



## The practices among nurturing women with respect to foods taken

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### Abstract

There are millions of people, both sexes, and all ages, affected by anaemia every day. Worldwide and in India, anaemia is quite common among women of childbearing age. A woman and her kid are both negatively impacted of maternal anaemia, which occurs during pregnancy and is linked to lower socioeconomic status and educational attainment. Therefore, the This study aims to bring attention because anaemia is more common in rural regions, and because of the harmful consequences of anaemia on mothers and their children. The increased nutritional needs of the growing placenta and foetus, as well as the natural increase in plasma volume during pregnancy, make pregnant women more likely to get anaemia.

**Keywords:** Caution, pregnant women, regulation, protein

### Introduction

Anaemia is defined by the standard haemoglobin cutoff levels published in accordance with WHO standards. This suggests that pregnant women and children under the age of five should be treated with caution if their haemoglobin levels drop below 110 g/L. A haemoglobin level below 70 g/L is considered severe anaemia in these two groups. Haemoglobin levels below 120 g/L in women who are not pregnant is termed anaemia, and a level below 80 g/L is considered severe anaemia.

Pregnancy problems such as postpartum haemorrhage, early delivery, there is a substantial correlation between maternal anaemia and low birth weight, newborns who are tiny for their gestational age, and perinatal mortality. Babies with perinatal iron insufficiency exhibited changes in their emotional regulation and level of attentiveness. Motor, cognitive, and visual acuity tests at 12 months were all improved with early iron supplementation. Brain metabolism, neurotransmission, myelination, gene and protein profiles, and iron shortage in early life are all impacted in animal models. Mental, motor, social-emotional, and neurophysiologic deficits were linked to iron shortage and anaemia, according to a literature analysis. Despite iron treatment, symptoms in infants with severe iron insufficiency or iron deficiency anaemia may persist until

early adulthood, according to the available research. One such symptom is a low IQ. Nonetheless, completing the course of treatment for low iron levels physical, social-emotional, and cognitive-language outcomes may be improved by anaemia.

Impaired cognitive, motor, and social-emotional development are some of the long-term consequences symptoms of iron insufficiency in kids. Also, it has an effect on the way the nervous system works. Despite a lack of evidence to the contrary, research has shown that iron shortage may have long-lasting impacts on behaviour and development, even after a complete course of therapy has ended. The developing reflexes of infants with iron insufficiency were shown to be less mature. In preschoolers, a low IQ was shown to be a late impact of iron deficit and anaemia, the latter of which is usually associated with iron deficiency. Measurements of motor, neurological, social, linguistic, and cognitive capacities were also shown to be related with it. Iron deficiency impacts neurological development and results in poor IQ, according to research on school-age children, much as it does for preschoolers. Reduced academic achievement and task orientation were additional outcomes. Adolescents with iron deficiency or anaemia had significant difficulties in school, particularly with motor functions, math's, and writing, and they also

showed signs of emotional and social/emotional gaps. Researchers discovered that anaemia was more common in low-income nations compared to middle-income ones. The effect on national and personal finances is catastrophic. There were 8.3 million DALYs and a 1.3% drop in GDP due to diminishing productivity related with iron deficiency anaemia in India, a nation where the prevalence is 49.5% in children under 2 years and 39.9% in children between 2 and 5 years.

### Literature Review

Lilian M. Spencer and Karen E. Sánchez (2022) [1] Malaria is a major concern when it comes to public health. Among the 409,00 people killed by malaria in 2019, 67% were children younger than five. Foetal birth defects, premature delivery, low birth weight, and intrauterine growth retardation, maternal complications anaemia are some of the issues that may occur when a woman has malaria. An up-to-date summary of current knowledge about the immune response during pregnancy This investigation aims to ascertain how cytokines and chemokines regulate immunity after a Plasmodium infection. Topics covered in this research include malaria during pregnancy and its relationship to cytokines and the immune response, which compiles data from publications included in the most popular databases on the subject. And Talking Point: Placental sequestration is the most important event in malaria pregnancies when it comes to the development of pathology. Decreased birth weight, anaemia in the mother, miscarriage, and high foetal death rates are all caused by an immune response imbalance during gestation, which occurs when cytokines are either over- or under-expressed. Malaria intensity during pregnancy may be influenced by hormones, parity, gestational age, and the mother's age. Malaria during pregnancy may develop for a variety of reasons, including hormonal and anomalies in cytokine levels, abnormalities in placental sequestration, gestational age, parity, and maternal age. As a consequence, progress in illness therapy may be facilitated by a deeper understanding of immunological systems.

The bank Oladeinde, Henry, Omeregic, Richard, Ikponmwoza Odia, and Babatunde Oladapo Oladeinde (2012) [2] Finding out how often malaria and anaemia occur during pregnancy is the main goal of this research who go to traditional birth centres. We will also look at how factors like herbal remedies, gravidity, age, education level, and malaria control strategies affect these rates. Methods: Attendees Eleven hundred and ninety-one pregnant women were studied at a Nigerian traditional birth house near Benin City, via blood sample collection. Microscopy verified the existence of malaria parasites, and a haemoglobin content below 11 g/dL was deemed as anaemia. Findings: Primigravidae had a greater prevalence of malaria infection (92.1%), a 4.35 odds ratio (95% CI=1.213, 15.600; p=0.016) considered statistically significant. Pregnant women with a bachelor's degree or above experienced a significantly lower probability of contracting malaria (38.5% vs. 39.1%, p=0.002). There was a significant relationship between malaria and the incidence of anaemia (p< 5). Anaemia was associated with herbal remedy use (OR=2.973; 95% CI=1.206, 7.330; p=0.017). The individuals involved embraced malaria preventative

measures did not lead to a decrease in malaria cases parasitemia and anaemia. Results: 78.9% of participants had malaria infection, whereas 46.2% had anaemia, according to this research. Malaria infection was shown to be more common in primigravidae and less common in persons with higher education. The use of herbal treatments was linked to anaemia. Malaria and anaemia are serious problems among pregnant women who give birth in traditional birth homes, and their management must be prioritised. (Manjeet Kaur and Rinka Juneja) (2022) [3]. Among the most common reasons why people in tropical countries have anaemia is malaria. Malaria hinders the recovery of anaemia by causing haemolysis in both healthy and sick red cells, as well as myeloid cells. In malaria-endemic regions, low haemoglobin levels are common Among neonates, preschoolers, and teenagers. *Plasmodium falciparum* In these regions, hospitalisations for severe anaemia necessitating transfusions in young children are frequent, mainly because toxoplasmosis is most prevalent during the rainy winter days. Although *falciparum* malaria mortality increases with increasing haemoglobin concentrations as they approach the normal pattern, it is most pronounced below 3 g/dL upon admission. Primary infection treatment bleeding thresholds are not well understood. Reduced anaemia rates in tropical nations are caused by a number of interrelated variables, including a well-planned control strategy, the employment of pyrethroid intrusive devices, accurate and timely disease diagnosis, and sufficient prescription of effective pro-government medications.

Published by Shankar, Hari, Verma, Priyanka, and Rao, D. in 2018 [4]. Being one of the most abundant metals in the Earth's crust, almost every living thing uses iron in some capacity for metabolism. Invading human erythrocytes, the malaria parasite obtains iron by an unknown method, leading to erythrocyte breakdown and anaemia. Malaria and anaemia are both common in India, but the interplay between the two disorders remains mostly unknown. While some research suggests that iron supplements should be used in malaria endemic regions, newer data suggests that they should only be used in malarious areas where there are enough healthcare facilities and treatment options for the disease. In addition, a thorough literature assessment on this crucial public health problem is mandated by the contentious claims about iron supplementation as a therapy for aplastic anemia and clinical malaria incidence. Evidence from the National Iron+ Initiative together with the National Strategy for the Elimination of Malaria demonstrates that the Indian government is actively working to address anaemia and malaria.

Rahman AR, (2024) [5] were all authors of the educate yourself. This study aims to assess the prevalence of malaria during pregnancy, namely during prenatal checkups and delivery, as well as the burden of the illness across different species and geographical regions. Women who get a malaria test while pregnant will also have their risk of complications throughout the pregnancy calculated. A thorough CENTRAL and PubMed, two online databases, were searched in July 2023 methodically according to the PRISMA principles. Each relevant outcome was represented in a forest plot together with its corresponding weight, confidence interval, sample size, and effect measure. Using R-Studio version 2022.07, all statistical meta-analyses were

performed. To further guarantee the review's robustness, we ran sensitivity analyses, an evaluation of publication bias, and meta-regression studies. A total of 18.95% (95% CI: 16.95-21.11), 20.09% (95% CI: 17.43-23.06), and 17.32% (95% CI: 14.47-20.61) of malaria cases were reported during prenatal visits and delivery, respectively, based on the combined results of 253 studies. Africa had the greatest rates of malaria infection during antenatal care (ANC) at about 21.50% (95% CI: 18.52-24.81) and during birth at around 20.41% (95% CI: 17.04-24.24). Additionally, our analysis showed that pregnant women with malaria had 2.40 times (95% CI: 1.87-3.06) higher risk of anaemia, 1.99 times (95% CI: 1.60-2.48) higher risk of premature delivery, 1.65 times (95% CI: 1.29-2.10) a 1.40-fold increase (95% CI: 1.15-1.71) in the likelihood of a premature delivery potential for stillbirth.

**Research Methodology**

These include information about profile, maternal anaemia status, knowledge and practices related to anaemia during pregnancy practices related to food consumption and dietary pattern in anaemic.

**Study Setting**

Bethesda Hospital in Ambur served as the location for this investigation. Ambur town, in the Vellore district is located in the southern Indian state of Tamil Nadu, is home to this 86-year-old multispecialty hospital. The current research used in-person interviews conducted in the same hospital's maternity unit and out-patient department to compile its findings.

**Study Population**

The study's optimal site was the Bethesda Hospital in Ambur, as it serves the health requirements of a big portion of the rural population and the majority of people in the area, who belong to the poor and middle class. This hospital serves the residents of Ambur and the adjacent towns as well as a large number of regions. The organisation reaches out to underserved areas and those in the interior via its community health programs. Women made up a larger proportion of the research participants since it reached out to residents of Ambur and the surrounding areas. The ladies who were a part of this research were all those who had a prenatal checkup at this hospital, went to the labour ward between April 2011 and May 2012, and were also included in the post-natal period (up to 35-40 days following birth). The research used a convenience sample of 540 women to interview about their experiences as carers. Girls and women participated in this research from all throughout the Vellore district and its surrounding areas, including Salem, Trivallur, Dharmapuri, and Krishnagiri.

**Pilot Study**

We checked out the field and made sure the hospital could really gather data. The data collection was feasible, and the hospital administration was kind and cooperative.

**Pre-test**

Twenty nurturing women participated in a trial run of the main research and the draft interview schedule. We made the necessary adjustments to make sure the local language

was understandable and that the questions were coherent and consistent with each other. The validity and reliability of the instrument were determined.

**Data on practices related to food.**

In order to determine how much iron vegetarian and non-vegetarian meals that nursing women often eat.

**Table 1:** Association between trimesters and consumption of iron rich vegetarian foods

N=540

Iron rich vegetarian foods	Trimester 1		Trimester 2		Trimester 3		Chi-square	p-value
	N	%	N	%	N	%		
Ragi	360	66.7	383	70.9	383	70.9	3.081	0.214(NS)
Jaggery	252	46.7	277	51.3	289	53.5	5.280	0.071(NS)
Greens	506	93.7	533	98.7	530	98.1	26.602	0.000 (S)
GLV	503	93.1	533	98.7	526	97.4	26.429	0.000 (S)
Date fruit	440	81.5	485	89.8	480	88.9	19.575	0.000 (S)
Guava	376	69.6	406	75.2	419	77.6	9.394	0.009 (S)
Palmyra Jaggery	25	4.6	32	5.9	80	14.8	42.882	0.000 (S)

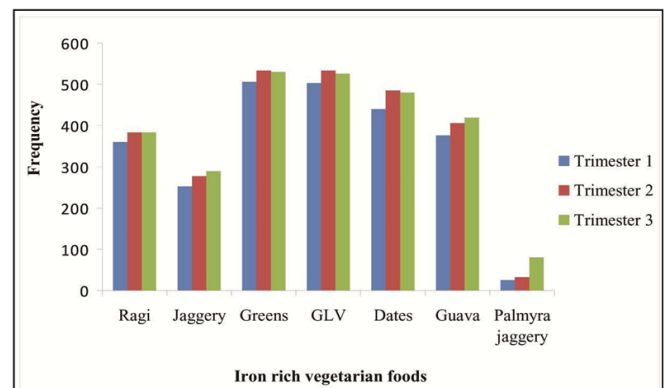
S- Significant, NS- Not Significant

Table 1 displays the correlation between trimesters and the intake of vegetarian iron-rich meals.

During the first three trimesters of pregnancy, iron-rich vegetarian meals including ragi, jaggery, greens, GLV, date fruit, guava, and palmyra jaggery are often ingested by caring mothers.

Vegetarian iron-rich meals eaten by pregnant women throughout all three trimesters are shown in Figure 1.

The majority of nurturing women ate greens, whereas the least number of nurturing women ate palmyra jaggery.



N=540

**Fig 1:** Frequency of iron rich vegetarian foods consumed by nurturing women in three trimesters

**Table 2:** Association between trimesters and consumption of iron rich non vegetarian foods

N=540

Iron rich non vegetarian foods	Trimester 1		Trimester 2		Trimester 3		Chi square	P Value
	N	%	N	%	N	%		
Meat	414	76.7	488	90.4	491	90.9	58.476	0.000 (S)
Fish	350	64.8	403	74.6	416	77.0	22.535	0.000 (S)

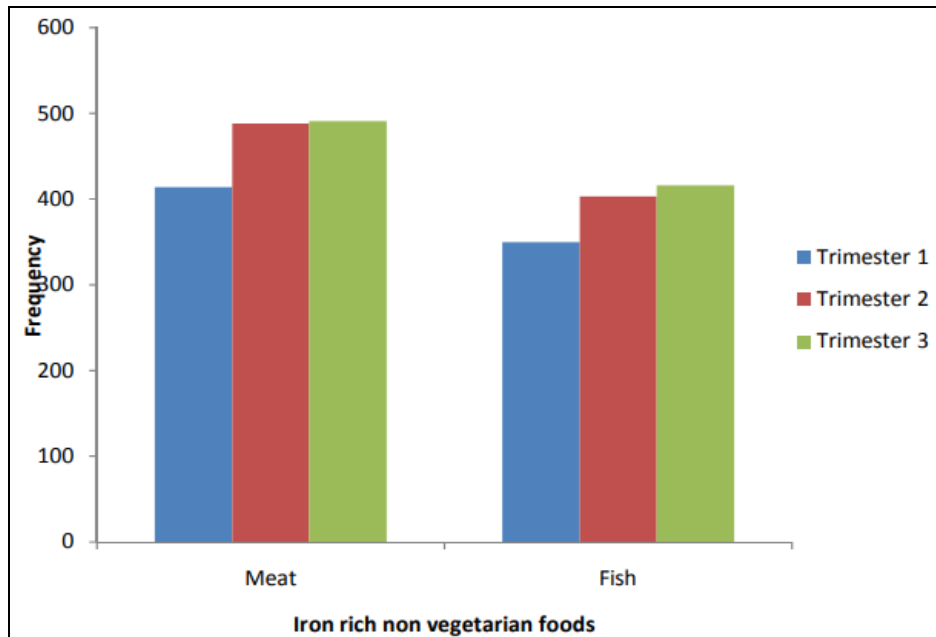
S- Significant, NS- Not Significant

Shown in Table 2 are the correlation between trimesters and

the intake of non-vegetarian meals high in iron. Meat and fish are the iron-rich non-vegetarian options that caring mothers eat during the three trimesters. Because of the strong correlation between the three trimesters and the intake of meat and fish by nursing mothers.

In all three trimesters, the frequency with which caring women ingested iron-rich, non-vegetarian meals is shown in Figure 2.

Throughout all three trimesters, meat was ingested by the majority of caring women, as opposed to fish.



N=540

**Fig 2:** Frequency of iron rich non vegetarian foods consumed by nurturing women in three trimesters

It was assumed that during all three trimesters, nurturing women ate a variety of iron-rich meals, including vegetarian and non-vegetarian options. During all three trimesters, the consumption of palmyra jaggery was the lowest of the iron-rich vegetarian meals. Similarly, among the iron-rich non-vegetarian foods, the consumption of fish was lower than meat.

Trimesters are significantly associated with the following iron-rich vegetarian foods: greens, date fruit, guava, palmyra jaggery, and green leafy vegetables (GLV). However, no significant relationship is seen between trimesters and ragi or jaggery. Meat and fish intake is significantly associated with trimesters among the iron-rich non-vegetarian meals eaten.

**Table 3:** Foods preferred in the three trimesters by nurturing women

N=540

Foods preferred	Trimester 1		Trimester 2		Trimester 3	
	N	%	N	%	N	%
Briyani – Chicken / Mutton	15	2.8	132	24.4	142	26.3
Idli, Dosa	97	18.0	12	2.2	3	0.6
Fresh Juice; Fruits	16	3	6	1.1	1	0.2
Apple; Apple Juice; Sweets	10	1.9	3	0.6	1	0.2
Chappathi: Chappathi, Dosai; Chappathi, Idli; Chappathi, Poori; Chappathi, Semiya; Chappathi, Pongal; Chappathi, Roti	6	1.1	11	2.0	60	11.1
Idli: Idli, Fruits; Idli, Juice; Idli, Pongal; Idli, Poori; Idli, Ragi; Idli, Semiya (Vermicelli)	64	11.9	6	1.1	4	0.7
Rice items – Coconut rice/Fried rice/ Tamarind rice/Tomato rice/Keerai (greens) rice/Milk rice/Curd rice/ Kozhambu (sauce) rice/Sambar rice/ Rasam rice/Tamarind rice/Lemon rice/ Vegetable rice/Raw Mango rice; Vegetables; Fruits; Mutton; Egg fry	53	9.8	126	23.3	217	40.2
Rice-Sambar	176	32.6	171	31.7	31	5.7
Ragi, Dosai, Pongal; Ragi, Beetroot; Ragi, Pickle; Ragi, Idli; Ragi, Juice	12	2.2	3	0.6	2	0.4
No Information	2	0.4	2	0.4	6	1.1

The nurturing women's dietary preferences during the three trimesters are shown in Table 3.

There were certain meals that nurturing mothers favored during all three trimesters. Most caring mothers favored rice foods and ate a range of rice foods during all three trimesters of their pregnancies. In the first trimester, 176 women (32.6% of the total) liked rice with sambar, whereas

in the second trimester, 171 women (31.7% of the total) selected the same. In the third trimester, 217 women (or 40.2% of the total) chose different kinds of rice over non-vegetarian options, fruits, vegetables, and other foods. Across all three trimesters, the fewest number of women favored apples, apple juice, and sweets-14, or 2.7%.

Chicken and mutton briyani were the favourite of 289



(53.5%) of the ladies surveyed. This might be the typical eating habit for both the general public and the nursing women in this research location, as several varieties of briyani are well-known and easily accessible at local stores all day long. The abundance of meat-based restaurants in the Ambur area, where the hospital is located, may be to blame.

#### Justifications for food insufficiency

During the trimesters, nurturing mothers claimed various reasons for not eating enough. Reduced hunger, food taboos, giddiness, shortness of breath, nausea, vomiting, indigestion, cold foods, cough (from sugar), poverty, big family size, trying to lose weight, eating too much too soon, ration irregularities, working mothers who can't cook special meals, and caring for their first child were among the reasons why nurturing women did not consume enough food during pregnancy.

**Table 4:** Foods avoided in three trimesters by nurturing women  
N=540

Foods avoided	Trimester 1		Trimester 2		Trimester 3	
	N	%	N	%	N	%
<b>Dark Foods</b>						
Dark Grapes	327	60.6	135	25.0	32	5.9
Jamun Fruit	19	3.5	209	38.7	127	23.5
Gingelly seeds	11	2.0	29	5.4	113	20.9
Black coffee	0	0.0	2	0.4	15	2.8
Sugarcane/Black Sugarcane	4	0.7	26	4.8	15	2.8
<b>Hot and Cold Foods</b>						
Papaya	109	20.2	18	3.3	19	3.5
Pineapple	7	1.3	18	3.3	16	3.0
Jackfruit	1	0.2	1	0.2	2	0.4
Brinjal	2	0.4	3	0.6	1	0.2
Cool drinks - Pepsi/Coco Cola / Lovo/other cool drinks	0	0.0	17	3.1	69	12.8
Heaty Food / Cold food - ice creams, juices	7	1.3	10	1.9	8	1.5
<b>Other Foods</b>						
Paruppu (dhal)	6	1.1	6	1.1	6	1.1
Custard apple / Mango / Banana/ Sapota	3	0.6	6	1.1	8	1.5
Chicken/Meat/Beef/ Briyani	6	1.1	6	1.1	8	1.5
Gulab jamun sweet/Sweets/Biscuit	4	0.7	5	0.9	13	2.4
Bitter gourd and Fish	1	0.2	5	0.9	5	0.9
Few more food items avoided	12	2.2	14	2.6	12	2.2
No food item avoided	11	2.0	11	2.0	10	1.9
No information	13	2.4	19	3.5	58	10.7

The foods that caring mothers avoid throughout the three trimesters are shown in Table 4.

Throughout all three trimesters, the majority of caring women chose to avoid particular types of food. Over the course of all three trimesters, 494 women (91.5% of the total) abstained from eating black grapes. During the first trimester, 327 women, or 60.6% of the total, abstained from eating black grapes. Women use terms like "black grapes" and "dark grapes" to describe grapes that have a darker shade.

Caring ladies avoided eating some foods because of their heat or cold. Some examples of these spicy meals were

brinjal, jackfruit, papaya, and pineapple. Ice cream, fruit juice, and other cold beverages were also part of the menu. For all three trimesters combined, 146 women (or 27.0% of the total) abstained from eating papaya, and of the nursing women, 109 (or 20.2% of the total) did the same in the first trimester.

Only four women, or 0.8% of the total, managed to avoid eating jackfruit throughout all three trimesters, making it the hot food that the fewest women avoided. A total of 86 ladies, or 15.9% of the total, shied away from using cold beverages.

The majority of pregnant women who were caretakers also avoided sweets and biscuits (22 out of a total of 4.0%), while the fewest avoided bitter gourd and fish. ten (2.0%).

The majority of caring women (32, or 5.9%), without exception, ate whatever was on the table. Thirty-eight women (7.0%) abstained from a few other meals, including ragi balls, cabbage, chappathi, potatoes, greasy cuisine, mustard, and dried fish.

**Table 5:** Reasons given by nurturing women for avoiding foods during pregnancy  
N=540

Reasons for avoiding foods	N	%
Black dots / marks, black patches for baby	127	23.5
Blue Nails for baby	85	15.7
Infection for baby	83	15.4
Effect for baby	59	10.9
Due to Abortion	36	6.7
Heat for baby / Infection	25	4.6
Baby will bear with dark complexion	14	2.6
Black lips for baby	14	2.6
Blue eyed baby	1	0.2
Blue baby	7	1.3
Baby will fall sick / cold often	6	1.1
Harm / Chevappu / Mandham for child	3	0.6
Heat for mother	80	14.8
Vomiting sensation/ Nausea / Gastric problems / Cold / Effect /Infection for mother	8	1.5
No Information	43	8.0
Not Applicable	13	2.4

Table 5 shows the reasons why nurturing mothers avoid certain meals when pregnant.

Concerns about the baby's health, blue baby (discolouration of the baby's body), and infection were among the reasons why caring mothers avoided eating dark foods during pregnancy. Curiously, some of them brought up the fact that these dark-coloured meals would cause a disease known as 'Chevappu' or 'Mandham' (in the area language) in children. One common belief about the "chevappu" ailment is that it causes the infant to become blue and eventually die. Some of them called these black dishes "Karappan foods" (in the local language). Caring ladies steered clear of meals that were too hot or too cold. Due to the widespread notion that it might induce abortion, the majority of pregnant women (146, or 27.0%) and those in the first trimester (109, or 20.2%) avoided eating papaya. Even fewer people cited the heat of brinjal, pineapple, and jackfruit as a reason to avoid these meals. Ice cream, fruit juice, and other cold meals should be avoided. The reasons given for avoiding foods that are hot include concerns about abortion, that of the mother and her unborn child. In addition to mom and the

infant were chilled, thus that was the reason why cold food was avoided. Few women were thought to experience nausea and vomiting due to meat and mustard. It was believed that potatoes and paruppu (dhal) would create gastrointestinal troubles, thus they were avoided.

### Conclusions

Taking iron supplements, however, may increase inflammation and the likelihood that intestinal parasites like malaria may multiply. While research on how iron supplements affect the likelihood of malaria in pregnant women is still in their early stages, the available evidence does not yet point to any negative effects. Pregnant women who take iron supplements and take measures to avoid malaria may have healthier babies. People living in areas where malaria is common should also take measures to treat and prevent malaria infections.

There doesn't seem to be any evidence that iron supplements help pregnant ladies whose bodies already have an adequate amount of iron. In order to make sure that iron supplements given to pregnant women are safe and effective, it is important to check their iron levels first. There is undeniable evidence that postnatal iron supplementation is beneficial for the growth and development of older babies in addition to small children who do not get enough iron. Even in youngsters with sufficient iron stores, the recognised side effects of supplementation may worsen malaria infections. It is recommended to take iron supplements with malaria prevention and therapy used in newborns and young children if worldwide screening for iron deficiency cannot be accomplished.

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