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Describe anaemia status among nurturing women

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Abstract

Over half a million expectant mothers, disproportionately from low-and middle-income families nations (LMICs), suffer from anaemia. 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: Anaemia, pregnant women, symptoms, urban

Introduction

When haemoglobin levels drop falls below a certain level, a condition called anaemia develops because the blood's capacity to transport oxygen throughout the body is diminished. In situations of severe anaemia, the mortality and morbidity rates are quite high. 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.

In healthy people, haemoglobin concentrations are lower and more widely distributed than in temperate areas. There are a number of potential reasons of anaemia, including parasite infections, malnutrition, hereditary red cell defects, and malaria all occur at the same time in malaria epidemiology. Despite the fact that anaemia has been defined in a broad and, to be honest, confusing array of ways, the following are the most prevalent and, in malaria research, hemoglobin-based classifications.

Low red blood cell count (≤ 11 g/dL) represents mild anaemia.

Any level of anaemia that is Moderate levels are defined as 8 g/dL or below.

Anaemia severe (≤ 5 g/dL) About half Anaemia is most often caused by an iron deficiency, which accounts for most instances. Having anaemia due to a lack of iron accounts for almost half of all cases in pregnant women, 49% in women who aren't pregnant, and 42% in children. Genetic factors (such as thalassemia, the presence of sickle cells, pyruvate kinase insufficiency, spherocytosis, and G6PD deficiency), infections, chronic illnesses, dietary inadequacies, medication usage, splenomegaly, artificial heart valves, and other genetic conditions are other potential causes.

Anaemia may be caused by a number of neglected tropical diseases (NTDs), either directly or indirectly. It has a positive correlation with infection load and infestation It is more common in cases of schistosomiasis or soil-transmitted diseases. In regions where malaria is common, NTDs have a significant role in the high frequency of anaemia, particularly in cases when people have several parasite illnesses at once. Research has shown that taking iron supplements while pregnant may boost haemoglobin levels, reduce the likelihood of anaemia, and increase the likelihood of a healthy baby weight. Malaria intermittent preventative treatment for pregnant women (IPTp), deworming, iron/folic acid supplements, and other anti-anaemia measures are Underutilised, which contributes pregnant women have an increased risk of hemorrhage. Among the top four preventable causes of sickness in

children under the age of five years old, according to researchers in Africa. In addition, need of interventions in the fight against malaria in children from Africa was emphasized.

Anaemia is linked to a range of community socio-demographic factors, such as age (younger children are more likely to have the condition), gender (different forms of anaemia are more common among various ethnic groups), and gender (the illness is more common in boys than girls), mother's level of education, household wealth index, and whether or not a woman has been through a divorce or separation. In addition to maternal anaemia, additional risk factors for childhood anaemia include gestational age, premature delivery, low birth weight, and underweight children. Contrarily, PICA, the use of intrauterine contraceptives, and the late trimester of pregnancy are all linked to maternal anaemia. Infections like malaria may also cause anaemia. Although some researches have linked anaemia in pregnancy to factors including age, parity, gestational age, education level, profession, BMI, and the use of hormonal contraceptives, No similar link has been found in other research. The frequency of anaemia rises with age in individuals aged 65 and more, is disproportionately high in males, and is more prevalent among Black individuals than white ones. There is an inverse relationship between anaemia and being overweight, having a high socioeconomic position, and using bed nets sprayed with insecticides (ITNs).

Literature Review

Weckman, A.M., Conroy, A.L., McDonald, C.R., *et al*. (2019) [1]. Malaria during pregnancy is more common in women who live with HIV. Particularly Regarding women who are taking antiretroviral medication (ART) and daily trimethoprim-sulfamethoxazole (TMP/SXT), it is uncertain if maternal HIV infection (WLHIV) might cause a systemic inflammatory response and increase the risk of adverse birth outcomes. Researchers in Uganda were able to learn about the birth outcomes of WLHIV exposed to malaria by analyzing plasma samples from a group of people using and daily transmembrane protein/sequence transfection (TMP/SXT). An enzyme-linked immunosorbent assay was used to screen the plasma of 326 pregnant women for CHI3L1, CRP, IL-18BP, IL-6, sICAM-1, and sTNFR2. Pregnant women who tested positive for MiP had elevated levels of sTNFR2, sICAM-1, and IL-18BP. Premature birth moms' IL-6 levels changed, and their sTNFR2 levels increased. Women with sTNFR2 concentrations in the highest quartile within 6 weeks after delivery had a higher relative risk of preterm birth. Our findings show that MiP in WLHIV increased the risk of preterm birth and systemic inflammation, even when treated daily with TMP/SXT. Further precautions are needed to protect WLHIV against malaria infection over the course of a pregnancy to ensure the well-being of the mother and the unborn child, as our data highlight.

Krebs NF, Tang M. (2019) [2] Supplementation with iron before and during pregnancy in regions prone to malaria is the focus of this analysis. Zika virus infection may raise hepcidin, which can offset the impact of iron supplements on iron shortage. Iron supplementation can aggravate malaria infection by giving the parasites even more iron. Malaria therapy with iron supplements may improve birth outcomes, however most trials examining No side effects have been reported from the use of this drug during pregnancy in women who have this illness. In regions where malaria is common, it is recommended that infants and young children take iron supplements to help prevent and cure the disease, regardless of the well-documented side effects. Iron promotes the development of malaria parasites, among other things. It may also create an inflammatory reaction in young infants and encourage possible intestinal infections. In order in order to treat and prevent malaria in children, pregnant women, and babies, it is crucial to determine if iron supplements are safe and effective, although it is generally good for addressing iron deficiency.

New Jersey: White (2018) [3]. Anaemia may be caused by one of the most prevalent tropical climates is malaria. Infected and uninfected erythrocytes are hemolyzed by malaria, and bone marrow dyserythropoiesis slows the healing process after anaemia. A drop in haemoglobin concentration occurs in almost all infants and toddlers, and in a large number of older children and adults, in areas where malaria is common. Children in these areas often need blood transfusions after being hospitalized with severe malaria anaemia, which may be deadly. This is particularly true during the wetter months, when the prevalence of malaria is at its peak. Despite an increase in the fatality rate from severe malaria, with higher haemoglobin concentrations that are closer to the normal range, it also increases dramatically at admission levels of haemoglobin less than 3 g/dL. The treatment of severe malaria lacks well established transfusion thresholds. Mitigation of malaria-related anaemia is a major health benefit for tropical nations that have implemented vector control programs, distributed more rapid access to healthcare, bed nets coated with insecticide, and proper administration of effective anti-malarial medications.

Stephanie M. Eick, Ariella P. Dale, Mansi Mehta, Anjali Nair, José F. Cordero, and Michael Welton are authors of the 2020 study. A major global cause of infant mortality is low birthweight (LBW), and preterm birth (PTB) is one of the negative pregnancy outcomes linked to pregnancy-associated malaria (PAM). Countries that suffer from a heavy malaria load tend to experience more frequent cases of LBW and PTB. About PAM, very little is known; however, it may have a role in PTB and LBW. With the help of PubMed, we systematically reviewed and meta-analyzed papers that looked at the connection LBW or PTB in between PAM. A total of two reviewers went over each study's title and abstracts to make sure they were eligible for inclusion, and then they read the whole texts of the studies that made the cut. For studies to be considered, we extracted data on study characteristics as well as LBW and PTB birth rates in PAM and non-PAM women. Out of the 22,237 articles returned by our search, only 18 were deemed suitable for inclusion. The connections between PAM and PTB were investigated in eight studies, whereas those between PAM and LBW were investigated in ten (with populations of women ranging from 35 to 9956). those with PAM Pregnant women with PAM were 63% more likely to have low birth weight (LBW) overall (95% CI = 1.48-1.80) and 1.07-1.41) compared to women without PAM, who had a 23% greater risk of postpartum haemorrhage. These

findings indicate that infections caused by PAM are linked to LBW and PTB. We need to learn more about the immunologic changes that occur during pregnancy and the pathophysiology of diseases so that we can help this vulnerable population cope with the disproportionate burden. 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.

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 knowledge of anaemia: Anaemia was defined, its symptoms were recorded, the number of symptoms was recorded, and the reasons of anaemia were retrieved from the caring ladies. Nurturing ladies learnt about the several causes of anaemia. The nurturing women's awareness of the causes of anaemia was graphically depicted as follows: 1 cause, 2 reasons, 3-5 causes, and 'no knowledge'. Nurturing women also passed on information on iron-rich vegetarian meals such GLVs, date fruits, guavas, ragi, jaggery, palmyra jaggery, and meat and fish. Researchers looked at the correlation between nurturing women's awareness of anaemia symptoms and their urban or rural status, as well as their understanding of the causes of anaemia.

Table 1: Knowledge of anaemia among nurturing women N=540

Knowledge	Categories	N	%
Definition of anaemia	1 - Lack of iron/Hb in the body	276	51.1
	2 - Absence / Less blood in the body	121	22.4
	3 - Irathai Sohai (in regional language)	41	7.6
	2 and 3	2	0.4
	Others	6	1.1
	Don't Know	94	17.4
Symptoms	Frequent tiredness	418	77.4
	Body weakness	139	25.7
	Breathlessness	21	3.9
	Giddiness	401	74.3
	Face/Leg swelling	12	2.2
	Pallor in Eye/Tongue/Face	215	39.8
	Spoon Shaped nails	101	18.7
	Loss of appetite	14	2.6
	Don't Know	41	7.6
No of Symptoms	1 Symptom	49	9.1
	2 Symptoms	118	21.9
	3 Symptoms	297	55.0
	4 -6 Symptoms	35	6.5
	Don't Know	41	7.6
Causes	Low intake of iron rich foods	485	89.8
	Early marriage	3	0.6
	Frequent pregnancy	4	0.7
	Frequent abortion	15	2.8
	Hookworm infection	12	2.2
	Not wearing slippers	2	0.4
	Frequent menstruation	22	4.1
	Long duration menstruation	15	2.8
	Don't Know	48	8.9

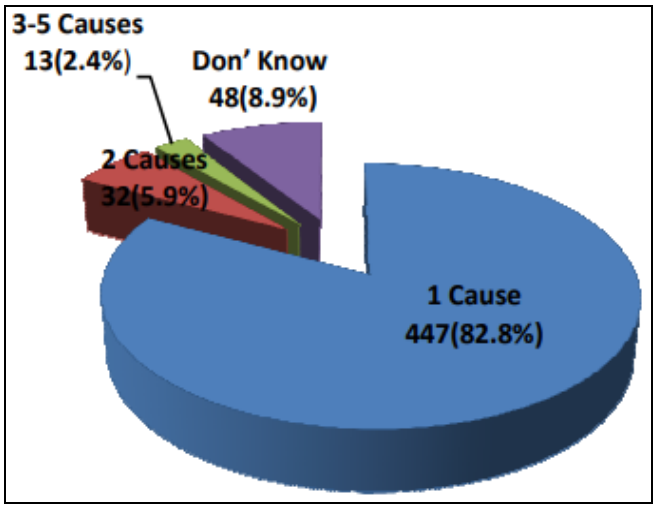
Anaemia knowledge level among caring women is seen in Table 1. Anaemia was defined by most women as a low blood iron or haemoglobin level, according to 276 (51.1%) of the women surveyed, while 94 (17.4%) said they were unsure.

When asked about the most prevalent symptom of anaemia, most women could name it, which is frequent exhaustion, with 418 (77.4%). The least common symptom, which was recognized by 12 (2.2% of women), was face/leg oedema.

In terms of the number of symptoms, 297 (55.0%) of the women were aware of at least three symptoms, while only 35 (6.5%) were aware of four or more symptoms. When asked about the causes of anaemia, the vast majority of women (89.8%) would say that a lack of iron-rich meals is to blame, while the fewest would say that not wearing shoes is to blame. two percent.

Anaemia may have several causes, and the proportion of caring women who are aware of these possibilities is shown in Figure 1.

Only thirteen (2.4% of the total) caring women were aware of more than three causes of anaemia, whereas four hundred forty-seven (82.8%) knew only one.



N=540

Fig 1: Frequency and percentage of knowledge of the number of causes of anaemia among nurturing women

Table 2: Knowledge of iron rich foods among nurturing women

N=540

Knowledge of iron rich foods	N	%
Greens	428	79.3
GLV (Green Leafy Vegetables)	296	54.8
Date fruit	447	82.8
Guava	12	2.2
Ragi	153	28.3
Jaggery	58	10.7
Palmyra Jaggery	9	1.7
Meat	64	11.9
Fish	19	3.5
Don't Know	7	1.3

Table 2 shows that caring women are aware of the meals that are high in iron.

While 447 (82.8%) of the nurturing women could name date fruits as an iron-rich meal, only 9 (1.7%) named palmyra jaggery as an iron-rich food. Of those who were unaware of iron-rich meals, only 7 (1.3%) were unaware.

The majority of the caring women could properly identify anaemia with 276 (51.1%) and list "three symptoms" of anaemia with 297 (55.0%). It is reasonable to assume that a deficiency in iron-rich foods was the root cause of anaemia in 485 cases (89.8%). Of the women surveyed, 94 (17.4%) were unsure of what anaemia is. Out of the whole sample, only forty-one (7.6%) were unaware of the signs and symptoms of anaemia, and even fewer (48, 8.9%) were unaware of the reasons and how many different types of anaemia may manifest. Seven people, or 1.3% of the total, were unaware of the iron-rich foods that were indicated.

Table 3: Association between rural and urban status among nurturing women and their knowledge of symptoms of anaemia

N=540

Knowledge of symptoms of anaemia	Rural		Urban		Chi Square	p Value
	N	%	N	%		
Frequent tiredness	241	74.2	177	82.3	0.026	0.280 (NS)
Body weakness	88	27.1	51	23.7	0.762	0.422 (NS)
Breathlessness	12	3.7	9	4.2	0.084	0.822 (NS)
Giddiness	236	72.6	165	76.7	1.154	0.315 (NS)
Face/Leg swelling	10	3.1	2	0.9	2.744	0.137 (NS)
Pallor in Eye/Tongue/Face	122	37.5	93	43.3	1.765	0.209 (NS)
Spoon-shaped nails	55	16.9	46	21.4	1.702	0.215 (NS)
Loss of appetite	10	3.1	4	1.9	0.758	0.582(NS)
Don't know	31	5.7	10	1.9	-	-

S- Significant, NS- Not Significant

There is evidence in Table 3 that among caring women, awareness of anaemia symptoms is associated with rural or urban status.

We used nurturing women's familiarity with anaemia symptoms to examine the correlation between their rural and urban status.

Table 4: Association between rural and urban status among nurturing women and their knowledge of causes of anaemia

N=540

Knowledge of causes of anaemia	Rural		Urban		Chi Square	p Value
	N	%	N	%		
Low intake of iron rich foods	289	53.5	196	36.3	0.710	0.468 (NS)
Early marriage	2	0.4	1	0.2	0.053	0.999 (NS)
Frequent pregnancy	4	0.7	0	0	2.66	0.155 (NS)
Frequent abortion	8	1.5	7	1.3	0.302	0.601 (NS)
Hookworm infection	7	1.3	5	0.9	0.018	0.999 (NS)
Not wearing slippers	2	.4	0	0	1.325	0.520 (NS)
Frequent menstruation	17	3.2	5	0.9	2.795	0.120 (NS)
Long duration menstruation	10	1.9	5	0.9	0.270	0.79 (NS)
Don't know	31	5.7	17	3.2	-	-

S- Significant, NS- Not Significant

Table 4 demonstrates that among caring women, awareness of anaemia causes is associated with rural vs urban status.

Analyzing the knowledge of causes of anaemia among nurturing women allowed us to examine the relationship between their rural and urban status. When looking at the frequency and percentage, it seemed that most of the ladies knew what anaemia was, how it felt, and what caused it. They also knew what foods were high in iron. Fewer than eight percent of women were unaware of the signs and

symptoms of anaemia, and even fewer were unaware of its definition (18% of women). Only 9.1% were unaware of the many causes of anaemia, and only 1.3% were unaware of the foods that are high in iron. Knowing the signs of anaemia is not significantly related to living in an urban or rural area. When it comes to understanding what causes anaemia, there is no correlation between living in a rural area or an urban center.

Conclusions

Pregnant women who are iron deficient should take a supplement since the negative consequences of iron deficiency on There is enough documentation on the mother and the unborn kid. 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.

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