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## **The Combination of Acupressure and Affirmation Relaxation as an Alternative Method to Increase Breast Milk Production and Breastfeeding Self-efficacy**

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### **KEYWORDS**

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**Abstract** Breastfeeding has been normative prevailing standard for feeding and fulfilling nutrition for baby due to its important benefit for mothers and her infant. The most common problem in breastfeeding is lack supply of breast milk after giving birth. The aim of this research was to prove that combination of acupressure and affirmation relaxation method was able to increase breast milk and improve breastfeeding self-efficacy of primiparous mothers in the postpartum period. The study design was true experimental with pre-test and post-test design. There were 24 primiparous mothers who were divided into two groups. Weighing test was used to measure breast milk production and breastfeeding self-efficacy was measured using Indonesian version of Breastfeeding Self-Efficacy Scale. Data were analyzed using Unpaired t-test and Mann Whitney test ( $\alpha = 0.05$ ). Based on the finding, we could conclude that combination of acupressure and affirmation relaxations could improve breast milk production ( $p = 0.033$ ) and breastfeeding self-efficacy ( $p = 0.045$ ) for primiparous mother in the postpartum period encountered in several Independent Midwifery Practice in Malang. This method might be used as a non-pharmacological treatment for postpartum mothers. Health practitioners should disseminate this technique so that postpartum mothers can do that by themselves.

### **Introduction**

The latest research and systematic reviews show that breastfeeding is prevailing standard for feeding and fulfilling nutrition of baby and beneficial for both mother and her infant. Breastfeeding improves survival rates and infant's development as well as the development of human resources. Infants getting a longer period of breastfeeding shows lower morbidity and mortality, lower dental malocclusion incidence and higher intelligence level than those getting formula milk. Besides, the evidence also shows that breastfeeding might prevent overweight and future diabetes in children.

Breastfeeding might also give positive impacts for mother; that is to manage birth interval, reducing the risk of breast cancer, ovarian cancer, and diabetes (Victora et al., 2016).

The target of exclusive breastfeeding coverage in Indonesia is 80%. However, it has not been achieved shown by the 55.7% coverage in 2015 (Kemenkes RI, 2016b). In Malang, breastfeeding rate is also low though there was an improvement from that of 2014. The breastfeeding rate in 2013 was 70.51% and 74,57% in 2014 (Dinkes Kota Malang, 2014). This increase in breastfeeding rate has also not reached the national target which is 80%.

The critical period for the successful breastfeeding is the first 24 hours postpartum. During that period, prolactin and oxytocin hormone which are important for the production of breast milk are released. The first several days of postpartum are also the most important times for breastfeeding. Usually, mothers encounter several problems such as insufficient breast milk supply and inability to produce breast milk. Those are basic problems faced by mothers. Therefore, they choose to take other alternatives for feeding their baby. However, if support and help are available that facilitating mothers in breastfeeding, it is possible that breastfeeding will be successful (Rahayu, Santoso, & Yunitasari, 2015).

Acupressure is commonly used in midwifery field. It uses hand to press several acupuncture points on the body. Acupressure might recover and balance body energy to improve body function. Based on medical perspectives, acupressure is able to stimulate endorphin release, block pain receptor and stimulate oxytocin release (Mollart & Leiser, 2013). It is also able to influence the production of prolactin to improve breast milk production (Raras, Suwondo, Wahyuni, & Laska, 2016).

Breastfeeding self-efficacy is a theoretical framework on self-confidence for breastfeeding which was developed based on the theory of self-efficacy. Breastfeeding self-efficacy is mothers' belief in their ability to feed their baby. It influences mother's response to baby feed (effort and mind), which in turn, influences initiation of breastfeeding and maintain positive breastfeeding behavior. Breastfeeding self-efficacy improves exclusive breastfeeding coverage showing that self-efficacy of breastfeeding is an effective theory of social change to improve exclusive breastfeeding rate (Brockway, Benzels, & Hayden, 2017).

Physiological response/affective state such as anxiety, stress, depression, fatigue, and pain might influence one's self-efficacy. Relaxed and

calm mother will have higher self-efficacy than those who are stressful, anxious or feeling painful (Brockway et al., 2017). Those conditions may be minimized using acupressure and affirmation relaxation.

Affirmation relaxation is a combination of breathing relaxation technique and repetition of a simple positive statement (affirmation) conducted orderly in order to create relaxed condition physically and emotionally (Yusuf, A; Suarilah, Ira; Rahmat, 2010). Deep breathing relaxation might also improve the quality of human resources, manage stress, maintain and recover homeostasis through the improvement of the beta-endorphin level, IgG and blood sugar secretion (Siswantoyo; Aman, 2014). Affirmation is a method of strengthening oneself by uttering short positive sentences repeatedly. It might reduce physiological response to stress and repeated affirmation might also help us to handle our daily stress. Affirmation might also be able to strengthen ones' self-confidence and belief in handling the certain situation and producing positive things (Yusuf, A; Suarilah, Ira; Rahmat, 2010).

In Indonesia, there are several postpartum massage techniques that are able to improve breast milk supply such as oxytocin massage and endorphin massage. Those techniques are effective to improve breast milk production (Hartono, Oktaviani, & Nindya, 2016; Suryani & Astuti, KH, E, 2013). However, those techniques require help from someone else because the massage points are on the back or posterior part of the body. Meanwhile, for acupressure, the acupoints to improve breast milk production are on the anterior and lateral part of the body which is easy to reach and therefore, breastfeeding mother might do that independently anytime (Kemenkes RI, 2016a).

Based on the above description, we were willing to implement a combination of acupressure and affirmation relaxation method to improve breast milk production and

breastfeeding self-efficacy. Besides, there has been no research combining those methods directly to improve breast milk production and breastfeeding self-efficacy. It is expected that the combination of the two methods will result in more optimum result. This research aimed at analyzing the effect of the combination of acupressure and affirmation relaxation method on breast milk production and breastfeeding self-efficacy of primiparous mothers in the postpartum period.

### Material and methods

This study was conducted from January until February 2018. It was conducted in 4 Independence Midwifery Practices in Malang. This study was true experimental design with pre-test and post-test approach. To minimize subjectivity, the measurement of pre-test and post-test was completed by an enumerator having midwifery educational background and getting briefing to make sure that she has same ideas.

There were 24 primiparous mothers in the first day of postpartum period which were divided into 2 groups; that of treatment group (group given treatment of combination of acupressure and affirmation relaxation) and control group. We took the minimum sample size for experimental study of 10 respondents for each group. To anticipate the drop out in this study, we added 2 respondents each group so that the sample size remains fulfilled with the following formula  $n' = n / (1-f)$ .

We recruited the respondents at 2 hours after delivery. The description of the study was given to the respondents and written informed consent was obtained. The determination of which the treatment group and the control group was performed by randomization via computer. The respondents who met the inclusion criteria were included in this study. The inclusion criteria were: 1) First day of postpartum; 2) Primiparous mothers; 3) Age of

20-35 years old; 4) Gestational age at 37-42 weeks; 5) Having no breast abnormalities; 6) Body Mass Index (BMI) before pregnancy is 18.5-25; 7) Having no complication during antepartum, intrapartum, and postpartum; 8) Pervaginam delivery; 9) Birth weight of the baby is 2500-4000 gram; 10) The baby has normal sucking reflex; 11) Mothers are not consuming drugs, supplements or other herbs to improve breast milk production; 12) Mothers are willing to be respondents. The BMI before pregnancy was obtained from medical record.

Breast milk production was measured as breast milk intake using weighing test method (Rahayu et al., 2015) with baby digital scale (Serenity SR30D with 5 g division). We used the calibrated baby scale and used the same baby scale to measure all of subjects. Baby weight was measured before and after breastfeeding without wearing any clothes. The weight difference was converted to volume unit by multiplying factor of breast milk density of 1.031 g/ml. Breastfeeding self-efficacy was measured using Breastfeeding Self-efficacy Scale (Short Form) which has been translated into Indonesia. That Indonesian version of Breastfeeding self-efficacy scale has been validated (Muaningsih, 2013).

The pre-test was conducted in 24 hours postpartum. After pre-test, the treatment group was given the combination of acupressure and affirmation relaxation with health education. Only health education was given to the control group. The intervention was conducted 6 times in 6 consecutive days. The interventions were started by conducting acupressure on acupoint of ST15, ST16, ST18, ST36, SP6, SP18, CV17, SI1, LI14 and ended by conducting affirmation relaxation technique. Acupressure was conducted on both sides of extremities by pressing that acupoints 30 times clockwise. Affirmation relaxation technique is a combination of deep breathing technique and affirmation based on Benson's theory of

Relaxation Response and theory of self-affirmation; employing deep breath and repetition of simple positive sentences which are sentences that may raise self-confidence and avoid the word “no”. The combination makes up 6 steps which are conducted orderly in order to improve self-integrity and create a relaxed feeling. Post-test was measured at the 7<sup>th</sup> day post-partum at 8-11 am.

We conducted normality test by using Shapiro Wilk tests on data distribution for breast milk production and breastfeeding self-efficacy. Unpaired t-tests were used to analyze the difference between breast milk production and breastfeeding self-efficacy between the treatment group and control group on the 7<sup>th</sup> day postpartum (post-test). Furthermore, paired t-tests were used to analyze the difference between breast milk production and breastfeeding self-efficacy on the first day and the seventh day postpartum for both groups. If the data are not normally distributed then

Wilcoxon and Mann-Whitney tests are conducted.

### Results and discussion

Table 1 shows that average age of those in the treatment group is 24 years old and those in control group is 22 years old. Both treatment and control group, most of the respondents are graduated from senior/vocational high school that are 8/12 respondents and 7/12 respondents. Respondents with the high educational background (undergraduate) for both treatment and control group is only 1 respondent and the rest have low education level (elementary and junior high school). Most of the respondents are a housewife for both groups that are 8/12 respondents for treatment group and 10/12 respondents for the control group. Most respondents give birth boy babies for both treatment and control group. Those giving birth boy babies in the treatment group are 8/12 respondents and those in control group are 9/12 respondents.

**Table 1. The characteristics of respondents**

Variable Age (Years)	Treatment Group	Control Group
	Mean (SD)	Mean (SD)
	24.2 (3.7)	21.7 (2.4)
	N	N
<b>Education</b>		
Elementary	0	1
Junior High School	3	3
Senior/Vocational High School	8	7
Undergraduate	1	1
<b>Total</b>	<b>12</b>	<b>12</b>
<b>Occupation</b>		
Housewife	8	10
Private sector	3	2
Entrepreneur	1	0
<b>Total</b>	<b>12</b>	<b>12</b>
<b>Baby Sex</b>		
Boy	8	9
Girl	4	3
<b>Total</b>	<b>12</b>	<b>12</b>

*Breast Milk Production of Primiparous Mothers in the Postpartum Period*

The result of delta value shows that there was a  $12.5 \pm 9.4$  difference of breast milk production between 2 groups. The average of breast milk production after treatment for the treatment group was higher than that of the control group with the average of 30.1 ml (SD = 16.9). The result of unpaired t-test showed that *p*-value of 0.033 meaning that there was a significant difference between breast milk production between the treatment group after treatment and the control group (Table 2).

**Table 2. Difference test of breast milk production between the treatment and the control group on the 7<sup>th</sup>-day postpartum**

	Levene's Test	Mean (SD) (ml)	$\Delta$	95% CI	<i>p</i>
Treatment Group (N=12)	0.009	30.1 (16.9)	$12.5 \pm 9.4$	$-23.79 - (-1.13)$	0.033
Control Group (N=12)		17.6 (7.4)			

Acupressure is a non-invasive procedure with the therapeutic effect which is almost similar to acupuncture. However, acupressure may not be able to reach meridian as deep as acupuncture. Therefore, acupressure may not be effective in several cases (Schlaeger et al., 2017). However, this study shows that acupressure followed by affirmation relaxation is able to improve breast milk production. Besides, there were several studies showing that acupressure was effective to improve breast milk production of postpartum mothers who complain of having hypogalactia or those who are not, compared to mothers that were not received acupressure treatment (Esfahani, Mitra Savabi; Soonghe, Shoreh Berenji; Valiani, Mahboubah; Ehsanpour, 2015; Rahayu et al., 2015). The reason to use acupoints and how to apply acupressure method in this study was based on the guidelines of self-acupressure care for increasing breast milk supply (Kemenkes RI, 2016a). However, we added 2 more points namely SP6 and LI4 to improve respondent's comfort based on research conducted by Rahayu et al. (2015) so the optimum relaxed condition might be achieved. Raras et al. (2016) evaluated 7 points on that guideline of self-acupuncture namely ST 15, ST 16, ST 18, CV 17, SP 18, ST 36 and SI1. The application of acupressure on those points was

conducted for 3 days consecutively and it was able to increase the level of plasma prolactin as high as 75.85%. Research conducted by Esfahani et al. (2015) used SI1, LI4, and GB21 acupoint and that conducted by Raras et al. (2016) used ST17, ST18, ST36, SP6, and LI4. Although acupoints used to evaluate the increase in breast milk production are varied, ST36, SI1, LI4, and SP6 acupoints were commonly applied to increase breast milk production.

Several Randomized Controlled Trial (RCT) reviewed by Schlaeger, et al.(2017) showed that acupressure might accelerate labor and reduce the number of cesarean section. Although there was a difference acupoint in that study, it also used acupoint of SP6 and LI4. Iranian Single-Blind Randomized Controlled Trial (RCT) in 2012 reviewed by Schlaeger, et al.(2017) which studied 50 nulliparous and multiparous mothers in active labor given acupressure on LI4 showed that their delivery took shorter time on active phase ( $p < 0.001$ ). Besides, the use of oxytocin for labor augmentation was lower for the group given acupressure SP6 than that of the control group. Similar research showed that the group given acupressure on LI4 had a shorter period in the first and second stage of labor (Hamidzadeh, Shahpourian, Orak, Montazeri, & Khosravi, 2012). Based on their findings, it can be concluded that

acupressure might stimulate the release of oxytocin. It is crucial to the success of breastfeeding at let down reflex so the baby may get more breast milk intake.

Several studies evaluated the effectiveness of electroacupuncture on SI1 on mother with hypogalactia. The finding showed that the level of mammary filling, breast milk production, and prolactin level was higher in the group given acupressure on SI1. Electroacupuncture on SI1 is not only able to improve prolactin level but also improves lactation after delivery (Tseng, 2015).

Based on Traditional Chinese Medicine, the mechanism of action in acupuncture and acupressure depends on the existence of *Qi*. *Qi* is important energy in the universe. The stimulation of acupressure results in the activation of *Qi*. *Qi* flows along the body meridian and creates body balance so it results in the optimal and healthy body. If there are less *Qi* in the body, acupressure stimulation might improve it and if *Qi* is excessive then acupressure stimulation might reduce *Qi* (Schlaeger et al., 2017).

Viewed from the western medicine perspective, stimulation of acupressure will be transmitted to spinal cord and brain through nerve axon. Synapsis will result until signal stimulus reaches the brain. Activation of the central nervous system (CNS) causes the change of neurotransmitter, hormone (including prolactin and oxytocin), body immune system, biomechanics effect, and other biochemistry substances (endorphins, body immune cell such as cytokines). It is believed that it poses normalization, modulation and balance effect (Sharp & Moriarty, 2013).

Psychological factor also influences the production of breast milk. The higher the psychological stressor, the lower stimulation of prolactin and oxytocin hormone is given (Lawrence & Lawrence, 2016). The number of research on the effectiveness of acupressure to reduce psychological stressor on postpartum mothers is very limited. However, there was a

research to evaluate the effect of acupressure to reduce anxiety on pregnant mothers (Moradi, Akbarzadeh, Moradi, Toosi, & Hadianfard, 2014). They proved that intervention group given acupressure on SP6 and GB21 had lower anxiety level than control group although statistically, it was not significant ( $p > 0,05$ ). Stimulation given by pressing the acupoint seems to have a substantial effect. Acupressure stimulation causes either systemic or local physiological change in the body which in turn result in the balance of body and mind. Several studies showed that acupressure causes the release of serotonin resulting in a relaxed mind. Several other studies showed that this method had analgesic effect by releasing a specific peptide and therefore, it reduces the activity of sympathoadrenal system which is activated during stressful condition. Thus, acupressure might reduce stress symptoms (Moradi et al., 2014).

In this study, acupressure was ended by affirmation relaxation. Affirmation relaxation is a combination of breathing relaxation and positive affirmation. Breathing relaxation in this study was the form of diaphragm breathing. Diaphragm breathing can cause physiological response such as reduced consumption of oxygen, lowering heart rate and blood pressure, increasing amplitude of theta waves on EEG recording, improving parasympathetic activity and creating a condition which is full of energy (Varvogli & Darviri, 2014). Self-affirmation might also reduce stress level. Respondents conducting self-affirmation had lower epinephrine level than those in control group. Affirmation was able to reduce stress through sympathetic nervous system activity (Sherman, Bunyan, Creswell, & Jaremka, 2009). Thus, acupressure and affirmation relaxation procedure used in this study might also help to create a calm condition on breastfeeding mothers. In turn, we believe that it will result in high production of breast milk though we didn't measure stress level of the respondents.

**Table 3. Breast milk production on primiparous mothers on the postpartum period**

Groups	Measurement	Median (ml)	IQR (ml)	<i>p</i>
Treatment	Pre-test	0	0 – 15.5	0.002
	Post-test	30.9	5.1 – 56.7	
Control	Pre-test	0	0 – 20.6	0.006
	Post-test	20.6	5.1 – 30.9	

There was a significant difference in breast milk production between the 1<sup>st</sup> day and the 7<sup>th</sup> day postpartum for the two groups with *p*-value of Wilcoxon tests was 0.002 for the treatment group and *p*-value of 0.006 for the control group. On the first day postpartum, breast milk production is still influenced by progesterone and estrogen hormone. Progesterone and estrogen have antagonist action on the activation of prolactin secretions. The second stage of lactogenesis is started on the second day or the third day postpartum along with the reduction of progesterone and estrogen hormone. On that stage, the production of breast milk is excessive (Lawrence & Lawrence, 2016). The production of breast milk for the control group in the 7<sup>th</sup> day was a physiological hormonal activity on lactogenesis.

#### *Breastfeeding Self-efficacy on primiparous mothers on the postpartum period*

There was a significant statistical difference on breastfeeding self-efficacy for treatment and control group on the 7<sup>th</sup> day postpartum (after treatment) with the result of Mann Whitney test

is *p* = 0.045 (table 4). There was a significant statistical difference on breastfeeding self-efficacy score for treatment group before and after treatment of acupressure and affirmation relaxation with the result of Wilcoxon test showed that *p* = 0.008 (table 5). For the control group, there was also improvement of breastfeeding self-efficacy score on the 7<sup>th</sup> day. However, the result of paired t-test showed *p*-value of 0.586 and confidence interval (CI) of 95% between (-3,170) – 5,337. Therefore, the increase of breastfeeding self-efficacy on control group was not significant. The improvement of breastfeeding self-efficacy for control group might be influenced by other factors that cannot be controlled in this study.

Breastfeeding self-efficacy is influenced by 4 factors namely 1) Previous breastfeeding experience, 2) Successful breastfeeding experience of others, 3) Verbal persuasions such as verbal supports from influential persons, and 4) Physiological and psychological condition such as anxiety, stress, depression, fatigue and pain (Brockway et al., 2017).

**Table 4. Difference test for breastfeeding self-efficacy between treatment and control group on the 7<sup>th</sup> day postpartum**

	Median	IQR	<i>p</i>
Treatment group (n=12)	66	41 – 70	0.045
Control group (n=12)	56	35 – 67	

**Table 5. Breastfeeding self-efficacy on primiparous mothers on the postpartum period**

Group	Measurement	Mean (SD)	Median (IQR)	p
Treatment	Pre-test (n=12)	54.1 (8.7)	57.5 (34 – 65)	0.008
	Post-test (n=12)		66 (41 – 70)	
Control	Pre-test (n=12)	55.2 (10.3)		0.586
	Post-test (n=12)			

The strategy used to improve breastfeeding self-efficacy is by improving physical state and reducing stress on breastfeeding mothers. A mother who feels painful, fatigue, anxious or stress might reduce their breastfeeding self-efficacy. It is not only influencing breastfeeding self-efficacy but also breastfeeding process itself. Pain, anxiety, and stress may inhibit the release of oxytocin, reduce let-down reflex, and reduced breast milk supply of postpartum mothers (Brockway et al., 2017).

Acupressure may also reduce stress or depression through the central effect such as releasing noradrenaline and serotonin and improving the release of beta-endorphin and adrenocorticotrophic (Sharp & Moriarty, 2013). There has been limited research on affirmation relaxation on breastfeeding self-efficacy of postpartum mothers. Yusuf et al. (2010) evaluated the application of affirmation relaxation on self-efficacy of patients with nasopharyngeal cancer. Based on the statistical test, it was found that there was a change in self-efficacy of nasopharyngeal cancer patients before and after affirmation relaxation intervention with  $p = 0.008$ .

At the inspiration of the abdominal/diaphragmatic breathing, the lower ribs press downwards and push the diaphragm upward, increasing the abdominal pressure. It can increase oxygen levels in the blood and increase vascularization to the vital organs such as brain and heart. In addition, those breathing can stimulate pulmonary stretch receptors and then stimulate signals to the spinal cord that provide information that there is an increase in vascularization. It causes decreased blood

pressure, decreased heart rate, and warmth through the dilation of blood vessels in the hands and feet. When physical relaxation is formed, there is a message to mind and emotions to relax and a circular process is formed. Decreased hormone epinephrine and norepinephrine will reduce tension, thus creating psychological relaxation (Fitzpatrick, 2013).

Affirmations is a strong and positive statement giving crucial influence to strengthen self-confidence. Affirmations can help us change our perceptions and beliefs. If we believe an affirmation to be true, our perceptions selectively reinforce it because we change our self-talk. Our mind is constantly engaged in dialogue with ourselves; in fact, the person we talk to the most in a day is the self. Positive images and affirmations also reinforce those things that have meaning and value. They help us in our spiritual development because they move into the deep layers of the unconscious, become part of our myths, and influence our daily lives. If our thoughts are hopeful and optimistic, our body responds with confidence, energy, and hope. If negative thoughts dominate, however, our body responds with tightness, uneasiness, and an increase in breathing, blood pressure, and heart rate. In addition, a person with a positive self-image has a good stress defense mechanism. Affirmations also help us to identify what is true for us so that the truth can manifest itself in behavior and more options; clarify goals, take actions, and conduct self-evaluations; assume more responsibility for our actions, thoughts, beliefs,



and values; and envision a new way of being (Dossey, Keegan, & Guzzetta, 2016).

Affirmation relaxation might create a relaxed state of physical and emotional condition. Mother with relaxed condition (not feeling pain, anxious, and stress) will be able to improve her breastfeeding self-efficacy (Brockway et al., 2017). Besides, positive mind and belief build through affirmation relaxation will strengthen someone's self-confidence. In turns, it will create strong self-integrity to build good self-efficacy (Dossey et al., 2016; Yusuf, A; Suarilah, Ira; Rahmat, 2010).

Research conducted by Henshaw, Fried, Siskind, Newhouse, & Cooper (2015) proved that high breastfeeding self-efficacy on primiparous mothers on the postpartum period were related to lower depression syndrome during 6 weeks postpartum and the success of exclusive breastfeeding for 6 months. Mothers who were able to maintain breastfeeding were able to handle problems and hindrance in baby feeding especially those of first breastfeeding. It is in line with Bandura theory of self-efficacy that person with low self-efficacy tends to lose hope in facing problems in their life; meanwhile, person with high self-efficacy tries their best to handle challenges in their life. Breastfeeding process might be stressful for primiparous mother. However, with good breastfeeding self-efficacy, there will be a lower risk of postpartum depression (Henshaw et al., 2015). Building breastfeeding self-efficacy of postpartum mother is important to maintain postpartum mother's health. Therefore, it is important to improve their self-efficacy by conducting acupressure method and affirmation relaxation method.

The study also had limitation that need to be acknowledged. In this study, the sample size was relatively small. We only took minimal sample size. Small sample size might reduce the validity of this study, although the results of this

study were statistically significant. Further studies should consider a larger sample size.

## Conclusion

This study proves that the combination of acupressure and affirmation relaxation method is able to increase breast milk production and breastfeeding self-efficacy of primiparous mothers on the postpartum period. The combination of acupressure and affirmation relaxation is an alternative non-pharmacological method which is easy to do for postpartum mother. Health practitioners may include this method of caring postpartum mothers and they need to teach this method to the mothers so that they are able to do it independently at home.

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