ORIGINAL ARTICLE

The effect of dates and honey extracts (phoenix dactylifera and apis mellifera) for increasing pregnant women's haemoglobin

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Abstract

Objective: To examine the effect of date fruit extract and honey in increasing haemoglobin levels in pregnant women.

Method: The quasi-experimental study was conducted from July to August 2022 in Rumbai Pesisir Subdistric, Pekanbaru, Indonesia, and comprised anaemic pregnant women with haemoglobin levels <11gm/dl who were not consuming iron tablets or blood boosters. They were given honey and date extracts 2 tablespoons twice daily for two weeks. Haemoglobin level was checked at baseline and then at the end of each week of intervention. Data was analysed using SPSS version 20 and quantitative method by using bivariate analysis.

Results: Of the 50 women, 59(98%) were aged 20-35 years, and 1(2%) was aged >35 years. Besides, 21(42%) women were in the second trimester, 17(34%) in third, and 12(24%) in the first trimester of pregnancy. The increase in haemoglobin levels post-intervention was highly significant (p=0.0001).

Conclusion: Date fruit extract and honey increased haemoglobin level of pregnant women.

Keywords: Phoenicia, Pregnancy Trimester, Iron, Haemoglobins, Honey, Hematologic, Anaemia.

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Introduction

Pregnant women often have iron deficiency anaemia, with symptoms of easy fatigue and dizziness. The iron content in honey can produce red blood cells (RBCs) to reduce such symptoms. The high prevalence of anaemia is because of the increased need for iron due to changes in physiology and metabolism in pregnant women, inadequate intake of iron, and deficiency of folic acid and vitamin B12. Other causes include absorption disorders, infections (malaria and helminthiasis), repeated pregnancies, thalassemia and sickle cell disease, social, economic, cultural as well as educational conditions of the mother.[1] Iron-rich foods that prevent anaemia, including guava, honey, beets, oranges and dates, have an iron content of 1.5mg per fruit. Dates have a delicious taste and are generally loved by all age groups. They contain glucose, protein, fibre, vitamins, niacin, biotin, folic acid, sodium, calcium and potassium, as well as iron, which can increase haemoglobin (Hb) levels. The protein, glucose and fibre content in date extract is around 1.8-2%, 50-57%, and 2-4%, respectively.[2,3] A research observed an increase in Hb levels by administering date extract to pregnant mice.[4] Additionally, honey is rich in iron, and contains other nutritional elements, such as vitamin C, fructose, riboflavin, vitamin B6, folate, calcium, magnesium, phosphorus, zinc, copper, manganese, sodium and selenium. These minerals are essential for the normal functioning of body systems.[5,6] A study gave honey to rats, and the result was a significant increase in Hb levels.[6] A few studies administered dates and honey to different groups of third-trimester pregnant women and showed significant results.[7,8] Dates and honey cause an Hb increase of 0.1g/dL and 0.47g/dL, respectively. Therefore, anaemia condition in pregnant women can be prevented and overcome with date extracts and honey.[9,10] The current study was planned to examine the effect of date extracts and honey in increasing the Hb levels of pregnant women.

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Subjects and Methods

The quasi-experimental study was conducted from July to August 2022 in Rumbai Pesisir Subdistric, Pekanbaru, Indonesia. After approval from the ethics review committee of the Faculty of Nursing, University of Riau, Indonesia, the sample size was calculated to range 30-500 subjects, according to literature.[11] Those included were anaemic pregnant women with Hb level <11gm/dl who were not consuming iron tablets or blood boosters. After taking informed consent, all the subjects were given 350cc honey and date extracts 2 tablespoons twice daily in the morning and at night before bedtime for two weeks. Hb level was checked at baseline and then at the end of each week of intervention.

Data was analysed using SPSS version 20. Independent samples t-test, Shapiro-Wilk test and bivariate analysis were used as appropriate. P<0.05 was taken as significant.

Results

Of the 50 women, 59(98%) were aged 20-35 years, and

Table-1: Characteristics of the study respondents.

Karat Characteristics	n (%)
Age (years)	
20–35	49 (98)
>35	1 (2)
Gestational Age (weeks)	
Trimester 1	12 (24)
Trimester 2	21 (42)
Trimester 3	17 (34)

Table-2: Normality data related to haemoglobin level.

Variable	n	*p*-value
Haemoglobin Levels		
Pre-test	50	0.051
Post-test	50	0.601

Table-3: Baseline and post-intervention haemoglobin levels.

Respondent	Median	Mean±SD	Min-Max
Haemoglobin Levels			
Pre-test	10.82	10.86±0.67	8.75–11
Post-test	12.30	12.34±0.74	12.45–14.2

SD: Standard deviation.

Table-4: Comparison of haemoglobin levels pre-test and post-test in pregnant women.

Variable	n	Mean±SD	p-value
Haemoglobin Levels			0.000
Pre-test	50	10.86±0.67	
Post-test	50	12.34±0.74	

SD: Standard deviation.

1(2%) was aged >35 years. Besides, 21(42%) women were in the second trimester, 17(34%) in third, and 12(24%) in the first trimester of pregnancy (Table 1).

Normality test was done both at the baseline and at the end of the intervention (Table 2). The increase in Hb levels post-intervention was highly significant (Tables 3,4).

Discussion

Anaemia in pregnant women is a symptom caused by underlying conditions, such as loss of blood components, or lack of nutrients needed for the formation of RBCs, resulting in a decrease in the oxygen-carrying capacity of the blood.[12] Anaemia in pregnancy has been associated with higher rates of maternal death, preeclampsia, low birth weight, perinatal death, Caesarean delivery, small-for-gestational-age (SGA) live birth, and preterm birth.[13] Furthermore, 15-20 maternal deaths are directly or indirectly related to anaemia. According to a study,14 anaemia in pregnancy is also associated with increased maternal morbidity. The maternal mortality rate (MMR) reflects the risks associated with anaemia during pregnancy and childbirth, which are influenced by the nutritional status of the mother, socioeconomic and poor health condition, the incidence of various complications in pregnancy and childbirth, availability and use of healthcare facilities, including prenatal and obstetric services.[14]

Pregnancy does have an impact on the blood viscosity of women, and the greatest risk for anaemia is in the second trimester of pregnancy.[15] However, it can occur in all trimesters, including the first and third. Anaemia occurs due to several factors, such as maternal age, parity, nutritional consumption patterns, and comorbidities. The pregnant women in the current study were aged >25-years, and in the first, second and third trimesters of pregnancy.

Forest honey contains many minerals, such as sodium, calcium, magnesium, aluminium, iron, phosphorus and potassium. Honey contains various vitamins, including thiamin (B1), riboflavin (B2), ascorbic acid (C), pyridoxine (B6), niacin, pantothenic acid, biotin, folic acid and vitamin K.[16] It also contains iron (Fe) which can help in the formation of RBCs. Therefore, honey consumption can help increase the formation of RBCs, and prevent anaemia.[9] According to a study,[17] it is a way to increase Hb that has no side effects. The increase in Hb levels is affected because 45ml of honey contains 136.8 kcal energy, 0.1g protein, 37.1 g carbohydrates, 0.4 mg vitamin C, 1.8mg sodium, 23.4 mg potassium, 2.7 mg calcium, 0.9 mg magnesium, 0.2 mg iron and 0.1 mg zinc.[17] The study administered honey to female workers at a dose of 45ml for two weeks, and mean Hb Hb level increased by 1.2 mg/dl.[17]

Dates also have high nutritional value that could increase stamina and energy in pregnant women. Dates also contain iron, protein, carbohydrates and fats that could increase Hb levels and prevent anaemia. Recent studies have shown that plants' components, such as phenols and flavonoids, are good anti-inflammatory agents.[18-20]

Conclusion

Consumption of dates and honey extract increased Hb levels in pregnant women.

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