

Effect of Eating Date Fruit on the Progress of Labor for Parturient Women

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Abstract: Progress of labor may affect the parturient women decision for elective cesarean section. Eating date fruit can hasten labor progress and reduce the rate of cesarean section. Aim: Evaluate the effect of eating date on the progress of labor for parturient women. Methods: A quasi-experimental research design was used. Subjects: A purposive sample of 92 parturient women who admitted to the Obstetrical and Gynecological Department at Mit-Ghamer General Hospital, Mit-Ghamer city, Dakahlia Governorate. The sample divided in to two groups; the control group received normal hospital care and the intervention group received 7 date fruit to eat after admission. Tools of data collection: Three tools were used for data collection; the first was a Structured Interview Schedule to assess the woman's general characteristics; the second was Bishop Score to assess the cervical favorability for vaginal delivery and third tool was the Modified World Health Organization Partogram to assess the progress of labor. Results: The intervention group that ate date fruit exhibit faster labor progress as compared to the control group with statistical significant difference. Conclusion: The study hypothesis was accepted; where eating date fruit has a positive effect on the progress of labor in the intervention group compared to the usual care in the control group.

Keywords: Date fruit, Parturient women, Progress of labor.

I. INTRODUCTION

Lack of eating energizer foods during labor leads to decrease effective uterine contractions, which leads to increase augmented labor and cesarean section rate (*Karimi, Elmi, Mirghafourvand & Baghervand Navid, 2020*). Unpleasant outcomes of delivery and neonatal complications may arise from the increased caesarean section (CS) rate. These complications may be in the form of tachypnea of newborn, respiratory distress syndrome, and increased the rate of NICU admission (*Pirjani, 2018*). In Egypt, a study of medical records for all deliveries in 2016 in 13 public hospitals in four governorates found an overall cesarean delivery rate of 54.2%, ranging from 22.9 to 94.3% between the different centers (*Elnakib et al., 2019*). Fetal complications can occur from cesarean section as maternal death, post-partum infection, organ injury like uterine rupture & bladder injury, abnormal placentation, ectopic pregnancy, stillbirth, preterm birth, the need for blood transfusion, the risks of anesthesia complications, ICU admission and hysterectomy (*Franchi, 2019*). Therefore, these complications can be avoided if the cesarean section decreased in ratio and the normal birth enhanced.

According to the WHO, normal birth has a spontaneous onset. Some pharmaceutical agent had been used as induction or augmentation of the normal labor that can help in decreasing the caesarean section frequency. But, unfortunately, these agent may have adverse effects especially if not properly used (*Karimi, Elmi, Mirghafourvand, & Navid, 2020*). During first stage of labor, parturient women need energy during labor to enhance the comfort feeling and restore the woman's energy and decrease the fatigue (*Lee, Dy & Azzam, 2016*).

Recently, drinking and eating are permitted during the first stage of labor for low risk parturient women (*Dekker, 2017*). According to *WHO, (2018)*, low risk women who don't need general anesthesia, should have the choice to eat or drink during the first stage of labor as desired. In addition, the consumption of carbohydrate during labor can decrease the rate of augmented labor and enhance the labor progress.

The scientific name of Date fruit is Phoenix dactylifera L. A higher percentage of carbohydrates and sugar, different vitamins, minerals, proteins, and salt are included in the Date fruit (*Baliga, Baliga, Kandathil, Bhat, Vayalil, 2011*). Therefore, Date fruit generate energy, which is needed for the parturient women during labor. In addition, production of prostaglandin enhance when eating Date fruit produced by the fatty acids included in the Date. Prostaglandin play an important role in acceleration of delivery progress by cervical ripening, increasing the intensity of uterine contractions, and augmenting the normal labor (*Ahmed, Mirghani, Mesaik, Ibrahim & Amin, 2018; Mrabet, Jiménez-Araujo, Guillén-Bejarano, Rodríguez-Arcos, & Sindic, 2020*).

Date was mentioned in the Holy Qur'an and Hadith. In surah 19 Maryam, verse 25-26, Allah ordered the blessed virgin Maryam (The mother of Prophet Issa) (Peace and blessing of Allah be upon them) to eat date when the pain of childbirth drove her to the trunk of a date palm. The translation of verse 25-26 are "And shake the trunk of date-palm towards you, it will let fall fresh ripe-dates upon you", "So eat and drink and be glad" as mentioned in the Holy Quran from Allah to Maryam (Peace and blessing of Allah be upon her) to reassure and give a pleasant feeling to her (*Al-Hilali & Khan, 1997*).

Moreover, Muslims a praised date as a blessed food. Many narrations from the Prophet Muhammad (Peace and blessing of Allah be upon him) regarding date. In Hadith Bukhari, the Prophet Muhammad mentioned what "If somebody takes seven 'Ajwa dates in the morning, neither magic nor poison will hurt him that day (*Sahih al-Bukhari 5769*). Date was highly praised as one of the Prophet Muhammad (Peace be upon him) foods in Islam. In addition, in Sahih Muslim, Aisha (The Prophet Muhammad wife) reported that, Allah's Messenger (May peace be upon him) as saying: Ajwa dates contain healing effects and theses are antidote in the early morning (*Sahih Muslim 2048*).

1.1 Significance of the study:

Egypt stands out at a rate of 52 % among countries with the highest CS delivery rates in the world, following Dominican Republic 56.4 % and Brazil 55.6% (*Betrán et al. 2016*). Within the Arab region, rates of CS are far higher in Egypt than any other Arab country. The first cause for CS in Egypt is previous CS. Among the associated factors for CS is dystocia. Uterine stimulant agent is considered as an effective method to decrease dystocia but it has many sever complication to the woman and the fetus as uterine hyper-stimulation, fetal distress and fetal death (*Anderson, et al., 2018*).

Date contains a substance resembles oxytocin. It helps in cervical dilatation. So, parturient women should eat date as it facilitates labor progress, decreases the use of uterotonic agents as oxytocin and maintains woman's and baby's life. Moreover, date is a cheap, delicious fruit and available at any time. Egypt has the first rank in date's production, as its production is 1,470,000 million ton according to The Food and Agriculture Organization of the United Nations (*Ghnimi, Al-Shibli, Al-Yammahi, Al-Dhaheri, Al-Jaberi, Jobe, & Kamal-Eldin, 2018*). In Egypt, there are limited researches in this topic and it didn't made in Mansoura University before.

1.2 Aim of the study

The aim of the present study is to evaluate the effect of eating date on the progress of labor for parturient women.

1.3 Research hypothesis

Eating date fruit has a positive effect on the progress of labor in the intervention group compared to the usual care in the control group.

II. METHODOLOGY

2.1 Study design:

A quasi-experimental research design was used in this study

2.2 Study Setting

This study was conducted at the Obstetrical and Gynecological Department at Mit-Ghamer General Hospital cited in Mit-Ghamer city, Dakahlia, Egypt.

2.3 Subjects of the study

A purposive sample of 92 parturient women, who admitted to the previously mentioned setting and fulfilling the inclusion criteria. The nulliparous women with cervical dilatation 4 cm or less, aged between 20 to 35 years old, had a normal pregnancy with gestational age from 37th weeks to 40th weeks with singleton pregnancy and cephalic presentation were included in this study. The exclusion criteria included all parturient women who had obstetric and gynecological complications that may have increased the liability to caesarean section delivery, or women with history of diabetes, hypertension, pre-eclampsia or planned cesarean section.

2.4 Sample size calculation

A previous study reported that the mean duration of second stage of labor group of women eating date was significantly shorter than women in the control group (20.3 ±12.1 and 30.1 ±16.7 minutes respectively). Considering level of significance of 5%, and power of study of 80%, the sample size can be calculated using the following formula: $N = \frac{(Z_{1-\alpha/2} + Z_{1-\beta})^2 \sigma_1 \sigma_2}{\delta^2}$ where $Z_{1-\alpha/2} = 1.96$, $Z_{1-\beta} = 0.842$, $\sigma_1 \sigma_2 = \text{SD for each group}$, $\delta = \text{Expected, difference to be detected between 2 groups}$. $\alpha = \text{Level of acceptability of a false positive result (level of significance=0.05)}$, $\beta = \text{Level of acceptability of a false negative result (0.20)}$, $1-\beta = \text{power (0.80)}$. Based on the formula, the sample was 92 parturient women divided into two groups: a (Control group (n=46): received the routine hospital care during the first stage of labor. Group B: Intervention group (n=46): ate 7 dates during the first stage of labor when the cervical dilatation was 4 cm or less.

2.5 Tools of Data Collection: Three tools were used to collect data for the study; First Tool: A Structured Interview Schedule to assess the general characteristics of parturient women, such as marital status, educational level, occupation and residence. It was developed by the researcher after reviewing the related literature. The second Tool; Bishop Score: It utilized for measuring cervical (effacement, position, consistency, dilation of the cervix and fetal station) at the admission time to assess the favorability of the cervix for normal delivery. It was adopted (*Wormer, Bauer, & Williford, 2021*). The third tool; Modified World Health Organization 1994 Partogram (*Orji 2008*) was utilized for follow-up the maternal, fetal condition and progress of labor.

2.6 Validity of the tool: Experts in the field of Woman's Health & Midwifery Nursing tested the content validity of the developed tool and their modifications were done in arranging the sequence of questionnaire items.

2.7 Reliability of the tool: The developed tool (Tool I) was tested by Cronbach's alpha to check the internal consistency and it was 0.91, which refers to be highly reliable.

2.8 Pilot study: The study tools were applied on 10% of total sample size to determine feasibility and practicability of data collection tools and to estimate time needed to be completed. Sample size of pilot study excluded from the total sample size.

2.8 Ethical Consideration: Informal consents were obtained from participants after explaining the purpose of the study. After obtaining the ethical approval from the Research Ethics Committee of the Faculty of Nursing, Mansoura University and the hospital approval letter from the previous mentioned setting. Each woman has the right to withdraw from the study at any time without affecting on the care provided.

2.9 Fieldwork: The actual fieldwork of the study conducted for eight interrupted months started on the start of April 2019 to the end of November 2019. It started with control group then the intervention group. It included three phases; (assessment phase, implementation phase, and evaluation phase). First Phase (Base line assessment): The researcher attended in the previous mentioned setting and introduced herself to the parturient women admitted to reception section of Obstetrical and Gynecological Department and clarified the aim of the study and took the participant written consent. The researcher started with assessment of women general characteristics and duration of labor stages (Tool 1). Then the researcher assess the feasibility of the parturient woman for normal labor with the assistance of the obstetrician physician by using Bishop Score (Tool 2). The parturient woman who was favorable for normal labor was included in the study. After that, the researcher completed the base line assessment, which are the assessment of fetal and maternal condition and progress of labor by (Tool 3).

The second Phase: (implementation phase): The researcher started with the control group at the period from the start of April 2019 till the predetermined sample sized for control group was completed. In this phase, the researcher monitored the progress of labor by using partogram. In addition, the researcher monitored the duration of first, second and third stages of labor.

The control group received the routine hospital care which includes intravenous (IV) fluid till the cervix reached 8-9 cm dilatation, then started the administration of 5 IU oxytocin on IV drip by 20 drop per minute till fully dilated cervix.

For the date group; the researcher started to collect data on September till November 2019 in date fruit production season. The researcher explained the importance of date fruit for enhancing the uterine contraction and progress of labor. After obtaining the participant written consent for participation in the study, the researcher gave to everyone a plate of date fruit containing 7 pieces of dates. The researcher support the intervention group while eating date. The participants were instructed to eat immediately after admission under observation of the researcher. The intervention group did not receive the routine hospital care.

The 3rd Phase: (evaluation phase): The researcher documented the progress of labor at the first stage of labor.

2.10 Statistical analysis

All statistical tests were conducted using SPSS for windows version 25.0 (SPSS, Chicago, IL). The data are expressed in frequency and percentage (qualitative variable) and mean ± SD (quantitative continuous variable). Chi-square (χ^2) is used to compare categorical variables. Independent (student) t test is used to compare continuous quantitative variables before and after intervention. The difference is considered significant when $P \leq 0.05$ and highly significant when $P \leq 0.001$.

III. RESULTS

Table (1): Assessment of the general characteristics of the parturient women (base line assessment) (N=92)

General characteristics	Control group (n=46)		Date group (n=46)		Chi square test	p value
	No.	%	No.	%		
Age group					0.091	0.955
▪ 20-25 years	22	47.8	22	47.8		
▪ > 25 - ≤ 30years	15	32.6	16	34.8		
▪ > 30 - ≤ 35years	9	19.6	8	17.4		
Occupation					6.900	0.008*
▪ Housewife	36	78.3	24	52.2		
▪ Working	10	21.7	22	47.8		
Residence					1.804	0.141
▪ Rural	40	87	35	76.1		
▪ Urban	6	13	11	23.9		

* refers to significance if P value is less than 0.05, ** refers to highly significance if P value is less than 0.001.

Table (1) shows that, there was no statistical significant difference between both groups at the base line assessment except in occupation.

Table 2: The comparison of uterine contractions frequency between both groups during first stage of labor (N = 92).

Uterine contractions frequency/ 10 min	Control group (n=46)		Date group (n=46)		Chi square test p value
	No.	%	No.	%	
On admission					X ² = 1.804 P=0.141
▪ 2 contractions	40	87	35	76.1	
▪ 3 contractions	6	13	11	23.9	
Hour 2					
▪ 2 contractions	33	71.7	24	52.2	

▪ 3 contractions	9	19.6	6	13	X ² = 10.288 P=0.016*
▪ 5 contractions	4	8.7	11	23.9	
▪ Delivered	0	0	5	10.9	
Hour 4	N=46		n=41		X ² =39.632 P=0.000**
▪ 2 contractions	11	23.9	7	17	
▪ 3 contractions	10	21.7	5	12.2	
▪ 5 contractions	12	26.1	10	24.5	
▪ Delivered	13	28.3	19	46.3	
Hour 6	n=33		n=22		X ² = 8.749 P=0.033*
▪ 2 contractions	4	12.1	0	0	
▪ 3 contractions	6	18.2	0	0	
▪ 5 contractions	12	36.4	0	0	
▪ Delivered	11	33.3	22	100	

* refers to significance if P value is less than 0.05, ** refers to highly significance if P value is less than 0.001.

Table (2) clarifies that, the uterine contractions frequency were statistically significant more in the date group than in the control group at the 2nd and the 6th hours after admission. In addition, there was highly statistically significant difference at the 4th hour after admission in the date group than in the intervention group.

Table 3: The comparison of uterine contractions intensity between both groups during first stage of labor (N = 92).

Uterine contraction intensity	Control group (n= 46)		Date group (n= 46)		Chi square test p value
	No.	%	No.	%	
On admission					
▪ Mild	40	87	35	76.1	X ² = 1.804 P=0.141
▪ Moderate	6	13	11	23.9	
▪ Sever	0	0	0	0	
▪ Delivered	0	0	0	0	
Hour 2					
▪ Mild	34	73.9	23	50	X ² =13.123 p=0.004*
▪ Moderate	9	19.6	6	13	
▪ Sever	3	6.5	12	26.1	
▪ Delivered	0	0	5	10.9	
Hour4					
	n=46		n=41		X ² =38.446 p=0.000**
▪ Mild	9	19.6	3	7.3	
▪ Moderate	11	23.8	7	17	
▪ Strong	13	28.3	12	29.3	
▪ Delivered	13	28.3	19	46.4	
Hour 6					
	n=33		n= 22		X ² = 7.373 p=0.049*
▪ Mild	3	9.1	0	0	
▪ Moderate	15	45.5	0	0	
▪ Sever	4	12.1	0	0	
▪ Delivered	11	33.3	22	100	

* refers to significance if p value is less than 0.05, ** refers to highly significance if p value is less than 0.001.

Table (3) illustrates that there was no statistically significant difference between both groups regarding uterine contractions intensity on admission time ($P=0.141$). On the other hand, there were statistically significant between the date group compared to the control group at the 2nd and the 6th hours after admission. In addition, there was highly statistically significant difference at the 4th hour after admission in the date group than in intervention group regarding uterine contractions intensity.

Table 4: The comparison of cervical dilatation between both groups during first stage of labor (N = 92).

Cervical dilatation	Control group (n= 46)		Date group (n= 46)		Chi square test p value
	No.	%	No.	%	
On admission					$X^2 =13.180$ $p =0.624$
▪ Less 4 cm	46	100	46	100	
▪ 4-6 cm	0	0	0	0	
▪ 6-8 cm	0	0	0	0	
▪ 8-10 cm	0	0	0	0	
▪ Delivered	0	0	0	0	
Hour 2					$X^2 =32.439$ $p =0.039^*$
▪ Less 4 cm	30	65.2	20	43.5	
▪ 4-6 cm	8	17.4	6	13	
▪ 6-8 cm	4	8.7	7	15.2	
▪ 8-10 cm	4	8.7	8	17.4	
▪ Delivered	0	0	5	10.9	
Hour 4 (n=46&41)					$X^2 =39.761$ $p =0.000^{**}$
▪ Less 4 cm	0	0	0	0	
▪ 4-6 cm	10	21.7	7	17.1	
▪ 6-8 cm	14	30.4	5	12.2	
▪ 8-10 cm	9	19.6	10	4.8	
▪ Delivered	13	28.3	19	46.4	
Hour 6(n=33&22)					$X^2 =6.351$ $p =0.043^*$
▪ Less 4 cm	0	0	0	0	
▪ 4-6 cm	7	21.2	0	0	
▪ 6-8 cm	5	15.2	0	0	
▪ 8-10 cm	10	30.3	0	0	
▪ Delivered	11	33.3	22	100	

Table (4) demonstrates absence of statistical significant difference between both groups regarding cervical dilatation on admission. While there was highly statistical significant differences at the 4th hour and there were statistical significant differences at the 2nd and 6th hours.

Table 5: The comparison of fetal head descent between both groups during first stage of labor (N = 92).

Head descent	Control group (n= 46)		Date group (n= 46)		Chi square test p value
	No.	%	No.	%	
On admission					$X^2 =4.998$ $p =0.356$
▪ - 3:-1	40	87	35	76.1	
▪ 0	6	6	11	23.9	
▪ + 1:+3	0	0	0	0	
▪ Delivered	0	0	0	0	
Hour 2					$X^2 =10.288$ $p =0.016^*$
▪ - 3:-1	33	71.7	24	52.2	
▪ 0	9	19.6	6	13	
▪ + 1:+3	4	8.7	11	23.9	
▪ Delivered	0	0	5	10.9	

Hour4 (n=46&41)					
▪ - 3:-1	12	26.3	13	31.7	X ² =37.450 p =0.000**
▪ 0	10	21.7	5	12.2	
▪ + 1:+3	10	21.7	4	9.6	
▪ Delivered	13	28.3	19	46.5	
Hour 6 (n=33&22)					
▪ - 3:-1	7	21.2	0	0	X ² =8.749 p =0.033*
▪ 0	10	30.3	0	0	
▪ + 1:+3	5	15.2	0	0	
▪ Delivered	11	33.3	22	100	

* refers to significance if p value is less than 0.05, ** refers to highly significance if p value is less than 0.001

Table (5) clarifies the existence of statistical significant differences regarding fetal head descent on at the 2nd, 4th hours after admission. In addition, the existence of highly statistical significant difference at the 6th hour. However, there were no statistical significant differences between the date and the control groups on admission.

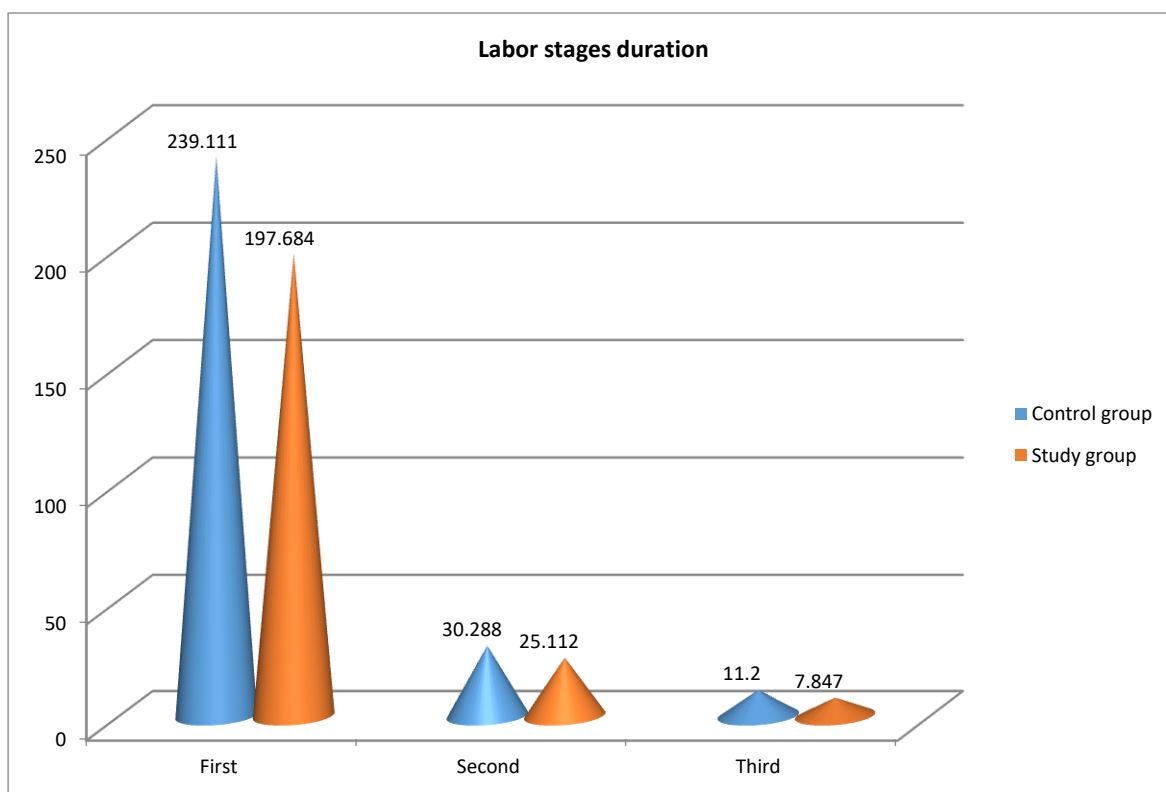


Figure (1) the comparison between control and date group regarding duration of labor stages

IV. DISCUSSION

The current study aimed to evaluate the effect of eating date on the progress of labor for parturient women. The aim was achieved through the current study findings, which revealed that labor progress was faster for parturient women who ate date compared to women who did not. Progress of labor is usually evaluated by changes in cervical dilatation, the fetal head descent, and uterine contractions.

Concerning the uterine contractions, it was evidenced in this study that they were characterized by being more frequent, longer in duration, and stronger in intensity (more severe) among the date group than in the control group. This study findings may be attributed to the effect of date substance, which resemble to the natural oxytocin effect on the uterine contractions.

In the same line, *Karimi et al., (2020)* conducted the systematic reviews and meta-analysis, which aimed to evaluate the effects of date fruit on delivery outcomes. The studies included in the systemic review and data analysis were evaluated according to the risk of bias assessment of Cochrane handbook of systematic reviews, and were then reported using Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) statement. The researchers' findings reported that eight studies were included in the qualitative and quantitative synthesis. Meta-Analysis showed that date fruit consumption could significantly increase labor progress and decrease the active phase of labor (three trials with 380 participants)

Regarding cervical dilatation in the current study, there were statistical significant differences in date group than in control group. The present study finding was in agreement with an Iranian randomized clinical trial study was conducted by *Jadidi, Sang, and Lari, (2015)* to determine the effect date fruit consumption on spontaneous labor in nulliparous women. The researchers reported that the Date group that consume 7 dates had better cervical dilatation and effacement than the usual care group.

Nasiri et al., (2019), conducted another supported study. The researchers carried out an updated systematic review and meta-analysis of clinical trials to investigate the effects of date fruits consumption on gestation, labor, and delivery outcomes. In total, 11 and 8 studies were included in the systematic review and meta-analysis. Meta-analysis revealed that date fruit consumption significantly reduced the duration of active phase because of the strength of uterine contraction, which in turn affected on the cervical dilatation. In additional, the researchers recommended consumption of Date fruit to enhance labor progress.

Furthermore, *Kordi et al., (2017)* conducted a randomized clinical trial among 182 nulliparous women aged from 18 to 35 years. The study conducted on 91 pregnant women who ate 70–76 g dates daily from the 37th week of pregnancy (as an intervention group) and 91 pregnant women who did not consume dates (as a control group). They concluded that the cervical dilatation average was better in the date group than in the control group. In the opposite side, a study conducted in Saudi Arabia, by *Ahmed, Mirghani, Mesaik, Ibrahim, & Amin, (2018)* aimed to assess the effect of date fruit on the onset and progression of 89 pregnant women's labor. The researchers concluded that there were no differences regarding cervical dilatation between the control and the intervention group.

In the light of fetal head descent as a labor progress element, the current study revealed that, there was a statistical significant difference between the date group and the control group. This may be due to the intensity of uterine contraction produced by the Date fruit effect has a positive effect and power to push fetal head downward the woman's pelvis. Thus, the current study hypothesis was accepted **"Eating Date fruit has a positive effect on the progress of labor in the intervention group compared to the usual care in the control group"**.

V. CONCLUSION

The study hypothesis was accepted; where eating date fruit has a positive effect on the progress of labor in the intervention group compared to the usual care in the control group.

VI. RECOMMENDATION

Applying further research on effect of eating date on postpartum hemorrhage.

REFERENCES

- [1] Ahmed, I. E., Mirghani, H. O., Mesaik, M. A., Ibrahim, Y. M., & Amin, T. Q. (2018). Effects of date fruit consumption on labor and vaginal delivery in Tabuk, KSA. *Journal of Taibah University Medical Sciences*, 13(6), 557-563.
- [2] Al-Hilali, M.T.,& Khan, M.M. (1997). THE NOBLE QUR'AN English translation of *the meanings and commentary*. King Fahd Complex for the Printing of the Holy Qur'an. Madinah, K.S.A. Surah19. Maryam, Part 16, p: 402.
- [3] Anderson, L. A., Stewart, J., Thornton, P., Wilson, K., Fookes, C., Puckey, M. (2018).Oxytocin. Available at <https://www.drugs.com/pro/oxytocin.html> last accessed on 25/9/2018.

- [4] Baliga MS, Baliga BRV, Kandathil SM, Bhat HP, Vayalil PK. A review of the chemistry and pharmacology of the date fruits (*Phoenix dactylifera* L.). *Food Res Int* 2011; 44: 1812-22.
- [5] Betrán, A.P., J. Ye, A-B. Moller, J. Zhang, A.M. Gülmezoglu, and M.R. Torloni. 2016. "The Increasing Trend in Caesarean Section Rates: Global, Regional and National Estimates: 1990-2014," *PLoS ONE* 11(2): e0148343. <https://doi.org/10.1371/journal.pone.0148343>.
- [6] Dekker, R. Evidence on: Eating and Drinking During Labor. (2017) Available at <https://evidencebasedbirth.com/evidence-eating-drinking-labor/> last accessed on 23/2/2021.
- [7] Elnakib, S., Abdel-Tawab, N., Orbay, D., & Hassanein, N. (2019). Medical and non-medical reasons for cesarean section delivery in Egypt: a hospital-based retrospective study. *BMC pregnancy and childbirth*, 19(1), 1-11.
- [8] Franchi, M., Raffaelli, R., Baggio, S., Scollo, M., Garzon, S., Laganà, A. S. & Ghezzi, F. (2019). Unintentional transvesical caesarean section: incidence, risk factors, surgical technique and post-operative management. *European Journal of Obstetrics & Gynecology and Reproductive Biology*, 236, 26-31.
- [9] Ghnimi, S., Al-Shibli, M., Al-Yammahi, H. R., Al-Dhaheiri, A., Al-Jaberi, F., Jobe, B., & Kamal-Eldin, A. (2018). Reducing sugars, organic acids, size, color, and texture of 21 Emirati date fruit varieties (*Phoenix dactylifera*, L.). *NFS journal*, 12, 1-10.
- [10] Jadidi, M. Y., Sang, S. J. B., & Lari, H. (2015). The effect of date fruit consumption on spontaneous labor. *Journal of Pizhūhish dar dīn va salāmat*, 1(3), 4-10.
- [11] Karimi, A. B., Elmi, A., Mirghafourvand, M., & Navid, R. B. (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), 1-14.
- [12] Kordi, M., Meybodi, F. A., Tara, F., Fakari, F. R., Nemat, M., & Shakeri, M. (2017). Effect of dates in late pregnancy on the duration of labor in nulliparous women. *Iranian journal of nursing and midwifery research*, 22(5), 383.
- [13] Lee, L., Dy, J., & Azzam, H. (2016). Management of spontaneous labour at term in healthy women. *Journal of Obstetrics and Gynaecology Canada*, 38(9), 843-865.
- [14] Mrabet, A., Jiménez-Araujo, A., Guillén-Bejarano, R., Rodríguez-Arcos, R., & Sindic, M. (2020). Date seeds: A promising source of oil with functional properties. *Foods*, 9(6), 787.
- [15] 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.
- [16] Orji E. Evaluating progress of labor in nulliparas and multiparas using the modified WHO Partograph. *International Journal of Gynecology and Obstetrics*. 2008; 102: 249–252.
- [17] Pirjani, R., Afrakhteh, M., Sepidarkish, M., Nariman, S., Shirazi, M., Moini, A., & Hosseini, L. (2018). 'Elective caesarean section at 38–39 weeks gestation compared to > 39 weeks on neonatal outcomes: a prospective cohort study. *BMC pregnancy and childbirth*, 18(1), 1-5. Purnama, A., & Melawati, M. (2019). The Benefits of Dates Ruthab on Blood Volume on Labor Stage 4th. *Journal of Nursing Practice*, 3(1), 72-78.
- [18] Sahih al-Buhkari 5769. Medicine Book 76. Retrieved from: <https://sunnah.com/bukhari:5769>.
- [19] Sahih Muslim 2048. The book of drinks. Retrieved from: <https://sunnah.com/muslim:2048>.
- [20] World Health Organization WHO (2018), recommendations Intrapartum care for a positive childbirth experience Transforming care of women and babies for improved health and well-being. WHO recommendations: intrapartum care for a positive childbirth experience.
- [21] Wormer KC, Bauer A, Williford AE. Bishop Score. [Updated 2021 Aug 3]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2021 Jan-. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK470368/>