

Effectiveness of Rose and Jasmine Aromatherapy on the Phase 1 Labor Duration in Intrapartum Mothers at Aisiyah Kudus General Hospital

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ABSTRACT

Background: Labor that does not progress is the result of inadequate contractions which are influenced by low levels of the hormone oxytocin. Improvement of contractions can be done using uterotonics and aromatherapy. Rose and jasmine aromatherapy can increase levels of the hormone oxytocin to help with the birthing process. This study aims to analyze the effectiveness of rose and jasmine aromatherapy on the duration of the first stage of labor at Aisiyah Kudus General Hospital.

Subjects and Method: The Randomized Controlled Trial (RCT) study was conducted at RSU Aisiyah Kudus from February 2023 to April 2023. A total of 45 women giving birth were divided into 3 groups: (1) Rose aromatherapy group (n=15); (2) Jasmine aromatherapy group (n=15); and (3) Control group (n=15). The dependent variable is the length of labor. The independent variables are rose and jasmine aromatherapy. Aromatherapy with a concentration of 1-3% is given through a diffuser for 30 minutes. The research instruments used an identity checklist, informed consent sheet, aromatherapy SPO, diffuser, measuring cup and syringe, Human Oxytocin ELISA Kit, and partograph. Data were analyzed using the Kruskal-Wallis test.

Results: The duration of labor in the first stage of labor was shorter after giving rose aromatherapy (Mean= 2.50; SD=1.05) and jasmine aromatherapy (Mean= 2.63; SD= 1.60) than the control group (Mean= 3.70; SD= 1.54), but the difference this is not statistically significant ($p = 0.104$).

Conclusion: The length of labor in the first stage of labor was shorter after giving rose aromatherapy and jasmine aromatherapy than in the control group, but this difference was not statistically significant.

Keywords: rose aromatherapy, jasmine aromatherapy, first stage of labor, duration of labor.

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BACKGROUND

Safe delivery is delivery that can maintain life and improve the health status of the mother and baby with little intervention and produces maximum quality. Childbirth is a process where the fetus, placenta and membranes exit through the birth canal from the uterus (Mardiani, 2021). The labor process begins with the opening and dilatation of the cervix which occurs due to the regular frequency, duration and strength of uterine contractions. During labor, the mother will go through several phases, namely stages I, II, III to stage IV. The labor process in the first stage, where the uterine contractions are more adequate, is expected to make the labor process less prolonged (JNPK-KR, 2018).

The hormone oxytocin plays an important role during the birth process where oxytocin can cause contraction of the smooth muscle of the uterus and then cause dilatation of the cervix during normal delivery (Sarli, 2017).

If the levels of the hormone oxytocin in the body do not increase, there will be problems with late labor/prolonged labor. The presence of prolonged labor is the result of inadequate contractions resulting in problems with the timeliness of labor or prolonged labor being delayed. Pregnant women with a full-term pregnancy when giving birth have adequate contractions and will give birth more on time and faster (Fatmawati, 2017).

Aisyiyah General Hospital is one of the hospitals in Kudus Regency where problems or obstacles are still encountered in the form of non-progressing labor, uterine inertia or poor uterine contractions. One effort to overcome this problem is by providing rose and jasmine aromatherapy. The chemical content in rose is phenylethyl alcohol, geraniol, linalool, bezaldehyde, citronellyl acetate, benzyl alcohol, geranyl acetate,

citronellol, nerol, stearopten, farnesol, generic, eugenol, and myrcene. Jasmine contains chemicals including linalool, citronellol, and dihydromethyl jasmontae. There are similarities in several essential ingredients of rose and jasmine, namely citronellol and benzyl acetate which can help the birthing process (Julianto, 2016).

Researchers intend to conduct a study at RSU Aisyiyah Kudus during the first stage of labor and carry out interventions to improve labor contractions. Researchers will provide intervention in the form of administering rose and jasmine aromatherapy via inhalation to mothers in labor who are not progressing in labor.

SUBJECTS AND METHOD

1. Study Design

The Randomized Controlled Trial (RCT) was conducted at Aisyiyah Kudus Hospital from February to April 2023

2. Population and Sample

The population in this study were mothers who gave birth at RSU Aisyiyah, Kudus, Central Java, from February to April 2023. The sampling technique used was simple random sampling with a total number of subjects of 45 mothers giving birth in the first stage with labor not progressing with 15 subjects in each treatment. willing to take part in this research.

3. Study Variables

The dependent variable is the length of labor. The independent variable is the provision of jasmine and rose aromatherapy.

4. Operational Definition of Variables

Length of labor is the time measured during the first stage of labor and monitored using a partograph sheet.

Aromatherapy is care and treatment using essential oils and other aromatic compounds that can affect the psychological (psychological) and physical nature of the wearer. The aromatherapy used is rose and

jasmine aromatherapy with a concentration of 1-3% given through a diffuser for 30 minutes.

5. Study Instruments

The research instrument consisted of an identity form, characteristic questionnaire, Aromatherapy SPO, partograph, and observation sheet.

6. Data analysis

Univariate analysis to describe the characteristics of the research variables. In this study we use the Kruskal Wallis test to determine whether there are statistically significant differences between the three groups of variables.

7. Research Ethics

This research has obtained permission from the Health Research Ethics Committee of the Ministry of Health Semarang Health Polytechnic with registration No. 0127/EA/-KEPK/2023.

RESULTS

This research involved 45 mothers who gave birth, divided into three groups, namely 15 subjects in the rose aromatherapy group, 15 subjects in the jasmine aromatherapy group, 15 subjects in the group without aromatherapy, namely the control group. The distribution of subject characteristics based on age, education and occupation can be seen in Table 1.

Table 1. Distribution of Subject Characteristics

Characteristics	Rose		Jasmine		Control		p
	n	%	n	%	n	%	
Age							0.015
<20 or > 35 years	0	0	0	0	1	6.67	
20-35 years	15	100	15	100	14	93.33	
Educational Background							0.417
PS	0	0	0	0	0	0	
JHS	4	26.67	3	20	3	20	
SHS	7	46.67	9	60	12	80	
Higher Education	4	26.67	3	20	0	0	
Working status							0.424
Jobless	7	46.67	6	40	10	66.67	
Working	8	53.33	9	60	5	33.33	
Gravida status							0.088
Primigravida	6	40	7	46.67	4	26.67	
Multigravida	9	60	8	53.33	11	73.33	
Pain level							0.429
Light	1	6.67	0	0	0	0	
Moderate	9	60	9	60	11	73.33	
Severe	5	33.33	6	40	4	26.67	
Anxiety Level							0.433
No anxiety	0	0	0	0	0	0	
Light	0	0	0	0	0	0	
Moderate	0	0	0	0	1	6.67	
Severe	12	80	10	66.67	11	73.33	

Based on Table 1 shows that the rose and jasmine groups have the same age variance, namely the productive age range of 20-35 years for each of 15 (100%) subjects.

Meanwhile, the control group had 1 (6.67%) subject of non-productive age. The majority of the three groups' final education was high school, namely 7 (46.67%) subjects in the

rose group, 9 (60%) subjects in the jasmine group, 12 (80%) subjects in the control group. The rose group had 8 (53.33%) subjects working. The jasmine group had 9 (60%) working subjects. The control group had 5 (33.33%) subjects who were working. The majority of subjects in the three groups were multigravida, namely 9 (60%) subjects in the rose group, 8 (53.33%) subjects in the jasmine group, 11 (73.33%) subjects in the control group.

In general, subjects experienced moderate levels of pain, namely 9 (60%) subjects in the rose and jasmine groups, and 11 (73.33%) subjects in the control group. The majority of subjects experienced severe levels of anxiety, namely 12 (80%) subjects

in the rose group and 10 (66.67%) subjects in the jasmine group, and 11 (73.33%) subjects in the control group.

This research shows that almost all subject characteristic variables have homogeneous data variance between groups. This means that education, employment status, gravida status, pain level, anxiety level between the rose, jasmine and control groups are homogeneous so that they do not become confounding variables. The significance value of $p \geq 0.05$ means that the data variance is homogeneous. Table 1 shows that data on last education ($p=0.417$), employment status ($p= 0.424$), pain level ($p= 0.429$), and anxiety level ($p=0.433$) have homogeneous data variance.

Table 2. Distribution of the average length of labor among mothers who gave birth with rose, jasmine and control aromatherapy

Test Group	n	Mean (hour)	SD	Min (hour)	Max (hour)
Rose	15	2.50	1.05	0.5	4.0
Jasmine	15	2.63	1.60	1.0	5.0
Control	15	3.70	1.54	1.0	6.0

Based on Table 2, it is known that the average length of labor for women giving birth in the first stage of labor who were given rose aromatherapy, the average value of labor duration was Mean= 2.50; SD= 1.05 hours. Meanwhile, the average length of labor for women who gave birth in the long first stage of labor who were given jasmine aromatherapy obtained an average value of

labor duration of Mean= 2.63; SD= 1.60 hours. Mothers who gave birth in the long first stage of labor who were not given any aromatherapy showed an average length of labor of Mean= 3.70; SD= 1.54 hours.

Based on Table 3. Test of the difference in average length of labor in women giving birth by giving rose, jasmine and control aromatherapy

Table 3. Test of the difference in average length of labor in women giving birth by giving rose, jasmine and control aromatherapy

Group	Mean	SD	p
Rose	2.50	1.05	0.104
Jasmine	2.63	1.60	
Control	3.70	1.54	

DISCUSSION

This study showed that the duration of labor in the rose aromatherapy group was 2.50 hours, the duration of labor in the jasmine

aromatherapy group was 2.63 hours, and the duration of labor in the control group was 3.70 hours. However, statistically it shows that in the two aromatherapy groups

$p=0.104$ ($p>0.05$) is not significantly different compared to the group that received standard care. The shortest delivery time was found in the rose aromatherapy group, followed by the jasmine aromatherapy group and finally the control group. However, in these three groups, the mean delivery time was shorter but still within normal limits and did not pose a risk or danger to the mother and fetus so it did not exceed the alert line in the partograph.

The length of labor is influenced by several factors, one of which is uterine contractions. Monitoring uterine contraction activity during labor aims to detect early whether there are contractions that are too weak or too strong, because the condition of the contractions will affect the length of labor. Aromatherapy has great benefits for the birthing mother and her fetus because the aim of giving birth aromatherapy itself is to achieve a vaginal delivery as natural as possible. Monitoring uterine contraction activity during labor aims to detect early whether there are contractions that are too weak or too strong (Rhomadona, 2019).

Research at the Pangalengan Bandung Community Health Center shows that rose essential oil used through inhalation can increase alertness, improve memory, increase speed in calculating and soothe muscles and mind (Sholehah, 2020). Meanwhile, in another study, analysis of data from research on the effectiveness of rose aromatherapy on the length of the first stage of the active phase and labor pain, concluded that giving rose aromatherapy was more effective in reducing the length of the first stage of the active phase and labor pain (Lestari, 2022).

In research at the Abadan Regional Hospital, Iran, aromatherapy can reduce contractions during labor and change the functional disorders of labor and shorten labor time. With research results showing

the positive effect of jasmine aromatherapy on the progress of labor and reducing the duration of labor in the three stages of labor, aromatherapy significantly reduces the level of anxiety and fear of labor so that labor is on time and proceeds normally (Alavi, 2017).

Compared to previous studies, it was found that rose and jasmine aromatherapy can reduce pain and make labor progress normally. In this study there were no significant differences between the rose, jasmine aromatherapy groups and the control group. However, the delivery time in the three groups was still within normal limits and did not harm the mother and fetus and did not exceed the alert line in the partograph.

Giving rose and jasmine aromatherapy to mothers in labor when the first stage of labor was not advanced, there was no significant difference in the three test groups. However, the time of labor in the three groups was still within normal limits and did not harm the mother and fetus and did not exceed the alert line in the partograph.

AUTHOR CONTRIBUTION

Lilik Asmawati is the main researcher and contributed to the funding of this research. Diyah Fatmasari and Melyana Nurul Widayawati are aromatherapy consultants. Ari Suwondo is a consultant for research methods and statistics.

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CONFLICT OF INTEREST

There is no conflict of interest in this study.

REFERENCE

- Alavi A, Askari M, Nejad ED, Bagheri P (2017). Study the effect of massage with jasmine oil in comparison to aromatherapy with jasmine oil on childbirth process in hospitals of Abadan city in 2013. *Annals of Tropical Medicine Public Health*; 10: 904-9. doi: 10.4103/ATMPH.ATMPH_245_17.
- Asuhan Persalinan Normal (2018). *Buku asuhan persalinan normal (Normal childbirth care book)*. Jakarta: JNPK-KR.
- Fatmawati (2017). Faktor-faktor yang berhubungan dengan kejadian partus lama di Puskesmas Jumpandang Baru Makassar Tahun 2017 (Factors related to the incidence of prolonged labor at the Jumpandang Baru Makassar Community Health Center in 2017). *Jurnal Kesehatan Delima Pelamonia*; 1(1): 27-36. doi: 10.37337/jkdp.v1i1.23.
- Hermawan I (2019). *Metodologi penelitian pendidikan, kuantitatif, kualitatif, dan mixed method (Educational research methodology, quantitative, qualitative, and mixed methods)*. Kuningan: Hidayatul Quran.
- Julianto T (2016). *Minyak atsiri bunga Indonesia (Indonesian flowers essential oil)*. Yogyakarta: Deepublish.
- Lestari Y, Marsita E, Hidayat T, Zakiyya A (2022). Efektivitas rebozo dan aromaterapi mawar pada durasi fase aktif dan nyeri persalinan (Effectiveness of rebozo and rose aromatherapy on the duration of the active phase and labor pain). *Jurnal Sains Kebidanan*; 4(2): 52-58. doi: 10.31983/jsk.v4i1.9182.
- Mardiani N, Marfu'ah (2021). Efek penggunaan aromaterapi lavender terhadap emmenagouic pada masa persalinan di UPTD Puskesmas Kaliwedi Kabupaten Cirebon (The effect of using lavender aromatherapy on emmenagouic during labor at Kaliwedi Community Health Center, Cirebon Regency). *Jurnal Kesehatan Pertiwi*; 3A: 59-65.
- Okoroiwu HU, Akiwu EC (2019). Choice of parametric and nonparametric statistical procedure in clinical and biomedical research. *SJMLS*; 4(2): 5-15.
- Rhomadona SW, Widyawati MN (2019). Analisis aktivitas kontraksi uterus dan perinatal outcome pada ibu bersalin dengan induksi (Analysis of uterine contraction activity and perinatal outcomes in women giving birth by induction). *Jurnal Keperawatan Silampari*. 2(2):53-65. doi: 10.31539/jks.-v2i2.5.
- Sarli D (2017). Hubungan kadar hormon oksitosin terhadap lama kala III persalinan serta pengaruhnya terhadap jumlah perdarahan pada ibu 2 jam postpartum (The relationship between oxytocin hormone levels and the length of the third stage of labor and its influence on the amount of bleeding in the mother 2 hours postpartum). *Jurnal Ilmu Kesehatan*; 1(1):6-12. doi: 10.33757/jik.v1i1.20.17.
- Sholehah KS, Arlym LT, Putra AN (2020). Pengaruh aromaterapi minyak atsiri mawar terhadap intensitas nyeri persalinan kala I fase aktif di Puskesmas Pangalengan Kabupaten Bandung (The effect of rose essential oil aromatherapy on the intensity of labor pain in the active phase of the first stage at the Pangalengan Community Health Center, Bandung Regency). *Jurnal Ilmiah Kesehatan*; 12(1): 39-51. doi: 10.37012/jik.v12i1.116.