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The Effect of *Phoenix Dactylifera* on Uterine Contraction in Labor

Pengaruh *Phoenix Dactylifera* terhadap Kontraksi Uterus pada Persalinan

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Abstract
Cases of prolonged labor in women labor in the world are still relatively high. Inadequate uterine contractions are the leading cause of complications of maternal death worldwide. This study aimed to analyze the Effect of Phoenix Dactylifera on uterine contractions in birthing mothers. The method applied in this research was an experimental Pretest posttest control group design. In this study, there were 60 samples, which were divided into two groups. The Paired t-test results on uterine contractions during the pretest-posttest in the intervention group showed significant results, namely a value of 0.000. In the control group, uterine contractions during the pretest-posttest showed an AP value of 0.090. Uterine contractions increased (adequate) after the mothers were given dates.
Keywords:
Phoenix Dactylifera; Uterine Contractions; Labor Mother

Abstrak
Kasus persalinan lama pada pekerja perempuan di dunia masih cukup tinggi. Kontraksi uterus yang tidak adekuat merupakan penyebab utama komplikasi kematian ibu di seluruh dunia. Tujuan penelitian ini adalah menganalisis pengaruh Phoenix Dactylifera terhadap kontraksi rahim pada ibu bersalin. Metode dalam penelitian ini adalah Quasy Experimental Pretest posttest control group design. Pada penelitian ini terdapat 60 sampel yang dibagi menjadi 2 kelompok. Hasil uji Paired t-test terhadap kontraksi uterus pada saat pretest-posttest pada kelompok intervensi menunjukkan hasil yang signifikan yaitu bernilai 0,000. Pada kelompok kontrol kontraksi uterus saat pretest-posttest menunjukkan nilai p sebesar 0,090. Kontraksi rahim meningkat (memadai) setelah ibu diberikan kurma.
Kata Kunci:
Phoenix Dactylifera; kontraksi uterus; ibu melahirkan

INTRODUCTION

Cases of prolonged labor in women labor in the world are still relatively high. The average birthing mother in the world experiences delays in labor progress; the duration of labor in the 1st stage of the active phase is around 6.1 – 7.4 hours, and the average duration of the active phase of labor is around 15. 5-18.1 hours. According to the World Health Organization (WHO), in 2020, prolonged labor was the leading cause of obstetric complications, with an incidence of 69,000 or 2.8% of all maternal deaths worldwide. The incidence of prolonged labor was currently estimated at 17% of all births, and nearly 70% were terminated by medical interventions such as cesarean section [1].

The Republic of Indonesia's Ministry of Health's 2021 profile stated that prolonged labor was a complication of labor with 1309 cases [2].

Meanwhile, the East Java Health Profile (2021) stated that prolonged labor was one of the complications of childbirth, with 291 cases[3]. The profile of the Kediri City Health Office in 2021 stated that long labor was one of the complications of childbirth, with a total of 107 cases[4]. The profile of the Kediri Regency Health Office for 2021 stated that prolonged labor was one of the complications of childbirth, with a total of 345 cases. In 2021, the most significant prolonged deliveries in Kediri Regency were at the Mojo Health Center with 35 cases, followed by the Gurah Health Center with 34 cases, the Sambi Health Center with 26 cases, the Puhjarak Health Center with 25 cases, the Plosoklaten Health Center with 24 cases, the Pelas Health Center with a total of 22 cases, and Purwoasri Health Center with a total of 18 cases of childbirth [5].

Inadequate uterine contractions are the most common cause of prolonged labor [6]. The condition of inadequate uterine contractions can slow down the progress of labor, which will increase maternal mortality and morbidity [7].

Long labor can be caused by a history of cesarean delivery in previous deliveries[8], body mass index of pregnant women, abnormalities (uterine inertia) [9], fetal abnormalities, and maternal pelvic abnormalities. Energy abnormalities also cause long labor. There is no cervix opening [10], wrong parturition, large fetus, primitive and grande multipara [11].

Prolonged labor can cause complications to the fetus/neonate or the mother[12]. Complications that arise in the fetus are the occurrence of head compression, impaired oxygen supply, low APGAR scores, and fetal/neonatal death [13]. Meanwhile, complications that arise in the mothers include perineal trauma and postpartum bleeding [14].

Pregnant women about to give birth need much nutrition due to many contractions of the uterine muscles when the baby is born[15]. There are many ways to increase uterine contractions in pregnant women, such as *Phoenix dactylifera* at the end of pregnancy[14]. The date palm fruit (*Phoenix Dactylifera*) contains much perfect nutrition. The date palm fruit contains a high percentage of carbohydrates (58%), fat (1%), water (20.35%), protein (3%) and vitamins such as riboflavin (4.5%), thiamine (4%), folate and folic acid (4%), calcium (6.5%), magnesium (13%), and phytochemicals such as carotenoids, polyphenols, tannins and sterols [16].

There are types of dates, such as ajwa dates, safari dates, Khalas dates, deglet nour dates, and sukkari dates [14]. Researchers chose Sukkari dates because Sukkari dates have a very high fatty acid content (0.5%). Meanwhile, ajwa dates contain fatty acids (0.2%), safari dates contain fatty acids (0.1%), khalas dates contain fatty acids (0.2%), and deglet nour dates contain fatty acids (0.2%). Sukkari dates have a dark brown color and soft flesh texture. These dates are round and have a distinctive sweet taste. The sugar content in dates differs from the sugar in other fruits, such as cane or granulated sugar, which usually contain high sucrose. The sugar in dates does not require such a long process to be directly absorbed into the body [14].

The results of previous research, women who consumed 6 dates every day at a gestational age of over 37 weeks until delivery had an average of faster cervical dilatation in hospitalized patients than those who did not consume dates and a higher proportion of intact membranes. Childbirth occurred spontaneously in 96% of mothers who ate dates compared to 79% of mothers who did not eat dates. Prostin/oxytocin use was significantly lower in women who consumed dates (28%) compared to those who did not consume dates (47%). And the average latent phase period during the first phase of labor was shorter, namely 510 minutes, for women who consumed dates compared to 906 minutes for those who did not. This shows that there is an effect of giving dates on the progress of the first stage of labor in the latent phase in women giving birth.

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Based on the aforementioned background, *Phoenix Dactylifera* at the end of pregnancy can cause uterine contractions to improve. Therefore, the researchers attempted to investigate whether there was an effect of *Phoenix Dactylifera* on contractions in birthing mothers.

METHODS

The method used in this research was a quasi-experimental design. The research design used was a pretest-posttest control group design. In this design, the experimental group and the control group were compared. The experimental group received treatment, namely in the form of giving dates, while the control group did not receive treatment, meaning there were no dates given.

The population of this study was all pregnant women (totaling 70 pregnant women) whose gestational age was 37 weeks at the Mojo Health Center, Grogol Health Center, Wonorejo Health Center, and Gampeng Health Center. Thus, the sample size used in this study was 60 pregnant women. The sampling technique used was simple random sampling. The instruments used in this study were partograph sheets, observation sheets, and daily intake sheets. The data collection process was divided into two stages, namely the pretest-posttest stage. Data processing was carried out in this study using computerized programs and data analysis with the Paired t-test and the independent t-test.

RESULTS AND DISCUSSION

Table 1. Distribution of Respondent Characteristics

Characteristics	Group (n=30) Intervention Group		(n=30) Control Group		*P-value*
	F/M	%/SD	F/M	%/SD	
Age	26.36	6.019	24.33	5.245	0.169[a]
Education					0.061[b]
1. Elementary school	16	53	16	53	
2. Secondary school	12	40	8	27	
3. High school	2	7	6	20	
Occupation					0.652[c]
1. Employment	30	100	30	100	
2. Unemployment	0	0	0	0	
Parity					0.324[a]
1. Primigravida	13	43	19	63	
2. Multigravida	17	57	11	37	
Uterine Contraction	2.33	0.479	2.10	0.662	0.123[a]

Description: *a: Independent test, b: Wilxocon test, c: Chi quadrat test*

Table 1 shows that the average age of the respondents in the intervention group was (26.36 ± 6.019) years old and was (24.33 ± 5.245) years old, with a p-value of 0.169 in the control group. Based on educational characteristics, most of the respondents from the intervention and control groups were at the elementary school level, namely 32 respondents (53%) with a p-value of 0.061. In terms of occupation, all the respondents from the intervention group and the control group worked (100%) with a p-value of 0.652. Concerning gravida status, most of the respondents from both groups were primigravidas with 32 respondents (53%). Based on the uterine contractions, the average number of the intervention group was (2.33 ± 0.479) with a p value of 0.123. This shows that there was no significant difference between the intervention group and the control group, so the two groups had identical or homogeneous variations.

Table 2. Uterine Contractions in the Intervention Group

Variable	Intervention Group (n=30)		*P-Value*
	Pretest	*Posttest*	
	Mean(SD)	Mean (SD)	
Uterine Contraction	2.33(0.479)	3.60(0.498)	0.000

Description: Paired t-test

Table 2 shows the results of the average uterine contractions during the pretest in the intervention group, namely 2.33 times in 10 minutes, and the average uterine contractions during the posttest in the intervention group was 3.60 times in 10 minutes. Concerning the mean of pretest and posttest, it shows that uterine contractions increase in the intervention group. The paired t-test results of uterine contractions for the intervention group showed significant results, namely a p-value of 0.090 (p-value> 0.05). It can be concluded that uterine contractions have increased the contractions that were initially inadequate became adequate after the respondents in the intervention group were given dates.

Table 3. Uterine Contractions in the Control Group

Variable	Control Group (n=30)		*P-Value*
	Pretest	*Posttest*	
	Mean(SD)	Mean (SD)	
Uterine Contraction	2.10(0.662)	2.33(0.479)	0.090

Description: Paired t-test

Table 3 shows the results of the average uterine contractions during the pretest in the control group was 2.10 times in 10 minutes and the average uterine contractions during the posttest in the control group was 2.33 times in 10 minutes. Looking at the pretest and posttest means, it showed that there was an increase in uterine contractions, yet not significantly in the intervention group. The results of the paired t-test on uterine contractions for the control group showed significant results, namely a p-value of 0.090 (p-value> 0.05). It can be concluded that uterine contractions have increased but not significantly in the control group.

Table 4. Differences of Uterine Contractions in Both Groups After Consuming Dates (*Phoenix Dactylifera*)

	(n=30) Intervention Group		(n=30) Control Group		
Variable	Mean	SD	Mean	SD	*P-value*
Uterine Contraction	3.60	0.498	2.33	0.479	0.000

Description: Independent t-test

Based on Table 4, an independent t-test was carried out to find out the differences in uterine contractions in the two groups, namely the intervention group and the control group, after consuming dates fruit. The results of the analysis showed that the average posttest uterine contractions in the intervention group were 3.60 times in 10 minutes. Moreover, the average posttest uterine contractions in the control group were 2.33 times in 10 minutes. The difference in the posttest mean of uterine contractions in the two groups was 1.27 times in 10 minutes. Thus, the independent t-test results on the two groups' uterine contractions showed significant results, namely a p-value of 0.000 (p-value <0.05). This indicates differences in uterine contractions in the two groups after labor mothers are consuming dates.

Based on table 2, it shows that the results of uterine contractions have increased from 2 times to 3 times in 10 minutes. It can be concluded that uterine contractions have increased after *Phoenix Dactylifera* intervention, to birthing mothers.

The results of the above study align with other studies which stated that there was an effect of *Phoenix dactylifera* since the end of pregnancy on uterine contractions in birthing mothers [16]. Dates are enriched with saturated and unsaturated fatty acids, including oleic, linoleic and linolenic acids [16]. Linoleic acid is the precursor of Arachidonate, which can be converted into Icosanoids, and thus into prostaglandins [17]. The prostaglandin hormone plays a role in stimulating the performance of uterine contractions [18].

Another study also describes 189 pregnant women in Mashhad, Iran. Ninety-two pregnant women were used as the intervention group who consumed 100 grams of dates every day from 37 weeks of gestation, and 91 pregnant women were used as the control group who only received routine antenatal care. There was a statistically significant difference between the two groups in mean uterine contractions (3.24 in the intervention group and 2.54 in the control group). This suggests that consumption of dates is an efficient way to prevent prolonged pregnancies and reduce the need for induction[19].

This is supported as *phoenix dactylifera* during childbirth is very good for the delivery. Dates are one of the fruits that contain vitamins and calories, which are higher than other fruits[20]. Dates contain substances that make stimulants to strengthen the uterine muscles in the final months of pregnancy, help dilate the uterus during labor, and reduce bleeding [20].

The nutritional content of dates has good benefits for mothers facing childbirth [12]. Dates also produce the hormone oxytocin, which stimulates uterine contractions and facilitates delivery[12].

According to the theories described above, there are differences between this present study and previous studies. Researchers assessed by looking at the mean and results of analysis of uterine contractions in the intervention group. It can be concluded that uterine contractions after consuming dates (*Phoenix Dactylifera*) experienced an increase compared to uterine contractions before consuming dates (*Phoenix Dactylifera*) in the intervention group in women labor.

Table 3 shows that the average results of uterine contractions have increased from 2.10 times to 2.33 times in 10 minutes. It can be concluded that uterine contractions have increased but not significantly in pregnant women.

Besides *phoenix dactylifera*, one way can be to deal with inadequate uterine contractions by doing pregnancy exercises before delivery. In line with other studies explaining that 32 respondents were divided into the intervention group and the control group, 16 people were given pregnancy exercise at the end of the month before delivery. The result was that 16 pregnant women (50%) had smooth deliveries, while from 16 people who were not doing pregnancy exercise, 7 pregnant women (22%) had smooth deliveries and 9 other pregnant women (28%) had non-smooth deliveries. The analysis results in the study obtained a p value = 0.000, which was considered the p value <0.05, so there was an effect of giving pregnancy exercise on uterine contractions in birthing mothers [21].

Uterine contractions are a force on the mother that causes the cervix to open and pushes the fetus down[22]. In the head presentation, when the head is strong enough, the head will descend and begin to enter the pelvic cavity [23].

Age can affect uterine contractions because a degenerative process will occur in women over 35 years old[24] weakening the functional strength of the uterine muscles and pelvic muscles significantly affecting the delivery process [25]. This can result in weakened uterine contractions [24] [26] .

This was supported by other results, showing significant differences in the two groups, and labor induction was significantly higher in the control group compared to the intervention group ($p<0.001$). The mean cervical dilatation at admission was significantly higher in the experimental group than in the control group ($p<0.001$). However, the type of delivery did not differ significantly between the two groups ($p<0.2$). Therefore, it can be concluded that consumption of dates at the end of pregnancy increases spontaneous labor. Because dates do not have side effects in pregnancy, it is recommended to consume them in pregnant women at the end of pregnancy [20].

According to the theories described above and the results (the average and results of analysis

of uterine contractions in the control group) of research in the working area of the Kediri district health center, the researchers concludes that uterine contractions after receiving standard care had increased compared to before receiving standard care to the control group, although the value is not significant.

Table 4 shows that the average uterine contractions in the intervention group were 3.60 times in 10 minutes, while the average uterine contractions in the control group were 2.33 times in 10 minutes. It can be concluded that there are differences in uterine contractions in the two groups after labor women are consuming dates.

This study's results align with other studies explaining that *phoenix dactylifera* was effective for uterine contractions, in mothers in the group that consumed dates compared to the group which its respondents did not consume dates ($p = 0.001$). In addition, the results of the study were in line with the study which reported that the group consuming dates experienced more significant cervical dilatation, namely 96%, compared to those who did not consume dates, namely 79%. The incidence of using oxytocin for labor induction was less among those who consumed dates (28%), compared to those who did not consume dates (47%), and the active period was shorter in pregnant women who consumed dates and making it easier for the baby to come out during childbirth [14].

The hormone oxytocin, as the name implies, is very powerful in stimulating the pregnant uterus, especially in late pregnancy [27]. Therefore, many obstetricians believe that this hormone plays a role in the baby's delivery [28]. The factors that determine the Effect of oxytocin on uterine contractions are receptor levels, receptor desensitization, and oxytocin production [29][30]. The main physiological force during labor is uterine contraction [31]. There are waves of rhythmic contractions of the smooth muscle of the uterine wall that begin in the uterine fundus [32]. The initial wave is obtained from the pacemaker in the uterine wall, which usually leads to the cervical canal area (birth canal), which opens to push the contents of the uterus out [33] [34]. Occurs in respondents aged 21-35 [35]. This is a productive age where the mother is ready to get pregnant and give birth physically and psychologically [36]. So, it is expected that pregnancy and childbirth will occur physiologically. If the mother is <20 years old [37], the reproductive organs are not functioning correctly and the function of hormones in the body is still imperfect[38]. Conversely, if the mother is > 35 years old, her reproductive organs cannot work optimally and hormone function in the body has begun to decline [39] [40].

According to the theories described above and the results of research specifically the average and results of analysis of uterine contractions in the two groups, namely the intervention group and the control group in the working area of the Kediri district health center, the researchers concluded that there are significant differences in uterine contractions in the two groups after getting dates (*Phoenix Dactylefera*) in labor. The researcher's way to overcome bias is the sampling technique, namely simple random sampling, so that the data collection process in this research is carried out as well as possible. The obstacle in this research is that respondents are difficult to find.

CONCLUSION

It turns out that giving as much as 70 grams of dates to pregnant women who are 37 weeks old until delivery can increase uterine contractions in laboring mothers. The control group experienced an increase in contractions, though the increase is insignificant. There is a significant difference in uterine contractions between the two groups, so it can be concluded that there is an effect of *Phoenix Dactylifera* on uterine contractions in laboring mothers. Seeing the benefits of dates, pregnant women can use dates as a non-pharmacological alternative

option for increasing uterine contractions during childbirth. As mentioned in this study, this research has received approval from the ethics review board.

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