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The Role of Dates in Increasing Hemoglobin Levels in Women: A Scoping Review

Peran Kurma dalam Meningkatkan Kadar Hemoglobin pada Perempuan: Scoping Review

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Abstract

Iron deficiency anemia (IDA) is a major global health issue that predominantly affects adolescent girls and pregnant women, particularly in developing countries. Dates (Phoenix dactylifera), a natural iron-rich food with essential nutrients, have been proposed as a potential intervention to increase hemoglobin levels. This scoping review aims to explore and evaluate current scientific evidence on the effect of various date varieties in improving hemoglobin levels in women with iron deficiency anemia. Using the Joanna Briggs Institute guidelines, a comprehensive literature search was conducted across ten databases, covering studies from January 2014 to October 2024. Twelve studies meeting the inclusion criteria were analyzed descriptively. The majority reported a significant increase in hemoglobin levels among participants consuming dates, with improvements ranging from 1.18 to 1.67 g/dL. Varieties such as Ajwa, Sukari, and black dates showed notable effectiveness. Some studies also recorded increases in ferritin levels, indicating an improvement in iron reserves. The findings support the use of dates as a beneficial dietary supplement for improving hemoglobin and iron status in women, especially adolescent girls and pregnant women. Further research is necessary to determine optimal dosage and compare the efficacy across different date varieties.

***Keywords**: iron deficiency anemia; Phoenix dactylifera; hemoglobin; adolescent health; pregnancy.*

Abstrak

Anemia defisiensi besi merupakan masalah kesehatan global yang banyak dialami oleh remaja putri dan ibu hamil, terutama di negara berkembang. Kurma (*Phoenix dactylifera*), sebagai pangan alami yang kaya akan zat besi dan nutrien penting lainnya, telah diusulkan sebagai intervensi alternatif untuk meningkatkan kadar hemoglobin. Tinjauan cakupan ini bertujuan untuk mengeksplorasi dan mengevaluasi bukti ilmiah terkait pengaruh berbagai varietas kurma dalam meningkatkan kadar hemoglobin pada perempuan dengan anemia defisiensi besi. Penelusuran literatur dilakukan secara sistematis berdasarkan pedoman Joanna Briggs Institute pada sepuluh basis data, mencakup publikasi dari Januari 2014 hingga Oktober 2024. Sebanyak dua belas studi yang memenuhi kriteria inklusi dianalisis secara deskriptif. Mayoritas studi menunjukkan peningkatan kadar hemoglobin yang signifikan pada kelompok yang mengonsumsi kurma, dengan kenaikan berkisar antara 1,18 hingga 1,67 g/dL. Varietas kurma seperti Ajwa, Sukari, dan kurma hitam terbukti efektif. Beberapa studi juga mencatat peningkatan kadar feritin, yang mencerminkan perbaikan cadangan zat besi. Temuan ini mendukung konsumsi kurma sebagai suplemen pangan yang bermanfaat untuk meningkatkan kadar hemoglobin dan status zat besi, khususnya pada remaja putri dan ibu hamil. Penelitian lebih lanjut diperlukan untuk menentukan dosis optimal serta membandingkan efektivitas antar varietas kurma.

***Kata Kunci**: anemia defisiensi besi; Phoenix dactylifera; hemoglobin; kesehatan remaja; kehamilan.*

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Introduction

Iron deficiency anemia (IDA) is a significant public health issue globally, particularly in developing countries. This condition is defined as a hemoglobin level in the blood below the normal threshold, which impacts the blood's capacity to transport oxygen throughout the body. According to the World Health Organization (WHO), anemia affects more than 24% of the global population, with the highest prevalence found in women of reproductive age and pregnant women. Poorly managed anemia can lead to cognitive dysfunction, reduced productivity, increased infection risks, and complications during pregnancy, such as preterm labor and low birth weight. In severe cases, anemia can increase the risk of maternal and infant mortality. These impacts make anemia an urgent health problem that requires attention [1].

Women of reproductive age and pregnant women are particularly vulnerable to anemia due to their increased iron requirements. During menstruation, women lose blood, which must be compensated by adequate iron intake to maintain hemoglobin levels. During pregnancy, the iron demand increases drastically to support fetal growth, increase maternal blood volume, and prepare the body for childbirth. Iron deficiency anemia in pregnant women can lead to various pregnancy complications, including preterm birth and maternal and infant mortality [2]. In this context, anemia poses a serious threat to reproductive health and overall well-being.

Standard treatment for iron deficiency anemia typically involves synthetic iron supplements. However, the use of these supplements often faces challenges, as many women report side effects such as nausea, constipation, and other digestive issues. This results in low adherence to regular iron supplementation. In many developing countries, access to these supplements is also limited, especially in rural areas with inadequate healthcare infrastructure. Additionally, reliance on synthetic supplements is not always sustainable, particularly in terms of cost and limited distribution [3].

In seeking natural and sustainable solutions, food-based interventions have gained increasing attention. One natural food source being explored is the date fruit (Phoenix dactylifera). Dates are known to be rich in essential nutrients such as iron, fiber, vitamins, and antioxidants, making them a potential food for addressing anemia. Dates have been consumed for centuries in the Middle East and North Africa, where they are used in traditional medicine to boost energy and improve blood health. Research indicates that date consumption can significantly increase hemoglobin levels in individuals suffering from anemia [4].

Several early studies have shown promising results regarding the benefits of dates in improving hemoglobin levels. For instance, a study by Mahmoud, (2018) using a rat model found that date consumption significantly increased hemoglobin levels in anemic rats. This suggests that dates have great potential as a natural alternative or supplement in the treatment of anemia. Furthermore, dates tend to be better accepted by the public compared to synthetic iron supplements, as they are a natural food and do not cause significant side effects [6,7].

Although early evidence shows the potential benefits of dates in treating anemia, further research is needed to gain a deeper understanding of the various factors that could influence their effectiveness. These factors include the type of dates used, the appropriate dosage, and the optimal duration of intervention. Additionally, variations in populations and research methodologies also affect outcomes, making it difficult to draw definitive conclusions. Therefore, there is a need for a comprehensive literature mapping to summarize existing findings and explore the potential of dates in treating anemia, particularly in women who are most vulnerable to this condition.

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This scoping review aims to identify and evaluate the existing evidence related to the use of dates in improving hemoglobin levels in women. The review will explore different types of dates, the correct dosage of consumption, and the most effective duration of intervention in increasing hemoglobin levels. Additionally, this review will also examine the potential use of dates as part of a broader intervention, either alone or in combination with iron supplements [8].

Methods

This scoping review adhered to the Joanna Briggs Institute (JBI) guidelines, synthesizing evidence by categorizing literature based on its nature, characteristics, and volume (9). The methodology for the scoping review involved systematic steps similar to other systematic studies, focusing on a specific topic, well-defined research questions, reasons for study selection and exclusion, and transparent procedures that involved all the researchers.

A systematic literature search was conducted in October 2024 through several databases, including PubMed, Scopus, Web of Science, Google Scholar, DOAJ, ProQuest, Science Direct, Cochrane, Wiley, and Portal Garuda. The search keywords were: 'hemoglobin,' 'dates,' 'women,' 'anemia,' and 'Phoenix dactylifera. The search was limited to studies published in peer-reviewed journals between January 2014 and October 2024, and those written in English or Indonesian.

The search process continued with screening the literature to identify studies on the consumption of dates in women with anemia. Relevant initial search results were filtered based on their alignment with the research question and availability of full-text articles. **Table 1** illustrates the initial search results and the subsequent search strategy.

Table 1. Literature Search Keywords

Database	Keywords	Number of Articles (After screening)	Access Date
Pubmed	(Hemoglobin [Title/Abstract]) AND (Phoenix dactylifera [Title/Abstract]) OR (Date fruit [Title/Abstract]) AND (Women [Title/Abstract]) AND (Anemia [Title/Abstract])	95	15-10-2024
Scopus	Hemoglobin AND Phoenix dactylifera OR Date fruit AND Women AND Anemia	78	15-10-2024
Science Direct	(Hemoglobin OR Anemia) AND (Phoenix dactylifera OR Date fruit) AND (Women)	45	16-10-2024
Cochrane	Hemoglobin OR Anemia AND Phoenix dactylifera OR Date fruit AND Women	102	17-10-2024
Wiley	Hemoglobin OR Anemia AND Phoenix dactylifera AND Women	36	17-10-2024
Grey Literature (Google Scholar)	Hemoglobin OR Anemia AND Phoenix dactylifera AND Women	120	18-10-2024
ProQuest	ab(Hemoglobin OR Anemia) AND ab(Phoenix dactylifera OR Date fruit) AND ab(Women)	65	18-10-2024
Garuda	Hemoglobin OR Anemia AND Phoenix dactylifera AND Women	40	18-10-2024

The review involved three independent reviewers to reduce the risk of bias. The study selection process took place in two stages: first, reviewing titles and abstracts, and second, reviewing full-text articles. The selection was made based on inclusion and exclusion criteria, which were applied progressively as shown in **Figure 1**, following the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines. The decision to filter relevant papers was made based on the expertise of the authors in the research context during the abstract review process. A total of 581 potential articles were identified through searches in databases such as PubMed, Scopus, Science Direct, Cochrane, Wiley, ProQuest, Garuda, and gray literature (Google Scholar). After screening, many articles were excluded because they were not in English, did not meet

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the research question, were duplicates, lacked full-text availability, were not interventions aimed at increasing hemoglobin levels, or had irrelevant study results. Ultimately, only 12 articles met the inclusion criteria and were included in this review.

Inclusion criteria for the review were based on the PCC (Population: women with iron deficiency anemia, Concept: consumption of dates, Context: increasing hemoglobin levels). Data were extracted from full-text journal articles that met the inclusion criteria. The study utilized a data extraction form developed by the Joanna Briggs Institute, (2015), which included a descriptive summary of the key outcomes, compiled based on the theoretical concepts underpinning the review. An analytical framework was developed to document the selected studies into an Excel spreadsheet, covering study characteristics such as the researchers, year, country, research aim, study design, sampling techniques, population, varieties of dates, duration, dose/quantity of dates consumed, hemoglobin levels, main findings, primary outcomes, and results **(Table 2).** The findings of the review were reported narratively, focusing on themes identified from the literature related to the consumption of dates and its impact on hemoglobin levels.

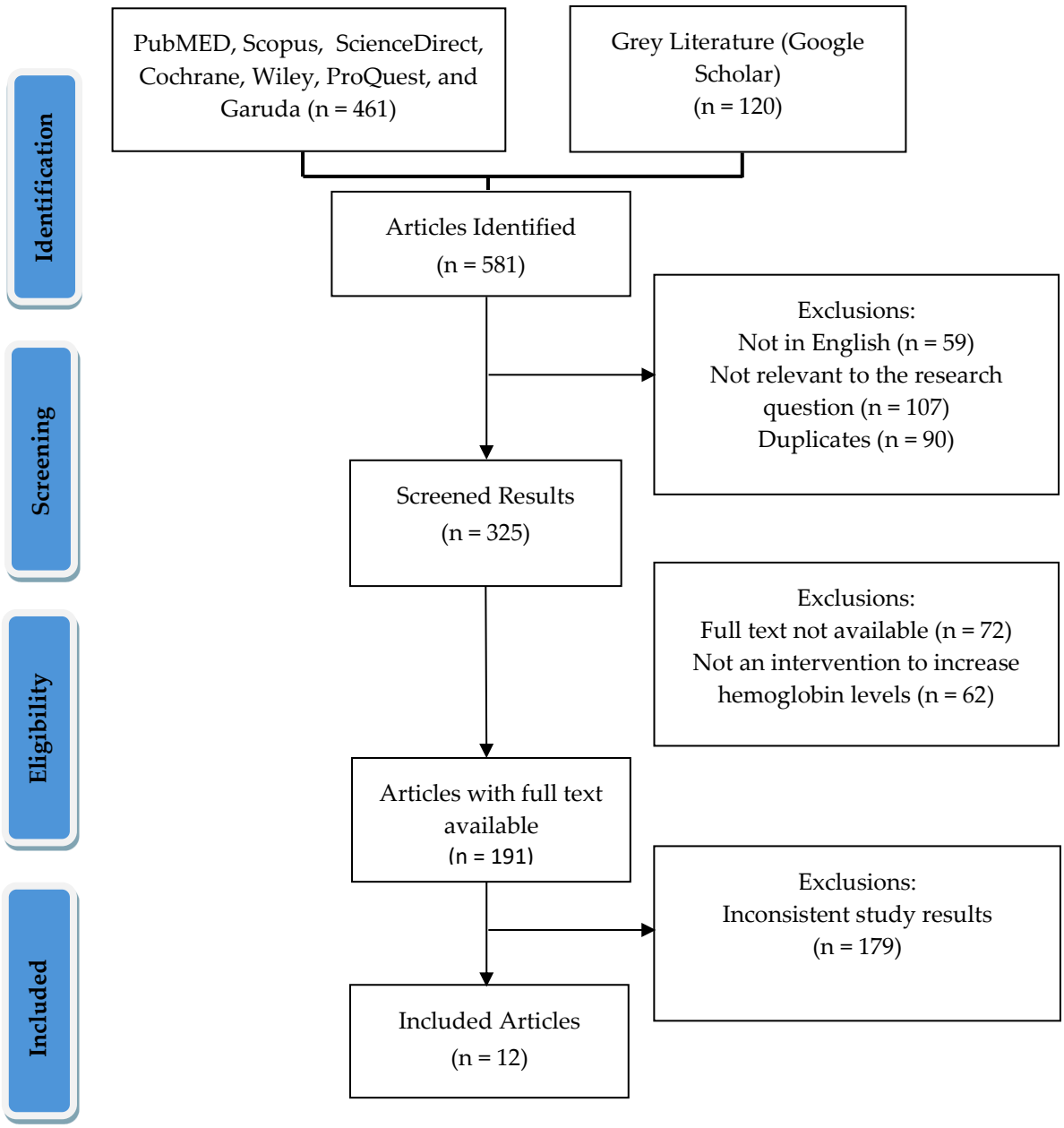

Figure 1. Flow diagram for inclusion and exclusion studies.

This scoping review protocol follows the PRISMA-ScR guidelines and has been registered with PRISMA to ensure a transparent and systematic methodology.

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Ethical approval was not required for this study, as it was based on literature review and did not involve human subjects directly. However, the study adhered to ethical principles, such as avoiding fabrication, falsification, plagiarism, and duplication [11].

The study selected articles based on the following criteria: studies examining the effects of date (Phoenix dactylifera) consumption on increasing hemoglobin levels in women, specifically targeting adolescent girls and women of reproductive age with iron deficiency anemia. Only studies reporting changes in hemoglobin levels as the primary outcome were included. The selected articles had to be published in English or Indonesian and within the time frame from January 2014 to October 2024.

Result

This study involved subjects consisting entirely of women, including both adolescent girls and pregnant women, groups that have a high prevalence of iron deficiency anemia. The age range of the subjects varied, with adolescent girls between 15 and 18 years old, as seen in the studies by Levimah et al. (2024**)** and Aisah et al. (2022), and pregnant women between 20 and 35 years old, as reported by Murtiyarini et al. (2021) and Irmawati, Wiji, & Harianti, (2023). The subjects generally had moderate to poor nutritional status, especially among adolescent girls and pregnant women who are more susceptible to anemia due to increased iron requirements. The research was conducted in various locations, including Indonesia and Egypt, with most of the subjects coming from lower-middle socio-economic backgrounds, which are at higher risk of iron deficiency anemia. All subjects were diagnosed with iron deficiency anemia, with hemoglobin levels below normal before the intervention.

Most studies showed a significant hemoglobin level increase in date-consuming groups compared to controls. In the study by Levimah et al. (2024**)**, adolescent girls who consumed 100 grams of dates daily for 7 days experienced an increase in hemoglobin levels by 1.18 g/dL, while the control group, which only received health education, showed an increase of 0.56 g/dL. These results were consistent with Aisah et al. (2022), where the intervention group consuming 125 grams of Ajwa dates for 14 days showed an increase in hemoglobin levels from 10.9 g/dL to 12.3 g/dL, whereas the control group only increased from 11.7 g/dL to 11.9 g/dL. In the study by Murtiyarini et al. (2021) on third-trimester pregnant women, an 11% increase in hemoglobin was observed in the group receiving a combination of ferrous fumarate and Sukari dates for 7 days. Heba & Abeer. (2015) reported that after 8 weeks of consuming 100 grams of black dates daily, the hemoglobin levels in children with anemia increased significantly more than in the control group. Pulungan, Ahmady, & Purnomo, (2021) showed an increase of 1.16 g/dL in hemoglobin levels in pregnant women who received a combination of iron tablets and date syrup compared to a 0.5 g/dL increase in the control group, which only received iron tablets. Yanti, (2020) found that giving date syrup for 2 weeks to third-trimester pregnant women resulted in a hemoglobin increase of 0.2033 g/dL, with 60% of participants showing improvement. Meanwhile, Mufliha & Dinengsih, (2023) found that pregnant women receiving a combination of date juice and coconut water showed an increase in hemoglobin from 10.153 g/dL to 11.600 g/dL over 7 days, with an average increase of 1.10 g/dL.

Studies comparing different varieties of dates have shown varied results in increasing hemoglobin levels. In the study by Aisah et al. (2022), Ajwa dates were proven effective in increasing hemoglobin levels in adolescent girls. In this study, consuming 125 grams of Ajwa dates for 14 days caused hemoglobin levels to rise from 10.9 g/dL to 12.3 g/dL, indicating a significant effect on hemoglobin improvement. Meanwhile, the study by Heba & Abeer. (2015) showed that black dates also had good results in children with iron deficiency anemia. After 8 weeks of consuming 100 grams of black dates daily, hemoglobin levels in children with anemia increased more significantly compared to the control group. This study demonstrated that black dates were effective in improving hemoglobin levels as well as other hematological parameters. Furthermore, the study by Murtiyarini et al. (2021) used Sukari dates in third-trimester pregnant women. The combination of Sukari dates with ferrous fumarate supplementation for 7 days resulted in an 11% increase in hemoglobin levels, showing that Sukari dates also had a significant effect in improving hemoglobin levels. While research comparing different varieties of dates directly is limited, these results suggest that both Ajwa, black, and Sukari dates are effective in improving hemoglobin levels, with only minor differences in effectiveness, likely due to variations in nutritional content among the date varieties.

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Table 2. Grid Synthesis

Researcher, Year & Country	Research Objectives	Research Design	Sample Technique	Population	Varieties	Duration	Dosage/Number of dates consumed	Hb (Hemoglobin) Levels	Key findings	Primary Results	Secondary Results
(Levimah, Febrina, Kurniyati, Andini, & Sari, 2024), Rejang Lebong, Indonesia	To determine whether consuming dates can increase hemoglobin levels in adolescent girls.	The research design used was a quasi-experiment, with the design of two pre-test-posttest groups with a control group, which was carried out in one location (SMA N 2 Rejang Lebong).	The sampling technique used in this study was purposive sampling with a sample of 36 people, namely 18 people in the intervention group and 18 people in the control group.	The population in this study is adolescent girls at SMA N 2 Rejang Lebong, Indonesia.	This paper shows that the specific type of date palm used in this study is the date tree (Phoenix dactylifera).	7 days	The participants in the intervention group consumed 100 grams of dates per day for 7 days.	Hemoglobin levels increased by an average of 1.18 g/dL in the intervention group that received dates, compared to an increase of 0.56 g/dL in the control group. The final mean hemoglobin level was 12.45 g/dL in the intervention group and 11.90 g/dL in the control	1. Dates (Phoenix dactylifera) have a significant influence on the increase in hemoglobin levels in adolescent girls at SMA N 2 Rejang Lebong. The average hemoglobin level after the intervention was 12.45 g% in the intervention group and 11.90 g% in the control group, with a p-value of 0.006, indicating a	1) The intervention group that received dates (Phoenix dactylifera) experienced an increase in hemoglobin levels by 1.18 g/dL, which was statistically significant ($p<0.05$). 2) The control group that received health education experienced an increase in hemoglobin levels by 0.56 g/dL, which was	Not mentioned (the paper does not appear to have a section explicitly labeled "secondary results")

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								group, and the difference was statistically significant (p=0.006).	significant effect of date administration on hemoglobin levels. 2. The increase in hemoglobin levels was greater in the intervention group that received dates (1.18 g%) compared to the control group that received health education (0.56 g%).	also statistically significant (p=0.015). 3) The final hemoglobin level was 12.45 g/dL in the intervention group and 11.90 g/dL in the control group.	
(Aisah, Rasyid, Rofinda, & Masrul, 2022)Indonesia	To determine the effect of giving ajwa dates (Phoenix Dactylifera L) on increasing hemoglobin levels in adolescent	The design of this study is a quasi-experimental study, a parallel group study with a control group and a treatment group.	Not mentioned (the paper does not mention the exact number of participants in the control and intervention groups; it is	Female student at Baiturrahim College of Health Sciences, Jambi, Indonesia	Ajwa Date (Phoenix Dactylifera L)	14 days	1.25 gr/BB ajwa dates for 14 days	The average hemoglobin level before and after the administration of ajwa dates was 10.9 g/dl in the interventi	1. The average hemoglobin level increased from 10.9 g/dl to 12.3 g/dl in the intervention group after receiving ajwa dates.	1. The average hemoglobin level increased from 10.9 g/dL to 12.3 g/dL in the intervention group after receiving ajwa dates,	The secondary outcome reported in this paper was the levels of ferritin in the participants. This paper

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	girls at Baiturrahim Jambi College of Health Sciences.	Participants were selected through purposive sampling and not random assignments.	only mentioned that the total number of participants is 40 people divided into 2 groups)			on group, and the average hemoglobin level after the administration of ajwa dates was 12.3 g/dl. This shows a significant increase in hemoglobin levels after the administration of ajwa dates.	2. The average ferritin level increased from 36.5 µg/L to 58.8 µg/L in the intervention group after receiving ajwa dates. 3. Statistical analysis showed a significant effect of ajwa date intervention in increasing hemoglobin and ferritin levels ($p<0.001$).	while it only increased from 11.7 g/dL to 11.9 g/dL in the control group. 2. The average ferritin level increased from 36.5 µg/L to 58.8 µg/L in the intervention group after receiving ajwa dates, while it only increased from 41.2 µg/L to 46.4 µg/L in the control group. 3. Statistical analysis showed a significant effect ($p<0.001$) of the administration of ajwa dates on hemoglobin	provides mean ferritin levels for the control and intervention groups, both before and after the intervention with ajwa dates, and finds a statistically significant effect of the intervention on ferritin levels.

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										and ferritin levels of anemia adolescent female participants.	
(Murtiyarini, Wuryandari, & Suryanti, 2021)Indonesia	- To determine the effect of ferrous fumarate supplementation alone on hemoglobin levels in pregnant women in the third trimester. - To determine the effect of ferrous fumarate supplementation combined with date consumption on hemoglobin levels in pregnant women in	The design of this study is a quasi-experimental study with a test-test-post design, using a simple sampling method to divide participants into two groups: one group received ferrous fumarate supplementation alone, and the other group received ferrous fumarate supplementation combined	The study used a practical sampling technique to recruit 60 participants, and then randomly placed them into one of two intervention groups: ferrous fumarate supplementation alone (n=30) or ferrous fumarate supplementation combined with date consumption (n=30).	Jambi, Indonesia	The type of dates used in this study is Sukari dates.	The duration of the date consumption intervention was 7 days.	Participants in the combined group consumed 3 sukari dates per day for 7 days.	The combined use of ferrous fumarate and date consumption led to a 1.1% increase in the average female hemoglobin level in the third trimester of pregnancy.	1. Ferrous fumarate supplementation alone significantly increases hemoglobin levels in pregnant women in the third trimester. 2. The use of ferrous fumarate and the consumption of dates at the same time are more effective in increasing hemoglobin levels compared to ferrous fumarate alone. 3.	The main result of this study was that ferrous fumarate supplementation either alone or in combination with date consumption significantly increased hemoglobin levels in pregnant women in the third trimester, but the combined approach was more effective.	Not mentioned (the paper does not appear to have a "secondary results" section)

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	the third trimester. - To compare the effects of both interventions (ferrous fumarate alone vs. ferrous fumarate + dates) on hemoglobin levels.	with date consumption.							Consumption of dates alone causes an average increase in hemoglobin levels by 1.1% in pregnant women in the third trimester.	
(Heba & Abeer, 2015)Egypt	The purpose of this study was to evaluate the effects of black dates with or without skin in children with iron deficiency anemia, and to determine whether black dates can be used as a plant-based source of	The design of this study is a randomized controlled trial with one control group and two treatment groups. The study had an observational component in which participants were diagnosed with iron	Number: 80 participants - Non-anemia control group: 10 participants - Anemia positive control group: 10 participants - Anemia group receiving black dates with skin: 10 participants - Anemia group receiving	The population in this study was children from an orphanage in Shibin El-Kom, Minufiya, Egypt.	The "types of dates" in this paper refer to black dates, both skinned and unskinned, that were purchased locally in Egypt for research.	The duration of the study was 8 weeks.	The anemia group consumed 100g of black dates daily for 8 weeks.	Initial Hb levels were significantly lower in the anemia group compared to the non-anemia group at the beginning of the trial. However, after 8 weeks of consuming 100g of black dates per	1. Black dates, with or without skin, are effective in improving hematological parameters and iron status in children with iron deficiency anemia. 2. Black dates, especially skinless, improved anthropometric	The main results of the study showed that consumption of black dates, both with and without skin, resulted in improvements in various hematological parameters related to iron status in children with iron	Secondary results reported in this paper include the effects of black dates with and without skin on anthropometric measurements (weight and BMI), hematological parameters (hemoglobin,

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	iron to treat iron deficiency anemia in children.	deficiency anemia based on certain criteria.	skinless black dates: 10 participants				day, Hb levels in the anemia group that consumed dates increased and became higher than the positive control group that did not receive dates.	measurements in children with anemia. 3. Children who are anemic have a lower intake of certain vitamins and minerals compared to the non-anemic group, which improves after taking black date supplementation.	deficiency anemia over 8 weeks. Skinless black dates are more effective than skinless dates in increasing serum iron, serum ferritin, transferrin saturation, and total iron binding capacity.	hematocrit, red blood cell count, mean blood cell volume, and mean blood cell hemoglobin), and iron status (serum iron, serum ferritin, transferin saturation, and total iron-binding capacity) of study participants.
(Hamsah et al., 2022), Not mentioned (region or country where this study was conducted)	- To evaluate the effectiveness of Ajwa dates on hemoglobin levels in pregnant women. - To evaluate the effectiveness of Ajwa	The research design used was a pre-experimental, non-randomized parallel group design, with pre-test and post-test	Not mentioned (abstract does not explicitly state the sampling technique used in this study)	The population in this study is pregnant women.	Ajwa date (Phoenix Dactylifera L.)	Not mentioned (abstract does not explicitly state the duration of the study)	Not mentioned (abstract does not explicitly state the dosage or amount of ajwa dates consumed by participants	Hemoglobin (HB) levels in the study increased by 1.67 g/dL during the antepartum period and 1.58 g/dL	1) Increase hemoglobin levels of pregnant women by 1.67 g/dL during pregnancy and 1.58 g/dL after childbirth. 2) Improving	The main result of this study was that the consumption of Ajwa dates significantly increased hemoglobin levels in pregnant	The secondary result reported in this abstract was that Ajwa date consumption significantly increased

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	dates on nutritional status (protein adequacy level) in pregnant women.	comparisons between the intervention group and the control group.					in this study)	during the postpartum period in the intervention group that consumed Ajwa dates, compared to the control group.	nutritional status, measured by an increase in Protein Adequacy Level by 5.68%, compared to the control group.	women by 1.67 g/dL in the antepartum group and 1.58 g/dL in the postpartum group, compared to the control group. Ajwa dates also significantly increased protein adequacy levels by 5.68% RDA in the intervention group compared to the control group.	the level of protein adequacy of pregnant women in the intervention group compared to the control group, with a difference of 5.68% from the recommended daily allowance (RDA).
(Pulungan, Ahmady, & Purnomo, 2021)Indonesia	To find out the increase in hemoglobin levels of pregnant women who experience anemia after	non-randomized, pre-test and post-test with control group, purposive sampling	Purposive sampling	Mamuju, Indonesia	Based on the information provided in the abstract, the type of date palm	Not mentioned (abstract does not explicitly state the duration or length	Not mentioned (abstract does not mention the dose or number of dates consumed	Hemoglobin levels increased by 1.16 g/dl (12.78%) in the intervention group that	1) There was a statistically significant increase in hemoglobin levels in the group that received iron tablets and date juice,	1) There was no significant change in hemoglobin levels in the control group that received only iron	Secondary results showed that although there was no statistically significant difference

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	giving date juice.		(Type of Date) used in the research by Zulhaini Sartika A. Pulungan, Ahmady Ahmady, and E. Purnomo (2021) is date juice.	of the study)	by the participant)	received iron tablets and date juice, compared to an increase of only 0.5 g/dl (5.19%) in the control group that received only iron tablets.	but not in the group that received only iron tablets. 2) Although the increase in hemoglobin levels was greater in the group that received iron tablets and date juice compared to the group that received only iron tablets, the difference between the two groups was not statistically significant. 3) The hemoglobin levels of anemic pregnant women who were given iron tablets	tablets. 2) There was a significant increase in hemoglobin levels in the intervention group that received iron tablets and date juice. 3) There was no statistically significant difference in the increase in hemoglobin levels between the control group and the intervention, although there was a larger increase in the intervention group.	in the increase in hemoglobin levels between the control group (receiving only iron tablets) and the intervention group (receiving iron tablets and dates), hemoglobin levels in the intervention group increased by 1.16 g/dl (12.78%) compared to an increase of only 0.5 g/dl (5.19%) in the control group.

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									and date juice increased by 1.16 g/dl (12.78%), compared to an increase of only 0.5 g/dl (5.19%) in those who were given iron tablets alone.		
(Irmawati, Wiji, & Harianti, 2023), Tapung, Indonesia	To compare the effectiveness of date juice and mung bean juice in increasing hemoglobin levels in pregnant women.	Quasi-experimental trials, non-randomized controlled trials	This study used a nonrandomized control group design, with a total of 24 participants who were divided into 12 experimental groups (given date juice) and 12 control groups (given mung bean juice).	Pregnant women in the working area of Tapung Health Center, Indonesia	Not mentioned (abstract does not mention the specific type of dates used in the study)	7 days	Not mentioned (the abstract does not mention the dose or number of dates consumed by participants in the experimental group)	The initial Hb level in the experimental group was 9.72 g/dL and in the control group was 9.15 g/dL. After the intervention, Hb levels increased to 10.06 g/dL in the experimental group and 10.22 g/dL in the	1) Both date juice and mung bean juice are able to increase the average hemoglobin (Hb) level in the pregnant women studied. 2) The results of statistical analysis showed that both date juice and mung bean juice were equally effective in increasing	1) The average Hb level increased from 9.72 g/dL to 10.06 g/dL in the date juice group. 2) The average Hb level increased from 9.15 g/dL to 10.22 g/dL in the mung bean juice group. 3) The increase in Hb levels was	A secondary result of this study was that both date juice and mung bean juice were effective in increasing hemoglobin levels in pregnant women, with mung bean juice more effective than date juice.

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								control group.	Hb levels, with a p-value for both of them of 0.004. 3) Consumption of mung bean juice by anemia pregnant women is more effective in increasing Hb levels compared to date juice.	statistically significant in both groups, with a value of p=0.004 for the date juice group and p=0.000 for the mung bean juice group. 4) Consumption of mung bean juice is more effective in increasing Hb levels compared to consumption of date juice.	
(Herlianti & Ramadhena, 2024), Tirtamulya, Indonesia	- To compare the effectiveness of date juice and beet juice in increasing hemoglobin levels in anemia pregnant	The design of this study is a pre-experimental, one-group, pre-test - post-test design, using non-probability purpose	The sampling technique used in this study was non-probability sampling with a purposive method and	The population in this study is pregnant women in the working area of the Tirtamuly	Not mentioned (the paper did not mention the specific type of dates used in	The duration of the study was 14 days.	The participants were given date juice twice a day for 14 days, but the amount of dates used to make the juice was	- Before date juice intervention: average 10,527 g/dL, range 10.1 - 10.9 g/dL - After date juice	1. Both date juice and beet juice are effective in increasing hemoglobin levels in anemia pregnant women, with beet	The main result of this study was that date juice and beet juice were effective in increasing hemoglobin (Hb) levels	Not mentioned (the paper does not appear to have a "secondary results" section)

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women in the working area of the Tirtamulya Health Center in 2023.	sampling. This study was not a randomized, double-blind, or placebo-controlled study.	the number of participants was 15 people.	a Health Center.	the study)	not specified definitively.	intervention: average 11,000 g/dL, range 10.2 - 11.5 g/dL - Before beet juice intervention: average 10,540 g/dL, range 10.0 - 10.8 g/dL - After beet juice intervention: average 11,313 g/dL, range 10.6 - 12.1 g/dL	juice being more effective because 100% of participants felt an increase compared to 80% in date juice. 2. The average hemoglobin level increased from 10,527 to 11,000 g/dL after the administration of date juice. 3. The average hemoglobin level increased from 10,540 to 11,313 g/dL after beet juice administration, a greater increase compared to the date juice	in anemia pregnant women, with beet juice slightly more effective than date juice. Specifically, 80% of participants showed an increase in Hb levels with date juice, while 100% showed an increase with beet juice. Statistical analysis also confirmed the effectiveness of both interventions, with a significant p-value of less than 0.05.

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									group. 4. Statistical analysis showed that the increase in hemoglobin levels was statistically significant ($p<0.05$) for date juice and beetroot.		
(Rahmadheny & Puspitasari, 2021)Indonesia.	To find out the effect of date consumption on increasing hemoglobin levels in pregnant women.	The design of this study is pre-experimental with a pre-test-post-test control group design, using a purposeful and non-random sampling technique.	Purposiv Sampling	The population in this study is pregnant women in the Mandiang in Health Center area.	Not mentioned (abstract does not mention the type of date used in the study)	Not mentioned (abstract does not explicitly state the duration or length of the study)	Not mentioned (abstract does not explicitly state the dosage or number of dates consumed by participants in this study)	- Control group: Baseline 10,159 g/dL, Final 10,288 g/dL - Experimental group: Baseline 9,924 g/dL, Final 10,706 g/dL	The main finding of the study was that the consumption of dates had a significant effect on increasing hemoglobin levels in pregnant women.	1) The average hemoglobin level in the control group increased from 10.159 g/dL to 10.288 g/dL. 2) The average hemoglobin level in the experimental group increased from 9.924 g/dL to 10.706 g/dL. 3) The	Not mentioned (abstract does not mention "secondary outcomes")

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										results of statistical analysis showed that the consumption of dates had a significant influence on the increase in hemoglobin levels, with a p value of 0.02.	
(Yanti, 2020), Indonesia, especially the province of Central Kalimantan and the city of Palangka Raya.	To find out the effect of giving date juice on increasing hemoglobin levels in pregnant women.	The design of this study is a pre-experimental, single-group, pre-test, post-test design, which is a type of non-randomized and uncontrolled research.	The sampling technique used in this study is a consequential sampling technique, namely as many as 27 pregnant women in the third trimester who meet the inclusion and exclusion	The population in Fatma Yanti's (2020) study was all pregnant women in the third trimester at the Palangka Raya Midwifery Independent Practice in	This paper does not explicitly mention the specific type of date ("Date Type") used in the intervention. The intervention was referred to as	The duration of the study was 2 weeks, during which participants were given 3 ml of date juice per day.	Pregnant women in the Fatma Yanti (2020) study were given 3 ml of date juice per day for 2 weeks.	The average hemoglobin level increased by 0.2033 g/dL after giving date juice to pregnant women in the third trimester. As many as 60% of the 30 participants	The main finding of this study is that date juice is effective in increasing hemoglobin levels in pregnant women in the third trimester. The study found a statistically significant difference (p=0.029) in	The main result of Fatma Yanti's (2020) research was that the administration of date juice had a significant effect on the increase in hemoglobin levels in pregnant women in the third trimester,	Not mentioned (the paper does not appear to report "secondary results")

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			criteria, were selected as research participants.	January-March 2020.	"date juice", but the type of date was not mentioned.			experienced an increase in hemoglobin levels after receiving date juice.	mean hemoglobin levels before and after the intervention, with 60% of the 30 participants experiencing an increase in hemoglobin levels after receiving date juice.	with the result that as many as 60% of the 30 participants experienced an increase in hemoglobin levels after consuming date juice.	
(Mufliha & Dinengsih, 2023)Indonesia	To determine the effect of giving date juice and coconut water on hemoglobin levels in anemia pregnant women at the Babelan Health Center in 2023.	quasi-experimental, pre-test-post-test control group design	The sampling technique used in this study is purposive sampling. The overall sample size was 34 pregnant women in the third trimester, with details of 17 people in the intervention group and 17 people in	The population in this study is all pregnant women in the third trimester who experience anemia, totaling 51 people in the Babelan Health Center area in 2022.	Phoenix dactylifera L.	7 days	The study stated that participants consumed 25 grams of dried dates per day for 14 days.	The Hb level before treatment was 10.153 g/dL, and the Hb level after 7 days of date juice and coconut water intervention was 11.600 g/dL, which showed an average	The main finding of this study was that there was a significant increase in hemoglobin levels in pregnant women who experienced anemia after consuming date juice and coconut water, with an average increase in hemoglobin	The main result of this study was the change in hemoglobin levels before and after the intervention of date juice and coconut water in pregnant women with anemia in the third trimester. The study found that the average	Not mentioned (the paper does not mention "secondary outcomes")

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			the control group. The total population of anemia pregnant women in the study area is 51 people.					increase of 1.10 g% or 1.1%.	levels of 1.1%.	hemoglobin level increased from 10.153 g/dL before the intervention to 11.600 g/dL after the 7-day intervention, an average increase of 1.10 g%.	
(Sari, Nuhriawangsa, & Rahardjo, 2023)Indonesia	The purpose of this study is to determine the effect of giving snack cups containing bananas, dates, and honey on hemoglobin levels in adolescent girls with anemia.	The randomized controlled trial with a pretest-posttest design and four parallel groups: a negative control group, a positive control group receiving iron supplements, and two intervention groups	Number: 32 adolescent girls with anemia - Group K-: Control group, received regular food - Group K+: Positive control group, received iron tablets - Group P1: Intervention group, received snack cups with 11.45	The population in this study is all anemic adolescent girls in the Surakarta area and its surroundings, with the research subjects as many as 32 anemic adolescent girls living in	Not mentioned (the paper does not mention the type or variety of dates (dates) used in the snack cup intervention)	The duration of the study is 2 weeks, from July to August 2022.	The P1 group received a bowl of snacks containing 33 grams of dates, and the P2 group received a bowl of snacks containing 39 grams of dates.	The study did not find any significant changes in hemoglobin levels before and after treatment in any of the four groups, nor did there be any significant differences in changes in mean hemoglobi	The main finding of this study was that the consumption of SangKurMa cup snacks (containing bananas, dates, and honey) for 2 weeks did not significantly affect the hemoglobin levels of adolescent girls with anemia.	The primary results showed that the consumption of snacks in cups filled with bananas, dates, and honey for two weeks did not significantly affect the hemoglobin levels of anaemic adolescent girls compared to	This paper does not report any secondary results. The focus of this paper is on the primary results of the effects of snacks containing bananas, dates, and honey on hemoglobin levels of anemic adolescent girls.

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	receiving different formulations of iron-rich snack cups.	mg of iron - Group P2: Intervention group, received snack cups with 13.44 mg of iron	four specific Islamic boarding schools in the Surakarta area who meet the inclusion and exclusion criteria.		n between the groups.	the control group that received the usual food or iron supplements.

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Interventions lasting 14 days generally yielded greater hemoglobin increases than 7-day interventions. For example, the study by Aisah et al. (2022), with a 14-day duration and a dose of 125 grams of Ajwa dates daily, reported a hemoglobin increase of 1.14 g/dL. In contrast, the study by Levimah et al. (2024), which lasted only 7 days with a dose of 100 grams of dates per day, reported a hemoglobin increase of 1.18 g/dL. Other studies, like the one by Murtiyarini et al. (2021), combining date consumption with ferrous fumarate supplementation for 7 days, also showed significant hemoglobin improvement, but the results were slightly lower than those from studies with longer durations.

The dose of dates also influenced the outcomes of the studies. A higher dose, such as 125 grams per day in the Aisah et al. (2022) study, resulted in a greater increase in hemoglobin levels compared to the 100-gram dose per day in the Levimah et al. (2024) study.

Several studies, in addition to reporting increased hemoglobin as the main outcome, also found secondary outcomes related to other parameters such as ferritin status or additional nutritional factors. For example, in the study by Aisah et al. (2022), besides an increase in hemoglobin, there was a significant increase in ferritin levels. Before the intervention, the ferritin level in the intervention group was 365 g/dL, and after consuming Ajwa dates for 14 days, ferritin levels increased to 588 g/dL These results suggest an improvement in iron storage in the body, in addition to the increase in hemoglobin, strengthening the benefits of date consumption for improving anemia conditions. A significant increase in ferritin levels was also noted in the control group, although it was lower than in the intervention group.

The study by Murtiyarini et al. (2021) also reported secondary outcomes related to ferritin levels. This study found that the combination of ferrous fumarate supplementation and date consumption resulted in a more significant increase in ferritin levels compared to iron supplementation alone. This increase indicates that dates not only help in improving hemoglobin levels but also improve the body's iron stores, which is important for long-term anemia management.

In the study by Heba & Abeer. (2015), besides an increase in hemoglobin, secondary outcomes also included improvements in anthropometric measurements such as body weight and BMI, indicating that consuming black dates had a positive effect on the nutritional status of children with iron deficiency anemia. Furthermore, other hematological parameters, such as hematocrit, mean red blood cell volume, and serum iron levels, also showed significant improvements.

Overall, the secondary outcomes of these studies demonstrate that consuming dates not only increases hemoglobin levels but also improves other parameters such as ferritin levels and nutritional status, providing a more comprehensive picture of the benefits of dates in treating iron deficiency anemia.

Studies conducted on adolescent girls showed significant increases in hemoglobin levels, such as those by Levimah et al. (2024**)** and Aisah et al. (2022), each showing increases of around 1.18 g/dL and 1.14 g/dL, respectively. Research on pregnant women, such as that conducted by Murtiyarini et al. (2021), also showed similar results, with a hemoglobin increase of about 1.5 g/dL. These studies indicate that date consumption can provide similar benefits across different populations.

Nearly all studies showed statistically significant results, with p-values ranging from $p<0.05$ to $p<0.001$, indicating that the effect of date consumption on increasing hemoglobin levels was highly significant compared to the control group or other interventions.

Discussion

The results of this scoping review show that the consumption of dates (Phoenix dactylifera) significantly increases hemoglobin levels in women, particularly adolescent girls and pregnant women, who suffer from iron deficiency anemia. These findings are supported by several previous studies that validate the effectiveness of dates as a natural intervention to improve hemoglobin levels and iron status.

Levimah et al. (2024**)** reported that adolescent girls who consumed 100 grams of dates daily for 7 days experienced an increase in hemoglobin levels by 1.18 g/dL, while the control group, which only received health education, showed an increase of 0.56 g/dL. These results align with Aisah et al. (2022), which found that hemoglobin levels increased from 10.9 g/dL to 12.3 g/dL after 14 days of consuming 125 grams of Ajwa dates daily. This finding is consistent with the study by Al-Shahib & Marshall, (2003), which showed that dates are rich in iron, a vital nutrient for red blood cell and hemoglobin production, especially in populations suffering from iron deficiency.

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Moreover, the study by Baliga et al., (2011) supports these findings, indicating that dates play a role in increasing blood production through their iron and vitamin B6 content, which are essential for the formation of healthy red blood cells. This further strengthens the claim that consuming dates not only improves hemoglobin levels but also enhances overall health in individuals at risk of iron deficiency anemia.

Research on pregnant women also demonstrated similar results. Murtiyarini et al. (2021) reported an 11% increase in hemoglobin levels in third-trimester pregnant women who consumed a combination of ferrous fumarate and Sukari dates for 7 days. This study suggests that when combined with iron supplements, dates have a synergistic effect in increasing hemoglobin levels. This is supported by Pulungan, Ahmady, & Purnomo, (2021), which found that the combination of iron tablets and date syrup increased hemoglobin levels by 1.16 g/dL, compared to an increase of 0.5 g/dL in the control group.

The variety of dates also plays a key role in the effectiveness of the intervention. Aisah et al. (2022) reported that Ajwa dates resulted in a significant increase in hemoglobin levels by 1.14 g/dL after 14 days of intervention. Similarly, Heba & Abeer. (2015) showed that children with iron deficiency anemia who consumed 100 grams of black dates daily for 8 weeks experienced a significant increase in hemoglobin levels compared to the control group. Additionally, the study by Parvez, Gautam, & David, (2021) showed that Ajwa dates have a higher iron content compared to other date varieties, supporting the use of Ajwa dates to boost hemoglobin levels.

The duration of the intervention and the dose of dates also influenced the research outcomes. The study by Aisah et al. (2022), which lasted for 14 days with a dose of 125 grams of Ajwa dates daily, resulted in a greater increase in hemoglobin levels compared to the study by Levimah et al. (2024**)**, which lasted only 7 days with a dose of 100 grams of dates daily. This suggests that a longer duration and a higher dose contribute to better results in improving hemoglobin status. (22) also supported this finding, showing that consuming 120 grams of dates daily for two weeks led to a significant increase in hemoglobin levels in women with anemia.

In addition to the increase in hemoglobin, secondary outcomes from these studies also included improvements in other hematological parameters, such as ferritin levels, which reflect an increase in the body's iron stores. Aisah et al. (2022) reported an increase in ferritin levels from 365 μg/L to 588 μg/L after 14 days of consuming Ajwa dates. Murtiyarini et al. (2021) also showed that the combination of dates and ferrous fumarate resulted in a greater increase in ferritin levels compared to iron supplementation alone. This suggests that dates not only improve hemoglobin levels but also help enhance the body's iron reserves, which is crucial for long-term anemia prevention.

Significant increases in hemoglobin levels were also reported across various population groups. Levimah et al. (2024**)** and Aisah et al. (2022) reported significant increases in hemoglobin in adolescent girls, while Murtiyarini et al. (2021) reported similar findings in pregnant women. Irandegani et al, (2019) also supported these findings, showing that date consumption significantly increased hemoglobin levels in schoolchildren with iron deficiency anemia.

Statistically, most of the studies reported significant results, with p-values ranging from $p<0.05$ to $p<0.001$, indicating that date consumption has a highly significant effect on increasing hemoglobin levels compared to the control group or other interventions. This emphasizes that dates are an effective natural intervention for addressing iron deficiency anemia in women and children.

Overall, the results of this scoping review confirm that the consumption of dates, particularly varieties such as Ajwa, black dates, and Sukari dates, is an effective intervention for increasing hemoglobin levels and improving iron status in women and children suffering from iron deficiency anemia. Further research is needed to explore the optimal dose, appropriate intervention duration, and the effectiveness of different date varieties in managing anemia across various populations.

Conclusions and Future Directions

The findings of this study confirm that the consumption of dates (Phoenix dactylifera) has a significant effect on increasing hemoglobin levels in women with iron deficiency anemia, particularly adolescent girls and pregnant women. Various date varieties, such as Ajwa, Sukari, and black dates, have been proven effective in improving hemoglobin levels and enhancing the body's iron status. Date consumption also positively impacts secondary parameters, such as increased ferritin levels and overall nutritional status improvement.

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Research indicates that longer intervention durations and higher doses tend to yield more significant results in improving hemoglobin levels. Additionally, the combination of date consumption with iron supplements provides a synergistic effect, further enhancing the intervention outcomes.

While the results from various studies are highly promising, Further research should determine optimal dosage, intervention duration, and compare efficacy across date varieties in diverse populations. This is essential to ensure that date consumption can serve as an effective natural alternative for addressing iron deficiency anemia, especially among vulnerable populations.

Conflict of Interest

The authors hereby declare that there are no financial, personal, professional, or other conflicts of interest that could inappropriately influence or bias the content of this manuscript. No funding or financial support was received from any organization or entity with a vested interest in the outcomes of this study. All authors have reviewed and approved the manuscript's final version and affirm the research's accuracy and integrity.

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References

[1] WHO. Prevalence of anaemia in children aged 6–59 months. Website [Internet]. 2019;12:2021. Available from: https://www.who.int/data/gho/indicator-metadata-registry/imr-details/4801

[2] Guillermo J. Ruiz-Arguelles. Iron deficiency anemia in low- and middle-income countries The. Pacing Clin Electrophysiol. 2013;36(7):920–920.

[3] Wahlqvist ML. Introduction to human nutrition. Food Nutr. 2020;3–10.

[4] Baliga MS, Shivashankara AR, Haniadka R, Dsouza J, Bhat HP. Phytochemistry, nutritional and pharmacological properties of Artocarpus heterophyllus Lam (jackfruit): A review. Food Res Int [Internet]. 2011;44(7):1800–11. Available from: https://www.sciencedirect.com/science/article/pii/S0963996911001372

[5] Mahmoud M. Transaminase perturbation in certain tissues of Schistocerca gregaria (Forskal) (Orthoptera : Acrididae) by Punica granatum Linn . (Lythraceae) extracts Introduction As reported by some authors (Uvarov ,. 2018;2(May):18–34.

[6] Sakti Herlianti L, Putri Ramadhena M. Differences In The Effectiveness Of Date Juice And Beet Juice In Increasing Hemoglobin Levels In Anemia Pregnant Women In The Work Area Of The Tirtamulya Health Center In 2023. Int J Heal Pharm. 2024;4(1):135–41.

[7] Zen ATH, Pertiwi D, Chodidjah C. The Effect of Date (Phoenix dactylifera) Juice on Haemoglobin Level An Experimental Study in Iron Supplemented Rats. Sains Med J Kedokt dan Kesehat. 2013;5(1):17.

[8] Tricco AC, Cardoso R, Thomas SM, Motiwala S, Sullivan S, Kealey MR, et al. Barriers and facilitators to uptake of systematic reviews by policy makers and health care managers: a scoping review. Implement Sci. 2016 Jan;11:4.

[9] Lockwood C, Dos Santos KB, Pap R. Practical Guidance for Knowledge Synthesis: Scoping Review Methods. Asian Nurs Res (Korean Soc Nurs Sci). 2019 Dec;13(5):287–94.

[10] Joanna Briggs Institute. 2015 Joanna Briggs Institute Review Manual. Methodology for the JBI Scope Review. 2015;

[11] Dicky Endrian Kurniawan. Penyelesaian Masalah Etik dan Legal dalam Penelitian Keperawatan. J Ilm Kesehat Rustida. 2017;3(9):1689–99.

[12] Levimah L, Febrina L, Kurniyati K, Andini IF, Sari WIPE. Buah Kurma (Phoenix Dactylifera) dan Kadar Hemoglobin Pada Remaja Putri di SMAN 2 Rejang Lebong. JIK J ILMU Kesehat [Internet]. 2024; Available from: https://api.semanticscholar.org/CorpusID:269891520

[13] Aisah A, Rasyid R, Rofinda ZD, Masrul M. Pengaruh Pemberian Buah Kurma (Phoenix Dactylifera L) terhadap Peningkatan Kadar Hemoglobin dan Feritin pada Mahasiswi. J Akad Baiturrahim Jambi [Internet]. 2022; Available from: https://api.semanticscholar.org/CorpusID:247848008

[14] Murtiyarini I, Wuryandari AG, Suryanti Y. Effect of Ferrous Fumarate Supplementation and Date

Electronic ISSN : 2656-3088
Homepage: https://www.journal-jps.com

(Phoenix dactylifera) Consumption on Hemoglobin Level of Women in the Third-Trimester of Pregnancy. J Res Dev Nurs Midwifery. 2021;18(2):8–10.

[15] Irmawati E, Wiji RN, Harianti R. Efektivitas Jus Kurma dan Sari Kacang Hijau terhadap Peningkatan Kadar Hemoglobin Ibu Hamil. Nutr J Gizi, Pangan dan Apl [Internet]. 2023; Available from: https://api.semanticscholar.org/CorpusID:263204062

[16] Heba EE-DY, Abeer AK. Effect of Black Dates on Iron Deficiency Anemia of Orphanage Children. In 2015. Available from: https://api.semanticscholar.org/CorpusID:181817075

[17] Pulungan ZSA, Ahmady A, Purnomo ES. Kurma Sebagai Alternatif untuk Meningkatkan Kadar Hemoglobin Ibu Hamil dengan Anemia. In 2021. Available from: https://api.semanticscholar.org/CorpusID:244630680

[18] Yanti F. Effectiviness Of Sari Palm (Phoenix Dactylivera) On Improving Pregnant Women Hemoglobin Levels On Trimester III. In 2020. Available from: https://api.semanticscholar.org/CorpusID:225534915

[19] Mufliha AL, Dinengsih S. Effect of Date Juice and Coconut Water on Hemoglobin (Hb) Levels in Anemia Gravidarum. J Midpro [Internet]. 2023; Available from: https://api.semanticscholar.org/CorpusID:266405242

[20] Al-Shahib W, Marshall RJ. Fatty acid content of the seeds from 14 varieties of date palm Phoenix dactylifera L. Int J Food Sci Technol [Internet]. 2003 Aug 1;38(6):709–12. Available from: https://doi.org/10.1046/j.1365-2621.2003.00723.x

[21] Parvez R, Gautam A, David J. Study on Antioxidant activity and Health Benefits of Ajwa Dates. Pharma Innov J [Internet]. 2021;10(9):10–3. Available from: https://www.thepharmajournal.com/archives/2021/vol10issue9/PartA/10-9-284-764.pdf

[22] Ahmad M, Abdoh M. The Effect of Date Palm Fruit (Phoenix dactylifera L.) on Serum Lipid and Lipoprotein Concentrations in Rats Fed Cholesterol- Supplemented Diet. Med J Nutrition Metab. 2015 Mar 28;8:51–60.

[23] Irandegani F, Arbabisarjou A, Ghaljaei F, Navidian A, Karajibani M. The Effect of a Date Consumption-Based Nutritional Program on Iron Deficiency Anemia in Primary School Girls Aged 8 to 10 Years Old in Zahedan (Iran). Pediatr Heal Med Ther. 2019;10:183–8.

Electronic ISSN : 2656-3088
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