-analysis research investigated two types of research consisting of 30 kinds of experiments with significant results. Of the 30 attempts to speed up labor, the result is 1.3 hours for scale one, with average shortening for scale 2 of 5.8 minutes, as proven with p value of 0.06. A research 2016 states that there is no significant effect of acupressure on stimulation of uterine contraction, which confirms results of other systematic reviews conducted in 2015 [1–3, 23]. Its discussion revealed that failures to stimulate were due to improper timing. Acupressure stimulation repeated after more than 48 hours does not have any effect with p value of 1.111 for the control group and p value of 0.897 for the intervention group [24].

Acupressure can be performed by midwives as it does not breach any laws. In fact, permission to perform acupressure is implicitly stated in Midwifery Law of 2019 in Articles 1, 43, 44, and 45 [15]. It is also further confirmed by Health Law of 2009 in Article 24, and Regulation of Health Minister Number 28 of 2017 in Articles 1 and 7, as it mentions that midwifery care includes both preventive and curative treatments [12, 18, 21].

### *Effleurage (relaxation) speeds up labor*

Effleurage is the massage performed on pregnant mothers on the fundus uteri in order to stimulate relaxation and secrete oxytocin. A research by Makvandi showed that 37 mothers undergoing normal labor needed 8.9 hours, while the other 37 mothers given effleurage underwent labor for 7.9 hours, whereas other researchers mentioned 1.09 hours [25]. Guyton (2016) said that oxytocin stimulation via neurohypnophysis provides comfort during effleurage. However, it is prohibited to be performed on mothers with pregnancy of less than 37 weeks or TBJ of less than 2500 grams as it may trigger uterine contraction that results in premature birth. This research confirms difference in labor length of one hour [2, 26].

It is also necessary to mention that effleurage does not require the use of needles as in acupuncture. It involves only massages to make patients feel relaxed. Therefore, effleurage is allowed to be performed by midwives, in line with Article 1 of Midwifery Law, which mentions that midwives are permitted to provide comprehensive care in accordance with their competence [15]. And effleurage does not use pharmaceuticals, which is in line with Articles 43 and 45. This is also confirmed by Articles 19 to 25 of Regulation of Health Minister Number 28 of 2017 [12, 18, 21].

### ***Effects of hypnobirthing on speeding up labor***

Hypnobirthing has been proven to help pregnant women in labor and during postpartum period. 35.7% of midwifery practitioners have been successful in helping mothers with post term pregnancy with hypnobirthing. A research compared differences between an intervention group (n = 23) and a control group (n = 22) observed during labor and 24 hours postpartum. The intervention group received hypnosis on weeks 16, 20, 28, and 36 of pregnancy, whereas the control group only received routine antenatal treatment. It revealed a significant result [27]. The implementation of Hypnobirthing in an intervention group that does not show significant differences, despite the fact that labor length was not the only parameter observed in the study. However, this research did mention that in general, Hypnobirthing helps to improve the condition of both the mother and her baby, even though labor length is not significantly reduced [28]. A qualitative research showed that Hypnobirthing is significantly beneficial for both the mother and the baby, as observed mothers mention more pleasant and faster labor [11, 27–29].

Article 1 of Midwifery Law states that midwives should provide comprehensive care that caters for psychological well-being of laboring mothers, as confirmed by Articles 43 and 45 on the scope of midwifery care during both pregnancy and labor. Article 1 of Health Law Number 36 of 2009, and also Articles 21 and 59, mentions that hypnobirthing is a traditional therapy that must ensure its benefit and safety for laboring mothers whilst adhering to the rules and norms in Indonesia [12, 15]. The care for Hypnobirthing can be performed by midwives of either domestic or foreign graduate with requirements stipulated in Articles 31, 34, 36, and 38 of Midwifery Law. Therefore, both Indonesian and foreign midwives can perform midwifery practices in line with the applicable rules and regulations in Indonesia [12, 14, 18, 21].

### ***Aroma therapy to stimulate oxytocin secretion for improved uterine contraction in labor***

Aroma therapy with rose reduces labor pain and anxiety. Some research has proven that rose aroma therapy significantly affects secretion of oxytocin [30]. The working characteristics of rose in augmenting oxytocin are so significant that it helps to increase the bishop score, along with relaxation. These research show that control group in this research was found to have a bishop score of 4 - 7 cm, while the treatment group has a bishop score of 8 - 10 cm. Another research using lavender for 120 laboring mothers who were divided into two groups; the intervention group treated with lavender aroma therapy, and the control group given distilled lavender perfume results in a p value of 0.001. However, lavender aroma therapy performed in Italy involving 513 people with 251 as the control group and 262 as the treatment group came with an opposite result of  $p > 0.005$ , which means that lavender does not have any effect on speeding up labor. The reason for this discrepancy is perhaps due to lack of control against interfering variables, lack of sample number, and less precise intervention procedures implemented [30–32].

Labor induction with the help of aroma therapy is implicitly stated in Articles 1, 43, 44, and 45 of Midwifery Law, and Articles 1, 21, and 24 of, which stipulate that aroma therapy is a complementary treatment using local concoction that is allowed to be administered in Indonesia [13–15].

## **CONCLUSION**

Article 1 of Midwifery Law of 2019 states that midwives must secure a license to provide care at health facilities, including the practice of independent midwives. Hence, midwives wishing to provide complementary midwifery care must adhere to that provision. Meanwhile, Regulation of Health Ministry Number 61 of 2016 does not explicitly states the need for a license to perform empirical and traditional holistic care. Nonetheless, it is always better for midwives to secure a license before performing holistic care, especially when it relates to complementary therapies for labor induction. It is recommended that further researches should examine the possibility of passing the law for the application of midwifery holistic care.

Results of this literature review show that some of the most effective complementary therapies that help to speed up labor include acupuncture, acupressure, hypnobirthing, and rose aroma therapy. Nonetheless, further studies reveal that acupressure, hypnobirthing, and rose aroma therapy are even safer to perform by licensed midwives, compared to acupuncture [33]. This research still raises questions for the next study to look for the influence of what do midwives face when they perform holistic midwifery care in Indonesia because there is no regulation that governs this practice as yet.

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