

THE EFFECT OF DATE PALM JUICE CONSUMPTION ON THE ACTIVE PHASE OF LABOR AMONG PRIMIGRAVIDA

W. Inancy¹, Aticeh², Wa Ode Hajrah³
^{1,2,3} Midwifery Program, Health Polytechnics of Jakarta III, Indonesia

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ABSTRACT

As an alternative to providing energy during late pregnancy and childbirth, dates give many benefits, such as assisting contractions. Dates have high carbohydrate content so that fatigue that occurs during labor, especially in the active phase, can be reduced. By dividing the sample into two groups, namely the experimental group and the control group, the intervention of date palm juice was seen based on the duration of the active phase of labor. It was known that the experimental group had a shorter duration of labor than that of the control group with a p value equal to 0.000. Therefore, date juice is proven to shorten the duration of active phase labor.

INTRODUCTION

Prolonged labor is often associated with fetal and maternal disorders caused by, among others, ineffective uterine contractions which ultimately lead to an increase in the rate of cesarean and induction of labor. It is important to note that the lack of adequate uterine contractions can be influenced by various factors, such as physical and mental. Therefore, energy needs at the time of delivery must be highly considered (Odent, 1994). The amount of energy needed for labor can be compared to aerobic exercise, which is estimated to be between 50 and 100 kcal per hour (Kordi, 2009).

Dates with the Latin name *Phoenix dactylifera* are one of the energizers that have a lot of carbohydrates, most of them including fructose, glucose, and sucrose. They also contain fats, salts and minerals, and proteins so that this fruit is recommended as part of a diet for pregnant women as well as labor preparation (Al-Shahib & Marshall, 2003). In addition, dates contain a variety of vitamins such as riboflavin, biotin, thiamin, folic acid and ascorbic acid (Al-Farsi & Lee, 2008).

Ingredients such as saturated and unsaturated fatty acids play an important role in prostaglandin production apart from contributing and providing energy. Consumption of dates is also believed to help save energy and strengthen the muscles of the uterus (Baliga, 2011). This fruit also contains hormones that help the uterus stretch and are prepared for labor. Its consumption is very helpful in storing energy and strengthening the muscles of the uterus. Thus, consumption of dates at this time can prevent postpartum hemorrhage, spontaneous labor, and accelerate the progress of labor (Izaddinn, et.al., 2018).

Because of their energy production and enough calories, dates can prevent physical weakness so that this fruit can help pregnant women during labor. In addition, dates contain any hormones that prepare the uterus for stretching and childbirth so that it can accelerate labor, increase cervical dilatation, and reduce the need for induction (Bagherzadeh Karimi, 2020). It is important to note that primigravida mothers have 12 to 13 hours to go through the first stage of labor and if it exceeds that time, it can be said that labor is prolonged (prolonged labor). Long parturition causes various complications for

*Korespondensi:

mother and fetus such as postpartum hemorrhage (Li, Zhang, Ling, & Jin, 2011). Already known among midwife practitioners in their practices, oxytocin is often used for induction and augmentation of labor (Shyken & Petrie, 1995). The duration of labor can differ from one woman to another. One of the interventions to make the duration of labor not be prolonged is by administering initial oxytocin which may be associated with an increase in spontaneous vaginal birth. Oxytocin high and low doses for augmentation of labor delays reported shorter duration of labor and increased spontaneous vaginal birth associated with high doses (Begley, 2014).

In addition, oxytocin is used for the sake of controlling postpartum bleeding (Nordstrom 1997). However, compared to oxytocin which is routinely used, the date fruit ingestion significantly reduced the amount of bleeding in the first hour after the delivery of placenta because the compounds in date fruit mimic the action of oxytocin (Khadem, et. al., 2007). Based on this explanation, this study aimed to develop other research results that have been carried out in other countries to be applied in Jakarta, Indonesia, that consumption of date palm juice has an influence on primigravida delivery, especially in the first stage in the active phase.

METHOD

This was a quasi-experimental study with a static group comparison study design. A purposive sampling was used as a sampling technique. The sample criteria included primiparous pregnant women who were healthy and not experiencing complications, willing to consume palm juice during the delivery process, the size of the fundus uteri less than 40 cm, full-term for gestational age, the age of the pregnant woman less than equal to 35 years, and maternal mid-upper arm

circumference (MUAC) more than 23 cm. The study population was all primigravida giving birth at a privately practicing midwife in East Jakarta.

At the data collection stage, an explanation was given beforehand to prospective respondents including the intentions and objectives, as well as the benefits of study. Questionnaires were given to respondents after the Informed Consent process. The study respondents consisted of two groups, i.e., women as the treatment group to be given palm juice during the first stage of labor and those as a control group that was not given anything. Mann Whitney U was used as the statistical test.

RESULT AND DISCUSSION

The mean duration of labor in the active phase of the first stage in the experimental group was 2.05 hours, with the lowest time being 1 hour and the longest time being 3 hours. For the control group, the mean length of labor in the active phase was 5.15 hours with the lowest time being 3 hours and the longest time being 13 hours. From these results, it can be seen that the statistical value of the difference between the two groups was 0.000 which means that the administration of date palm juice was effective in making the duration of labor during the active phase become faster than that without date palm juice (Table 1).

Table 1: The Duration of Labor from the Active Phase to the Delivery

Variable	<i>Ex. Group</i>	<i>Cont. Group</i>
Mean	2.05	5.15
Median	2.00	4.5
Modus	3.00	4.00
Min	1.00	3.00
Max	3.00	13.00
Std Dev	0.887	2.207

Table 2. The Effectiveness of Date Palm Juice to the Duration of Active Phase among Primigravida

Mann-Whitney U	8.000
Wilcoxon W	218.000
Z	-5.280
Asymp. Sig. (2-tailed)	.000
Exact Sig. [2*(1-tailed Sig.)]	.000 ^b

From the statistical test, the difference between the two groups was 0.000 which means that the administration of date palm juice was effective in helping the duration of labor in the active phase in comparison with the control group that was not given the juice.

As the physiological processes experienced by most women (Taavoni, et.al., 2018), pregnancy should end in normal labor, namely spontaneous vaginal delivery. Unfortunately, for some reason, there are patients who need to require labor induction to avoid worse medical complications. Some women who experience spontaneous labor will need labor augmentation by using various methods, either alone or in combination (Razali, et.al., 2017). However, labor induction should not be taken lightly because it is not without risk. Induced labor can lead to an increase in complications, such as bleeding, cesarean section, stimulation, and rupture of the uterine hyper (World Health Organization, 2011).

Dates can provide the energy needed during labor to prevent fatigue. In normal childbirth, the mother's energy must be maintained constantly, and so does the body's electrolytes (Alaei, 2009). It should be noted that, for cervical maturation to stimulation of labor, oxytocin and prostaglandins have been widely used. In the last days of pregnancy, the oxytocin myometer receptors increase and estrogen and progesterone levels change within 34-35 weeks of pregnancy. These changes can cause increased uterine

irritability, increased uterine responsiveness to contracting factors, and increased cervical preparation for labor. Therefore, to induce labor and stimulation, one of the alternatives to do is by consuming dates in the last weeks of pregnancy, because dates act on prostaglandin receptors, cause early stimulation of uterine contractions, and increase response to syntocrine if needed.

In addition to producing energy, fatty acids in dates play an important role in the production of prostaglandins as, one of them, strengthening the muscles of the uterus. It is important to note that consumption of dates in the last weeks of pregnancy can increase antioxidant capacity so that pain tolerance can also be formed. In addition, dates have anti-inflammatory and antioxidant properties and are rich in calcium, serotonin, and tannins, and can play a role in contraction of uterine smooth muscle.

Consuming dates at the end of pregnancy is effective in shortening the length of the active phase (Al-Kuran, et.al., 2011). It seems that dates help in more effective uterine contractions (Speroff & Fritz, 2005) with better cervical preparation and save energy, which requires less time to shorten labor. Because carbohydrate content is considered an important source of energy in the body, dates have a high digestibility. Maternal glucose is the most important source of energy and dates can provide that need. In addition, tannins found in dates play an important role in the contraction of smooth cervical muscles.

The first stage of labor is when the opening takes place between the opening 0 to the complete opening. At the beginning, the opening was not so strong that the mother could still take a walk. It can be stated clinically that parturition starts when the contraction arises and the woman produces bloody show. This comes from the cervical

canal because the cervix is opening or flattening out. The blood comes from the broken capillaries that surround the cervical canal because of shifts when the cervix opens. This process lasts approximately 18-24 hours, which is divided into 2 phases, i.e., the latent phase (8 hours) from 0 cm opening to 3 cm opening, and the active phase (7 hours) from 3 cm of cervical opening to 10 cm.

This active phase is still divided into 3 phases, i.e., the acceleration phase, where within 2 hours the opening 3 cm becomes 4 cm, the maximum dilatation phase, i.e., within 2 hours the opening takes place very quickly, from the opening 4 cm to 9 cm, and the deceleration phase, where the opening becomes slow again: within 2 hours of opening 9 cm to 10 cm. The contractions become stronger and more frequent in the active phase. This situation can be found in both primigravida and multigravida, but in multigravida during the latent phase, the active phase and the deceleration phase occur shorter.

Based on the Friedman curve, opening calculated at primigravida is 1 cm/hour and opening at multigravida is 2 cm/hour. Thus, the complete opening time can be estimated. The mechanism of opening the cervix is different between primigravida and multigravida. In primigravida, the internal uterine ostium will open first, so the cervix will level off and thin out and then the external uterus opens. In multigravida, the internal uterine ostium has opened slightly, so that the internal and external uterine ostium and cervical thinning and flattening occur at the same time.

According to a study by Rosyidah et al (2017), date juice can strengthen the muscles of the uterus, so that the birth process becomes easy. It also reduces bleeding during childbirth and strengthens the uterine organs. In fresh dates, it contains the oxytocin. Oxytocin itself is a

hormone that will cause contractions in the uterus. This hormone will increase during labor. Pregnant women who are weak during uterine contractions will be given an injection of this hormone to improve the contractions of the uterus so that labor will go well. In the post-partum period, this hormone will be released when the baby is breastfeeding. In addition, it must be noted that the dates are easily absorbed after being consumed and it can finally be used by the cells shortly after consumption (Zangeneh, Moezi, & Zargar, 2009).

In Indonesia, the people, especially those who are Muslim, are very accustomed to eating dates, especially during the fasting month. Muslims consider that dates are fruits that are full of blessing (Nasiri, 2019). Therefore, this intervention for pregnant women who will be approaching childbirth will be very easy to do because they are familiar with dates. With the benefit of dates, pregnant women should be accustomed to eating dates so that these extraordinary benefits can be felt by all mothers who are facing childbirth. With a significant difference in the duration of the active phase of labor as evidenced in this study, consumption of dates is not just for the diet of pregnant women but also for providing energy during labor.

CONCLUSION

There is a significant effect of date palm administration on the duration of the first stage of labor in the active phase in primigravida. Palm juice is an herbal nutrient that does not have a negative effect if consumed in moderation. It has a good effect on the contractions of the mother's uterus because it contains oxytocin needed during labor so that it can help accelerate the active phase.

REFERENCE

- Alaei H, Pakdaman M. (2009). The nutrition therapy from the holy Quran and science perspective. *Specialized J Quran and Sci.* 3(5):83–112. Return to ref 23 in article
- Al-Farsi*, M. A., & Lee, C. Y. (2008). Nutritional and Functional Properties of Dates: A Review. *Critical Reviews in Food Science and Nutrition*, 48(10), 877–887. doi:10.1080/10408390701724264
- Al-Kuran O, Al-Mehaisen L, Bawadi H, Beitawi S, Amarín Z. (2011). The effect of late pregnancy consumption of date fruit on labour and delivery. *J Obstet Gynaecol.* 31:29–31.
- Al-shahib Walid, & Marshall, R. J. (2003). The fruit of the date palm: its possible use as the best food for the future? *International Journal of Food Sciences and Nutrition*, 54(4), 247–259. doi:10.1080/09637480120091982
- Bagherzadeh Karimi, A., Elmi, A., Mirghafourvand, M., & Baghervand Navid, R. (2020). Effects of date fruit (*Phoenix dactylifera* L.) on labor and delivery outcomes: a systematic review and meta-analysis. *BMC Pregnancy and Childbirth*, 20(1). doi:10.1186/s12884-020-02915-x
- Baliga, M. S., Baliga, B. R. V., Kandathil, S. M., Bhat, H. P., & Vayalil, P. K. (2011). A review of the chemistry and pharmacology of the date fruits (*Phoenix dactylifera* L.). *Food Research International*, 44(7), 1812–1822. doi:10.1016/j.foodres.2010.07.004
- Begley, C. M., Gross, M. M., Dencker, A., Benstoem, C., Berg, M., & Devane, D. (2014). Outcome measures in studies on the use of oxytocin for the treatment of delay in labour: A systematic review. *Midwifery*, 30(9), 975–982. doi:10.1016/j.midw.2014.06.005
- F.Z. Zangeneh, L. Moezi, A.A. Zargar. (2009). The effect of palm date, fig and olive fruits regimen on weight, pain threshold and memory in mice. *Iran J Med Aromat Plants*, 25 (2) (2009), pp. 149-158
- Izzaddinn E. Ahmed, Hyder O. Mirghani, Mohammed A. Mesaik, Yassin M. Ibrahim, and Tehreen Q. Amin. (2018). Effects of date fruit consumption on labour and vaginal delivery in Tabuk, KSA. *Journal of Taibah University Medical Sciences* Volume 13, Issue 6, December 2018, Pages 557-563. doi:10.1016/j.jtumed.2018.11.003
- Khadem N, Sharaphy A, Latifnejad R, Hammod N, Ibrahimzadeh S. (2007). Comparing the efficacy of dates and oxytocin in the management of postpartum hemorrhage. *Shiraz E-Medical Journal* 8:64–71.
- Kordi M, Salek N, Safarian M, Smaeili H. (2009). Effect of Dates syrup on the progress of labor in primiparous women during labor. *J Obstet Gynecol Infertil.* 13:23–30
- Li, W., Zhang, H., Ling, Y., & Jin, S. (2011). Effect of prolonged second stage of labor on maternal and neonatal outcomes. *Asian Pacific Journal of Tropical Medicine*, 4(5), 409–411. doi:10.1016/s1995-7645(11)60114-4
- L. Speroff, M.A. Fritz. (2005). *Clinical gynaecologic endocrinology and infertility* Lippincott. Williams & Wilkins. New York
- Nasiri, M., Gheibi, Z., Miri, A., Rahmani, J., Asadi, M., Sadeghi, O., Khodadost, M. (2019). Effects of consuming date fruits (*Phoenix dactylifera* Linn) on gestation, labor, and delivery: An updated systematic review and meta-analysis of clinical trials. *Complementary Therapies in Medicine*, 45, 71–84. doi:10.1016/j.ctim.2019.05.017
- Nordstrom L. (1997). Routine oxytocin in the third stage of labour: a placebo-controlled randomised trial. *British Journal of Obstetrics and Gynaecology* 104:781–786
- Odent M. (1994). Laboring women are not marathon runners. *Midwifery Today Childbirth Educ.* 31:23–5
- Razali, N., Mohd Nahwari, S. H., Sulaiman, S., & Hassan, J. (2017). Date fruit consumption at term: Effect on length of gestation, labour and delivery. *Journal of Obstetrics and Gynaecology*, 37(5), 595–600. doi:10.1080/01443615.2017.1283304

Rosyidah Nur Nanik, Kiftiyah. (2017). Efektifitas Pemberian Ekstrak Kurma Muda Terhadap Percepatan Kala I Persalinan, Jurnal keperawatan dan Bidan Vol. 9 No. 1 tahun 2017, Mojokerto.

Shyken, J. M., & Petrie, R. H. (1995). The Use Of Oxytocin. Clinics in Perinatology, 22(4), 907–931. doi:10.1016/s0095-5108(18)30262-8

Taavoni S, Fathi L, Nazem Ekbatani N, Haghani H. (2018). The Effect of Oral Date Syrup on Severity of Labor Pain in Nulliparous. Shiraz E-Med J. Online ahead of Print ; 20(1):e69207. doi: 10.5812/semj.69207

World Health Organization. 2011. WHO recommendations for induction of labour. Geneva: World Health Organization.