



## Date Fruit Consumption (*Phoenix Dactylifera* L) Facilitates Labor

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### ABSTRACT

Dates, containing 80% sugar, offer an additional source of energy. This study seeks to ascertain the impact of date consumption on labor duration and postpartum blood loss volume among mothers who consumed dates at UPT Puskesmas Tunjung Teja in 2022. The study utilized a quasi-experimental design with a post-test only and a control group. The sample comprised 16 participants in the intervention group and 16 in the control group, selected using consecutive sampling. Research findings revealed that date consumption had a significant effect ( $p \leq 0.05$ ) on labor duration and blood loss volume during the fourth stage of labor. Data collection involved administering seven dates to mothers when their cervical dilation reached 1 cm upon admission. Healthcare providers at UPT Puskesmas Tunjung Teja are encouraged to offer dates as a nutritional supplement during labor to serve as a natural source of uterine energy.

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#### Kata kunci:

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### ABSTRAK

Buah Kurma mengandung 80% gula untuk penambah energi ekstra tinggi. Penelitian ini bertujuan untuk mengetahui efek konsumsi kurma pada kejadian lama persalinan dan volume darah kala IV pada ibu yang mengonsumsi kurma di UPT Puskesmas Tunjung Teja tahun 2022. Desain yang dipakai pada penelitian ini yaitu memakai desain penelitian quasi eksperimen dengan desain post-test saja dan kelompok kontrol. Jumlah sampel dalam penelitian ini yaitu 16 kelompok intervensi dan 16 kelompok kontrol, serta menggunakan teknik consecutive sampling. Hasil penelitian menunjukkan konsumsi kurma berpengaruh ( $p \leq 0,05$ ) terhadap lama persalinan dan volume perdarahan pada persalinan kala IV. Teknik pengambilan data penelitian ini adalah dengan memberikan 7 buah kurma kepada ibu saat hasil tes dilatasi serviks 1 cm saat responden datang. Petugas kesehatan di UPT Puskesmas Tunjung Teja disarankan untuk memberikan kurma sebagai asupan nutrisi saat melahirkan sebagai sumber energi alami rahim.

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### INTRODUCTION

Incidence of prolonged labor, accounting for 8% of maternal mortality cases, is one of the factors frequently triggering maternal suffering and death during childbirth. The prevalence of prolonged labor in developing countries ranges from 2.6% to 2.17%. According to data from the 2019 Indonesian Health report, approximately 4.3% of maternal

deaths were attributed to prolonged labor. Prolonged labor is a significant and pressing issue in Indonesia concerning maternal and fetal health and mortality factors. Complications during labor contribute to an increase in maternal mortality rates (Bagherzadeh Karimi et al., 2020).

Based on preliminary data collected at the research site, UPT Puskesmas Tunjung Teja, there were 249 deliveries in the year 2022, with 85 cases of prolonged labor during the same

period. This has motivated researchers to conduct a study on the influence of date fruit consumption on the duration of the first stage of labor and postpartum hemorrhage volume during the fourth stage of labor among mothers delivering at UPT Puskesmas Tunjung Teja in 2022.

The labor process begins when regular contractions reach the second stage, which typically lasts approximately 8-10 hours for multigravida mothers and 10-12 hours for primigravida mothers. Prolonged labor is defined as when the latent phase of the first stage exceeds 8 hours or when the entire labor process extends beyond 12 hours, or if the baby fails to descend (Azizah Nur, 2021).

Several factors contribute to prolonged labor, including insufficient uterine power during ineffective contractions, which is the most common cause of prolonged labor. Slow cervical dilation due to inefficient contractions leads to maternal fatigue and, consequently, an increased risk of cesarean section and labor induction (Azizah Nur, 2021).

One approach to enhancing uterine contractions and reducing the rate of cesarean sections during labor is the consumption of date fruit. Dates stimulate oxytocin receptors in the central nervous system, alleviating anxiety and aiding in the initiation, progression, and acceleration of labor. Dates also play a role in preventing postpartum hemorrhage, promoting immediate childbirth, and facilitating labor progression. Consuming dates during the termination of pregnancy plays a crucial role in labor progression. Dates influence oxytocin receptors, causing uterine muscles to respond more efficiently to oxytocin, resulting in more productive uterine contractions (Bagherzadeh Karimi et al., 2020).

## METHODS

This study employed a quantitative research design, specifically adopting a quasi-experimental approach with a post-test only control group design to assess variations both prior to and following the intervention. The investigation transpired during the period spanning from January to May 2022 at UPT Puskesmas Tunjung Teja. The targeted population

comprised individuals whose characteristics were explicitly pertinent to the study's conclusions, thereby necessitating the intervention. The research population was defined as all primigravida women in the initial stage of labor at UPT Puskesmas Tunjung Teja, totaling 32 participants. The sample size encompassed 16 individuals assigned to the intervention group and an equivalent number assigned to the control group, resulting in a total of 32 participants selected through consecutive sampling. Data collection entailed the allocation of seven specific time points to respondents, corresponding to when their cervical dilation reached 1 cm. Subsequently, data analysis was conducted employing independent t-tests and paired sample t-tests.

## RESULTS AND DISCUSSION

Based on Table 1, it is evident that the majority of the intervention group consists of individuals not at risk in terms of age, totaling 9 respondents (56.3%), while the majority of the control group also falls into the at-risk age category, with 9 respondents (56.3%). In terms of parity characteristics, it is noteworthy that the majority of both the intervention and control groups are primiparous, with 11 respondents (68.7%).

**Table 1.**  
Frequency Distribution of Age and Parity Characteristics in the Intervention and Control Groups

Characteristics	Intervention		Control	
	n	%	n	%
<b>Age</b>				
At Risk	7	43,7	9	56,3
Not At Risk	9	56,3	7	43,7
<b>Total</b>	<b>16</b>	<b>100</b>	<b>16</b>	<b>100</b>
<b>Parity</b>				
Primipara	11	68,7	11	68,7
Multipara	5	31,3	5	31,3
<b>Total</b>	<b>16</b>	<b>100</b>	<b>16</b>	<b>100</b>

**Table 2.**  
Frequency Distribution of Duration of the First Stage of Labor in the Intervention Group Among Mothers

Variable	Intervention			Control		
	n	Mean (minutes)	Std. Dev.	n	Mean (minutes)	Std. Dev.
Duration of Labor	16	296.00	74.664	16	437.31	54.529

**Table 3.**  
Frequency Distribution of Blood Volume (cc) in the Intervention and Control Groups Among Mothers

Factor	Intervention			Control		
	n	Mean (cc)	Std. Dev.	n	Mean (cc)	Std. Dev.
Blood Volume	16	253.63	22.794	16	298.38	39.744

**Table 4.**  
Effectiveness of Date Fruit Consumption on the Duration of the First Stage of Labor

Group	Mean	n	Std. Dev.	Std. Error	P-Value
Intervention	437.31	16	54.529	13.632	0,000
Control	296.00	16	74.664	18.666	

**Table 5.**  
**Effectiveness of Date Fruit Consumption on Postpartum Hemorrhage Volume**

Group	Mean	N	Std. Dev.	Std. Error	P-Value
Intervention	235.63	16	22.794	5.699	0,001
Control	289.38	16	39.744	9.936	

The results in Table 2 depict the duration of the first stage of labor in the intervention group among mothers at UPT Puskesmas Tunjung Teja in 2022. The shortest duration observed in the intervention group was 165 minutes (2.7 hours), while the longest duration was 445 minutes (7.4 hours), with an average duration of 294 minutes (4.9 hours). In the control group, the shortest observed duration was 310 minutes (5 hours), the longest was 492 minutes (8.2 hours), and the average duration was 438 minutes (7.3 hours).

The results in Table 3 reveal that the intervention group exhibited a minimum blood volume of 200 cc and a maximum blood volume of 260 cc, with an average blood volume of 235 cc. In contrast, the control group had a minimum blood volume of 240 cc, a maximum blood volume of 380 cc, and an average blood volume of 298 cc. The results in Table 4 demonstrate a significant difference after date fruit consumption, with a p-value of 0.000, indicating a noticeable impact on the duration of labor among mothers.

Table 5 reveals a significant disparity in blood volume between the intervention and control groups after date fruit consumption among mothers in labor, with a p-value of 0.001. This suggests the presence of an effect of date fruit consumption on postpartum hemorrhage volume.

The extended duration of labor represents a significant and critical issue, particularly in developing countries, as it is associated with maternal mortality and fetal complications. The prevalence of prolonged labor ranges from 2.6% to 2.17%, making it a contributing factor to 8% of maternal deaths in developing nations. According to the World Health Organization (WHO), full-term pregnancies typically span between 37 and 42 weeks of gestation. After birth, both the mother and the newborn are expected to be in a state of normal health (Kordi et al., 2017; Razali et al., 2017).

Inadequate uterine contractions during labor are a primary factor contributing to the prolonged duration of labor. Apart from insufficient contractions, other factors that lead to prolonged labor include maternal age and parity (Ulya et al., 2022).

Dates are considered a high-energy fruit due to their fructose and glucose content, which provides a readily absorbed source of strength for the body. Dates are also recognized as a rich source of dietary fiber, ranging from 2% to 8%, with the highest fiber content being 8%. Sugar serves as a carbohydrate and energy source in dates, with sugar content ranging from 44% to 88%. This abundant sugar content is beneficial for providing energy during the strenuous pushing phase of labor, while serotonin and tannins in dates facilitate the relaxation of uterine smooth muscles, thus shortening the duration of bleeding. Dates also contain oleate and linoleate, which contribute to the production of prostaglandins, aiding in strengthening and straightening the uterine muscles. Dates further contain oxytocin, which enhances uterine contractions, making them more efficient (Ammarie et al., 2022; Ulya et al., 2022).

Fatty acids play a crucial role in prostaglandin synthesis, in addition to supplying and storing energy. When prostaglandin levels increase, it leads to continuous uterine contractions throughout labor. This is why dates are valuable for storing energy and strengthening uterine muscles. Dates also play a role in preventing postpartum hemorrhage,

facilitating immediate labor, and promoting the progress of labor (Kordi et al., 2017; Ulya et al., 2022).

Risky parities that can lead to difficulties during childbirth are primiparous (first-time mothers) and those with more than four pregnancies. Primiparous women may experience challenges during labor because their uterine response to stress on both the fetus and the mother has not been previously tested through childbirth. On the other hand, women with more than four pregnancies may face difficulties due to uterine function decline. The uterus may lose its ability to stretch normally after multiple pregnancies, and the ligaments supporting the uterus may become lax (Fitriah et al., 2022).

According to Cunningham (2005), age-related factors are related to pregnancy capacity and are influenced by a woman's reproductive desires. Women under the age of 20 may have uteruses and pelvises that have not reached the standard dimensions of adult bodies. Consequently, if a woman becomes pregnant under the age of 20, labor may be prolonged or disrupted due to inadequate uterine and pelvic development (Addini et al., 2020).

Normal labor can also occur in women with risk factors and healthy fetuses, as well as a broad pelvic inlet. However, even in women without risk factors, prolonged labor can occur due to other factors such as inadequate contractions, fetal distress, and birth canal abnormalities. Saiffudin and Oxorn's theory suggests that prolonged labor is not solely attributed to risk factors but can also occur in non-risk cases due to factors like weak contractions, fetal conditions, and birth canal abnormalities (Lubis & Sugiarti, 2021).

The findings of this research align with previous studies, such as that of Nanik and Kiftiyah (2019), which stated that date fruit consumption is highly effective in aiding the labor process. Their research indicated a significant impact of date consumption on labor progress ( $r = 0.001$ ). Consistent with this, the current study reveals that the group of mothers who consumed dates had a higher likelihood of cervical dilation reaching 96%, compared to 79% in the group not given dates. Additionally, the date-consuming group required less oxytocin, around 28%, while the non-date-consuming group needed oxytocin in 47% of cases (Al-Kuran et al., 2011).

#### LIMITATION OF THE STUDY

Limitations of the Study, this research did not encompass other variables that may influence the labor process, such as genetic factors, additional medical conditions, or dietary intake of foods other than dates.

#### CONCLUSIONS AND RECOMMENDATION

Based on the research findings, it can be concluded that the majority of participants in the intervention group were classified as "Not At Risk" based on their age, constituting 9 respondents (56.3%). Conversely, the control group had a similar proportion of 9 respondents (56.3%) falling into the "At Risk" age category. Regarding parity characteristics, a

significant majority in both the intervention and control groups were categorized as "primiparous," totaling 11 respondents (68.7%). Furthermore, the intervention group predominantly experienced an average duration of the first stage of labor lasting 296 minutes (equivalent to 4.9 hours), with the shortest observed duration being 165 minutes (approximately 2.7 hours) and the longest reaching 445 minutes (around 7.4 hours). Additionally, the intervention group exhibited a substantial mean blood volume measurement of 111.88 cc, with the lowest recorded at 105 cc and the highest at 120 cc. The study also highlighted the considerable impact of date consumption on both the duration of labor and the volume of blood during the fourth stage of labor. Therefore, it is recommended that future researchers delve deeper into the analysis of additional factors influencing the duration of labor, such as genetic factors, the infant's health condition, and long-term patterns of date consumption. Exploring the effects of date consumption on labor in cases involving medical complications or specific risk groups should also be explored. Furthermore, conducting comparative studies involving various types of fruits or other dietary items may offer further insights into the role of dates in facilitating labor. Additionally, future research endeavors may consider integrating nutritional aspects with sociodemographic factors to gain a more comprehensive understanding of the relationships between these variables. These avenues of investigation have the potential to make significant contributions to the existing body of knowledge in this field.

## DECLARATION

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### Conflict of Interest Statement

The authors declare that they have no involvement with any external parties and this paper is purely from the sources listed in the bibliography and does not contain plagiarism from any journal article. All sources of writing have been listed in the bibliography

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