PREVALENCE AND RISK FACTORS OF ANAEMIA AMONG PREGNANT WOMEN RECEIVING ANTENATAL CARE AT PRIMARY HEALTH CARE CENTERS, IREPO LOCAL GOVERNMENT AREA, OYO STATE

BY

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Abstract

Anemia is a global health problem with major consequences on human health as well as social and economic development.it is a major cause of morbidity and mortality during pregnancy in developing countries. The study investigates the prevalence of anemia and the associated risk factors among pregnant women receiving antenatal care at primary health care centers in Irepo Local Government Area, Oyo State. This study is a descriptive cross-sectional, hospital-based study using a quantitative method of data collection. Respondents were selected using a multistage sampling technique. The data was pretested, validated, and structured as a self-administered questionnaire, and analyzed using the SPSS Chi-square test was used to determine the association between the dependent and independent variables. The confidence level was held at 95% and the p-value less than 0.05 was considered statistically significant. Anemia is less prevalent because the majority of the respondents said NO. Age is a significant risk factor of anemia among respondents (Cal x^2 value = 288.55 tab. x^2 value = 16.92 df = 9); blood loss is a significant risk factor of anemia among respondents(Cal x^2 value = 382.11 tab. x^2 value = 16.92 df = 9); Family history is a significant risk factor of anemia among respondents (tab. x^2 value = 16.92 df = 9); Lifestyle habits is a significant risk factor of anemia among respondents (Cal x^2 value = 154.25 tab. x^2 value = 16.92 df = 9) and menstrual period is a significant risk factor of anemia among respondents (Cal x^2 value = 180.36 tab. x^2 value = 16.92 df = 9). In Conclusion, Age is a risk factor for anemia among respondents, Blood loss is a risk factor for anemia among respondents, and Family history is a risk factor for anemia among respondents. The study recommends that women under age 20 should ensure adequate iron intake because they are more susceptible to iron deficiency. Pregnant women should go for regular checkups to monitor their health and also avoid heavy lifting to reduce the risk of bleeding., they should engage in moderate exercise and avoid excessive physical activities and Pregnant women should inform their healthcare provider if they are experiencing heavy menstrual bleeding for necessary actions to be taken.

Keywords: Risk factors, Prevalence, Anaemia, Pregnant Women, Antenatal, Primary Healthcare Centers, Oyo State.

Introduction

Anemia is characterized by a lower-than-normal hemoglobin level in the body, which reduces the ability of red blood cells to carry oxygen to the body's tissues. When there are insufficient red blood cells, the tissues do not receive enough oxygen (Karunaratne & Nanayakkara, 2022). Pregnant women in low- and middle-income nations worldwide suffer from anemia, a serious public health concern (WHO, 2015). According to Eli, Popnen, Kalio, Briggs, Okagua, (2021) anemia is a risk factor for postpartum hemorrhage, a leading cause of maternal death, as well as an indirect cause of maternal mortality. Hemoglobin concentrations below 13 g/dl for men and 12 g/dl for women are considered anemia by the World Health Organization (2022). Pregnancy-related anemia is more common in underdeveloped nations worldwide (Olatunbosun, Abasiattai, Bassey, James, Ibanga & Morgan, 2014). Pregnancy-related anemia can be mild (10.0–10.9 g/L or 28.9% hematocrit), moderate (7–9.9 g/L or 21–29.9%), or severe (less than 7 g/L or less than 21%). About two billion people worldwide are impacted by this public health burden. Iron deficiency is the leading risk factor for anemia, which is the most prevalent nutritional deficiency

disorder worldwide (Lelissa, 2015). Anemia is a worldwide public health issue that has a significant impact on social and economic development as well as human health in both developed and developing nations. According to Öztürk, Öztürk, Ulubay, Karaşahin, Özgürtaş & Yenen, (2017), it happens at every stage of life. About half of all pregnant women worldwide suffer from anemia during pregnancy, making it a significant global and reproductive health concern (Onoh, Lawani, Ezeonu, Nkwo, Onoh & Ajah, 2015). According to reports, it is among the most prevalent pregnancy-related medical issues in third-world nations (Öztürk et al., 2017). 96% of the 58.27 million pregnant women who are thought to be anemic worldwide reside in developing countries, while just 4% do so in industrialized ones (WHO, 2018).

According to reports, the frequency in Nigeria ranges from 23.7 to 88.7 (Adewara, Omokanye, Olatinwo, Durowade, Panti & Salaudeen, 2014). Prevalence rates of 58% and 69.6%, respectively, were observed in the eastern and south-south regions of Nigeria (Okoh, Iyalla, Omunakwe, Iwo-Amah & Nwabuko, 2016). The high rate of maternal mortality and morbidity observed in the nation has been linked to anemia, according to studies (Maternal Health in Nigeria). In Nigeria, between 14.6% and 20% of maternal deaths are attributable to anemia during pregnancy (Sharif, Dahiru, Abdullahi, Abdullahi, Maigari, & Ibrahim, 2019). Poor weight gain, early labor, an increased risk of surgical delivery, blood transfusions, and poor anesthetic risk are other maternal problems associated with anemia (Cook, O'Dwyer, Parker, Donges, Cheng, & Steinbeck, 2017). Maternal anemia causes a startlingly high rate of illness and mortality for the mother/child combo. In South Africa, anemia was linked to 40% of maternal mortality, per "The Saving Mothers Report (2010–2013)" (Meghil, Allafy & Busarira, 2022). These circumstances have led the researcher to look into the prevalence and risk factors of anemia in pregnant women receiving prenatal treatment at a primary health center in Irepo Local Government Area, Oyo State, Nigeria.

Materials and Methods

This study was a descriptive cross-sectional; hospital-based study to assess the prevalence and risk factors of anemia among pregnant women receiving antenatal care at a primary health center, in Irepo Local Government Area, Oyo State, using a quantitative method of data collection. The headquarters of Irepo Local Government Area has always been Kisi. Irepo has about 100,000 people across the length and breadth of about 60 villages and hamlets within its domain. Notable villages within about 1,000 kilometers of Irepo landmass include Adagbangba, Agunla, BudoOjetere, Welewele, Sooro, Sise-orowo, and Ajetowa. More than 99.9% of the said Irepo Landmass is richly agrarian. Not less than 88% of the population in Irepo are practicing farmers – large-scale farmers.

The study population consisted of pregnant women aged 15–49 years, receiving antenatal care (ANC) at a primary health care center, in Irepo Local Government Area, Oyo State.

Inclusion Criteria: Pregnant women receiving antenatal at Primary Health Care Centre, Oyo State. A pregnant woman who was confirmed clinically/ diagnostically to be anaemic. Pregnant women who give informed consent to participate in the study. Pregnant women within the reproductive age 15 - 49 years. Pregnancy in its first, second, and third trimesters.
Exclusion Criteria: Pregnant Women who did not give consent to the study. Women who are not pregnant or above reproductive age. Pregnant women who are not receiving antenatal care at Primary Health Care Centre. Patients with vaginal bleeding in the current pregnancy. Women who had a history of severe blood transfusion, sickle cell, and hemophilia.

A multistage sampling technique was used to recruit pregnant women attending antenatal care at the primary health care center in Irepo Local Government Area, Oyo State.
The minimum sample size for this study was determined using the formula for sample size determination for descriptive studies with a population greater than 10,000 (Araoye, 2005). The sample size for the study was calculated using a prevalence estimate of 23.7% (Adewara, et al., 2014).

$$n = z^2pq/d^2$$

The total number of pregnant women aged 15–49 receiving antenatal care (ANC) at Primary Health Care Centre, Oyo State, is currently 422. A total of thirty (30) copies of the questionnaire were pretested by administering it among selected pregnant women receiving antenatal care at Ajangba Primary Health Care Center. The pretest aims to determine the adequacy and suitability of the instrument and to ascertain any difficulty the researchers may come across when carrying out the main study. The pretested questionnaires were analyzed using Cronbach Alpha, which was found to be 0.86r showing a high level of reliability.

A researcher's structured questionnaire was used to collect data and data of the women obtained from the hospital records. The antenatal record files or registers of the women were requested from the records department for review. Data of all the participating women booked for antenatal care and had cases of anemia were obtained. The questionnaire was prepared in English and interpreted into the respondent's language during data collation. Anonymity and confidentiality of the information obtained from the respondent was assured and maintained. This was done by the researcher. The questionnaire distributed were 422 but just 402 were returned which was used for data analysis and interpretation.

The data analysis was conducted about the analysis structure to achieve the objective set at the onset. The data collected from the questionnaire was entered and analyzed using Statistical Package and Service Solution Version. Descriptive analyses such as frequencies, percentages, means, and standard deviations were done. Univariate analysis, data was presented using frequency tables and charts. Bivariate analysis was done to determine the association between variables. Chi-square was used to determine the association between the categorical variables.

Ethical approval was obtained from the Ethics Review Committee of Al-Hikmah University. Permission was also taken from the Hospital Management Board. All the information obtained from the participants was also treated with strict confidentiality. Participants were assured of anonymity and confidentiality throughout the study. The informed consent was sought from study participants before they participated in the study and the aim of the study was well explained to them. Most participants gave their consent to participate in the study. To ensure confidentiality and anonymity, no participant name was recorded; instead, each participant was identified by a number during the interview.

Results

Table 1: Sociodemographic Data of the Study

S/N	VARIABLES	FREQUENCY	PERCENTAGE (%)
1.	**AGE RANGE**		
	15-24 years	55	13.7
	25-34 years	306	76.1
	35-44 years	20	5.0
	45-49 years	21	5.2
	Total	**402**	**100.0**

2.	**MARITAL STATUS**		
	Single	37	9.2
	Married	320	79.6
	Divorced	21	5.2
	Separated	24	6.0
	Total	**402**	**402**
3.	**TRIBE**		
	Yoruba	338	84.1
	Igbo	52	12.9
	Others	12	3.0
	Total	**402**	**100.0**
4.	**RELIGION**		
	Christianity	175	43.5
	Islam	192	47.8
	Traditional	35	8.7
	Total	**402**	**100.0**
5.	**LEVEL OF EDUCATION**		
	Primary	56	13.9
	Secondary	148	36.8
	Tertiary	198	49.3
	Total	**402**	**100.0**
6.	**OCCUPATION**		
	Students	96	23.9
	Trader	214	53.2
	Teacher	71	17.7
	Others	21	5.2

	Total	**402**	**100.0**
7.	**ESTIMATED INCOME**		
	₦10,000-₦20,000	339	84.3
	₦20,001-₦30,000	38	9.5
	₦30,001-₦40,000	13	3.2
	₦40,001-₦50,000	12	3.0
	Total	**402**	**100.0**
8.	**ARE YOU ANEMIC**		
	Yes	136	33.8
	No	152	37.8
	I don't know	114	28.4
	Total	**402**	**100.0**

Table 1 above shows the distribution of the respondents that participated in the study. It was revealed that for Age range with 306 (76.1%) 25-34 years old and 20 (5.0%) 35-44 years. This shows that the majority of the respondents who participated in the study were 25-34 years old. Marital status with married 320 (79.6%) and Divorced 21(5.2%). This shows that the majority of the respondents who participated in the study were married. Tribe with Yoruba 338 (84.1%) and others 12 (3.0%). This shows that the majority of the respondents were Yoruba. Religion with Christianity 175 (43.5%) and Traditional 35 (8.7%). This shows that the majority of the respondents were Christians. Level of education with Tertiary 198 (49.3%) and primary 56 (13.9%). This shows that the majority of the respondents who participated in the study were in Tertiary education. For Occupation Trader 214 (53.2%) and Others 21 (5.2%). This shows that the majority of the respondents who participated in the study were in Traders. For Estimated income ₦10,000-₦20,000 339 (84.3%) and ₦40,001-₦50,000 12 (3.0%). This shows that the majority of the respondents who participated in the study collected ₦10,000-₦20,000 as their estimated income. For Are you anemic No 152 (37.8%) and I don't know 114 (28.4%). This shows that the majority of the respondents who participated in the study were not anemic.

Table 2: Age as a risk factor of anaemia among pregnant women attending antenatal care at primary health care center Irepo Local Government Area, Oyo State

S/N	ITEMS	SA	A	PR	SD	D	NR
1.	Age is a risk factor of anaemia among	235	60	295	36	71	107

	pregnant women	(58.5%)	(14.9%)		(9.0%)	(17.7%)	
2.	Old age predisposes pregnant women to anaemia	193 (48.0%)	102 (25.4%)	295	54 (13.4%)	53 (13.2%)	107
3.	Younger pregnant women poorly fed are at risk of anemia	169 (42.0%)	110 (27.4%	279	53 (13.2%)	70 (17.4%)	123
4.	Anaemia affects all age groups during pregnancy	155 (38.6%)	158 (39.3%)	313	52 (12.9%)	37 (9.2%)	89
	MEAN			**1,182 (73.5%)**			**426 (26.5%)**

KEY: PR= Positive Response NR= Negative Response.

Table 2 above shows that 1,182 (73.5%) positively agreed that, age is a risk factor for anaemia among pregnant women attending antenatal care at the primary health care center in Irepo Local Government Area, Oyo State. Conversely, 426 (26.5%) responded negatively to the same research question.

Table 3: Blood loss as a risk factor of anaemia among pregnant women attending antenatal care at primary health care center Irepo Local Government Area, Oyo State

S/N	ITEMS	SA	A	PR	SD	D	NR
5.	Surgeries involving significant blood loss leads to anaemia	162 (40.3%)	151 (37.6%)	313	53 (13.2%)	36 (9.0%)	89
6.	Miscarriage or abortion with heavy bleeding cause anaemia	179 (44.5%)	134 (33.3%)	313	36 (9.0%)	53 (13.2%)	89
7.	Previous history of deliveries with postpartum hemorrhage lead to anaemia	207 (51.5%)	67 (16.7%)	274	74 (18.4%)	54 (13.4%)	128
8.	Bleeding episodes without stoppage	213	47	260	71	71	142

	leads to anaemia	(53.0%)	(11.7%)		(11.7%)	(11.7%)	
	MEAN			**1,160**			**448**
				(72.1%)			**(27.9%)**

KEY: PR= Positive Response NR= Negative Response

Table 3 shows that 1,160 (72.1%) positively agreed that blood loss is a risk factor for anaemia among pregnant women attending antenatal care at a primary health care center in Irepo Local Government Area, Oyo State. Relatively, 448 (27.9%) negatively responded to the same research question.

Table 4: Family history as a risk factor of anaemia among pregnant women attending antenatal care at primary health care center Irepo Local Government Area, Oyo State

S/N	ITEMS	SA	A	PR	SD	D	NR
9.	Pregnant women with an anaemic family history also suffer from anaemia	176 (43.8%)	120 (29.9%)	296	52 (12.9%)	54 (13.4%	106
10.	Pregnant women with a family history of anemia should seek quick medical intervention during pregnancy	160 (39.8%)	136 (33.8%)	296	70 (17.4%)	36 (9.0%)	106
11.	Anaemia can be passed from parents to their offspring	202 (50.2%)	76 (18.9%)	278	52 (12.9%)	72 (17.9%)	124
12.	Pregnant diagnosed with bleeding disorder can genetically transfer it to their children	240 (59.7%)	73 (18.2%)	313	35 (8.7%)	54 (13.4%)	89
	MEAN			**1,183**			**425**
				(73.6%)			**(26.4%)**

KEY: PR= Positive Response NR= Negative Response

Table 4 shows that 1,183 (73.6%) positively agreed that family history is a risk factor for anaemia among pregnant women attending antenatal care at the primary health care center in Irepo Local Government Area, Oyo State. Comparatively, 425 (26.4%) negatively responded to the same research questions.

Table 5: Lifestyle habits as a risk factor of anaemia among pregnant women attending antenatal care at primary health care center Irepo Local Government Area, Oyo State

S/N	ITEMS	SA	A	PR	SD	D	NR
13.	Pregnant women who do not consume iron-rich foods are at risk of anaemia.	209 (52.0%)	104 (25.9%)	313	36 (9.0%)	53 (13.2%)	89
14.	Pregnant women who do not take vitamin supplements suffers from anaemia	182 (45.3%)	113 (28.1%)	295	35 (8.7%)	72 (17.9%)	107
15.	Excessive stress exposes pregnant women to anaemia	199 (49.5%)	132 (32.8%)	331	34 (8.5%)	37 (9.2%)	71
16.	Smoking tobacco and marijuana during pregnancy leads to anaemia	196 (48.8%)	132 (32.8%)	328	17 (4.2%)	57 (14.2%)	74
	MEAN			**1,267 (78.8%)**			**341 (21.2%)**

KEY: PR= Positive Response NR= Negative Response

Table 5 shows that 1,267 (78.8%) positively agreed that lifestyle habits are a risk factor for anaemia among pregnant women attending antenatal care at the primary health care center in Irepo Local Government Area, Oyo State. Whereas 341 (21.2%) negatively responded to the same research questions.

Table 6: Menstrual period a risk factor of anaemia among pregnant women attending antenatal care at primary health care center Irepo Local Government Area, Oyo State

S/N	ITEMS	SA	A	PR	SD	D	NR
17.	Blood loss during	197	130	327	29	46	75

	menstruation leads to anaemia	(49.0%)	(32.3%)		(7.2%)	(11.4%)	
18.	Heavy menstrual bleeding predisposes a woman to anaemia	153 (38.1%)	142 (35.3%)	295	31 (7.7%)	76 (18.9%)	107
19.	Excessive menstrual bleeding is a risk factor for anaemia	199 (49.5%)	142 (32.8%)	341	29 (7.2%)	32 (8.0%)	61
	MEAN			**963 (79.9%)**			**243 (20.1%)**

KEY: PR= Positive Response NR= Negative Response

Table 6 shows that 963 (79.9%) positively agreed that the menstrual period is a risk factor for anemia among pregnant women attending antenatal care at the primary health care center in Irepo Local Government Area, Oyo State. Whereas 243 (20.1%) negatively responded to the same research questions.

Table 7: Chi-square analysis result of Age is not a significant risk factor of anaemia among pregnant women attending antenatal care at primary health care center Irepo Local Government Area, Oyo State

Variable	N	df	Calculated- x^2 value	Critical/Table x^2 value	Remark
Age is not a significant risk factor for anaemia among pregnant women attending antenatal care at the primary health care center in Irepo Local Government Area, Oyo State.	402	9	288.55	16.92	Ho Rejected

Table 7 revealed the calculated chi-square value of 288.55 and the critical x^2 value of 16.92 with the degree of freedom 9 at 0.05 alpha level. Since the calculated x^2 value of 288.55 is greater than the critical x^2 value of 16.92 at 9 degrees of freedom. Therefore, the null hypothesis was rejected. This implies that Age is a significant risk factor for anaemia among pregnant women attending antenatal care at the primary health care center in Irepo Local Government Area, Oyo State.

Table 8: Chi-square analysis result of Blood loss is not a significant risk factor of anaemia among pregnant women attending antenatal care at primary health care center in Irepo Local Government Area, Oyo State

Variable	N	df	Calculated- x^2 value	Critical/Table x^2 value	Remark
Blood loss is not a significant risk factor for anaemia among pregnant women attending antenatal care at the primary health care center in Irepo Local Government Area, Oyo State.	402	9	382.11	16.92	Ho Rejected

Table 8 revealed the calculated chi-square value of 382.11 and the critical x^2 value of 16.92 with the degree of freedom 9 at 0.05 alpha level. Since the calculated x^2 value of 382.11 is greater than the critical x^2 value of 16.92 at 9 degrees of freedom. Therefore, the null hypothesis was rejected. This implies that blood loss is a significant risk factor for anaemia among pregnant women attending antenatal care at the primary health care center in Irepo Local Government Area, Oyo State.

Table 9: Chi-square analysis result of Family history is not a significant risk factor of anaemia among pregnant women attending antenatal care at primary health care center, Irepo Local Government Area, Oyo State

Variable	N	df	Calculated- x^2 value	Critical/Table x^2 value	Remark
Family history is not a significant risk factor for anaemia among pregnant women attending antenatal care at the primary health care center in Irepo Local Government Area, Oyo State.	402	9	404.10	16.92	Ho Rejected

Table 9 revealed the calculated chi-square value of 404.10 and the critical x^2 value of 16.92 with the degree of freedom 9 at 0.05 alpha level. Since the calculated x^2 value of 404.10 is greater than the critical x^2 value of 16.92 at 9 degrees of freedom. Therefore, the null hypothesis was rejected. This implies that Family history is a significant risk factor for anaemia among pregnant women attending antenatal care at the primary health care center in Irepo Local Government Area, Oyo State.

Table 10: Chi-square analysis result of Lifestyle habits is not a significant risk factor of anaemia among pregnant women attending antenatal care at primary health care center, Irepo Local Government Area, Oyo State

Variable	N	df	Calculated- x^2 value	Critical/Table x^2 value	Remark
Lifestyle habits are not a significant risk factor for anaemia among pregnant women attending antenatal care at the primary health care centers in Irepo Local Government Area, Oyo State.	402	9	154.25	16.92	Ho Rejected

Table 10 revealed the calculated chi-square value of 154.25 and the critical x^2 value of 16.92 with the degree of freedom 9 at 0.05 alpha level. Since the calculated x^2 value of 154.25 is greater than the critical x^2 value of 16.92 at 9 degrees of freedom. Therefore, the null hypothesis was rejected. This implies that Lifestyle habits are a significant risk factor for anaemia among pregnant women attending antenatal care at the primary health care center in Irepo Local Government Area, Oyo State.

Table 11: Chi-square analysis result of Menstrual period is not a significant risk factor of anaemia among pregnant women attending antenatal care at primary health care center, Irepo Local Government Area, Oyo State

Variable	N	Df	Calculated- x^2 value	Critical/Table x^2 value	Remark
Menstrual is not a significant risk factor of anaemia among pregnant women attending antenatal care at the primary health care center in Irepo Local Government Area, Oyo State.	402	6	180.36	12.59	Ho Rejected

Table 11 revealed the calculated chi-square value of 180.36 and the critical x^2 value of 12.59 with the degree of freedom 6 at 0.05 alpha level. Since the calculated x^2 value of 180.36 is greater than the critical x^2 value of 12.59 at 6 degrees of freedom. Therefore, the null hypothesis was rejected. This implies that the Menstrual Period is a significant risk factor for anaemia among pregnant women attending antenatal care at the primary health care center in Irepo Local Government Area, Oyo State.

Discussion

Age is a significant risk factor for anaemia among pregnant women attending antenatal care at the primary health care center in Irepo Local Government Area, Oyo State. This finding is in line with the findings of Beressa, Desta, Lencha, Sahiledengle, Atlaw and Gomora (2024) who highlighted that in low-resource settings, adolescent pregnant women had a 1.5 times higher risk of developing anemia compared to their older counterparts, primarily due to insufficient dietary intake and limited access to healthcare services. On the other hand, older pregnant women might be more likely to have better access to healthcare and nutritional resources due to their higher socioeconomic status. However, they are also more likely to have higher parity, associated with depleted iron stores and an increased risk of anemia. Research by Balcha, Eteffa, Arega and Abeje (2023) demonstrated that multiparous women over 35 years old had a higher prevalence of anemia, emphasizing the cumulative effect of multiple pregnancies on iron stores and the increased physiological burden associated with advanced maternal age

Blood loss is a significant risk factor for anaemia among pregnant women attending antenatal care at the primary health care center in Irepo Local Government Area, Oyo State. This finding agrees with the findings of Li, Zhao, Wu, Zhang, Liu, and Chen (2020) demonstrated that women who experience significant blood loss during pregnancy or childbirth exhibit a marked decrease in hemoglobin levels, often requiring medical intervention. Blood loss during pregnancy depletes the body's iron stores, which are essential for the production of hemoglobin. Iron deficiency is a common consequence of chronic or acute blood loss and is a primary cause of anemia in pregnancy. The body's demand for iron increases during pregnancy, and any significant blood loss exacerbates this demand, leading to iron-deficiency anemia. According to a review by Thompson, O'Leary, Flashman, Asiimwe, Ellis and Senapati (2017), iron deficiency anemia is prevalent in nearly 50% of anemic pregnant women who experience significant blood loss, underscoring the importance of adequate iron supplementation during pregnancy.

Family history is a significant risk factor for anaemia among pregnant women attending antenatal care at the primary health care center in Irepo Local Government Area, Oyo State. This finding corroborates the findings of Karimi, Sayehmiri, Azami and Tardeh (2022), that family history is an important indicator of genetic predisposition to various health conditions, including anemia. Genetic factors can influence the likelihood of developing anemia through several mechanisms, such as inherited hemoglobinopathies, enzymatic defects, and other blood disorders. Inherited hemoglobinopathies, such as sickle cell anemia and thalassemia, are among the most common genetic disorders associated with anemia. These conditions are passed down from parents to offspring through autosomal recessive inheritance, meaning that both parents must carry the defective gene for their child to be affected. A study found that pregnant women with a family history of hemoglobinopathies are at significantly higher risk of developing anemia during pregnancy. The study highlighted that 40% of women with a family history of thalassemia minor developed anemia during pregnancy, compared to 15% of women without such a history. G6PD (Glucose-6-Phosphate Dehydrogenase) deficiency is another inherited condition that can predispose pregnant women to anemia. G6PD deficiency is an X-linked recessive disorder that affects the red blood cells' ability to handle oxidative stress, leading to hemolysis and anemia when triggered by certain foods, medications, or infections. According to a study by Mehta, Dey, Chowdhury, Ghosh, Hart and Kurpad (2021), pregnant women with a family history of G6PD deficiency have a 25% higher risk of developing anemia during pregnancy, particularly in regions where the condition is prevalent, such as in parts of Africa and the Mediterranean.

Lifestyle habits are a significant risk factor for anaemia among pregnant women attending antenatal care at primary health care center Irepo Local Government Area, Oyo State. This finding corroborates the findings of According to a study by Jeong, Kim, Lee, Bang and Chang (2024), that inadequate intake of dietary iron, folate, and vitamin B12 is strongly associated with anemia in pregnant women. The study, which surveyed dietary patterns among 500 pregnant women, found that those with diets low in red meat, leafy greens, and fortified cereals had a 50% higher risk of developing anemia. Pregnant women following vegetarian or vegan diets may also be at increased risk of anemia due to the lower bioavailability of non-heme iron found in plant-based foods. Research by Williams, Brown, Allen, Dary, Moorthy and Suchdev (2023), highlighted that pregnant women adhering to vegetarian or vegan diets had significantly lower hemoglobin levels compared to those consuming mixed diets. The study emphasized the importance of dietary counseling and supplementation to prevent anemia in these populations. Irregular meal patterns, including skipping meals or frequent snacking on low-nutrient foods, can also contribute to anemia in pregnancy. A study by Okeke, Adeyemoye, Akanmu, Nwanna-Otolehi, and Iyizoba (2024) found that pregnant women who skipped breakfast or relied heavily on processed snacks were more likely to develop anemia. The study suggested that regular, balanced meals with adequate nutrient intake are essential for preventing anemia.

The menstrual period is a significant risk factor for anaemia among pregnant women attending antenatal care at the primary health care center in Irepo Local Government Area, Oyo State. This finding corroborates the findings of Arora, Mochan, Gupta, Rani, Kshetrapal & Dwivedi (2023) showed that pregnant women with a history of HMB were more likely to experience a rapid decline in hemoglobin levels during pregnancy. This decline was particularly pronounced in women who did not receive adequate iron supplementation. The researchers noted that early intervention with iron supplements or intravenous iron therapy was crucial for managing anemia in this high-risk group. Heavy menstrual bleeding is often associated with other reproductive health conditions, such as uterine fibroids and endometriosis, which can further contribute to anemia. A retrospective analysis by Fraser (2023), found that pregnant women with a history of uterine fibroids and HMB had a higher incidence of severe anemia compared to women without such a history. This underscores the need for comprehensive reproductive health assessments in antenatal care. Irregular menstrual cycles, often caused by hormonal imbalances such as polycystic ovary syndrome (PCOS), can also be a risk factor for anemia in pregnancy. Women with irregular cycles may experience inconsistent endometrial shedding, leading to unpredictable and sometimes heavy bleeding. A study by Stevens, Paciorek, Flores-Urrutia, Borghi, Namaste & Wirth (2022), highlighted that women with a history of irregular menstrual cycles had a 30% higher likelihood of developing anemia during pregnancy. The study suggested that these women might already have compromised iron stores due to erratic menstrual bleeding patterns.

In a nutshell, Women under age 20 should ensure adequate iron intake because they are more susceptible to iron deficiency. Pregnant women should go for regular checkups to monitor their health and also avoid heavy lifting to reduce the risk of bleeding. Pregnant women should discuss their anemia history with parents, siblings, and grandparents for early detection and treatment. Pregnant women should ensure they eat iron-rich foods such as red meat, fish, etc, they should engage in moderate exercise like walking and also avoid excessive physical activities that can exacerbate anemia. Pregnant women should inform their healthcare provider if they are experiencing heavy menstrual bleeding for necessary actions to be taken.

Conclusion

Age is a risk factor for anaemia among pregnant women attending antenatal care at a primary health care center in Irepo Local Government Area, Oyo State. Blood loss is a risk factor for anaemia among pregnant women attending antenatal care at the primary health care center in Irepo Local Government Area, Oyo State. Family history is a risk factor for anaemia among pregnant women attending antenatal care at the primary health care center in Irepo Local Government Area, Oyo State. Lifestyle habits are a risk factor for anemia among pregnant women attending antenatal care at the primary health care center in Irepo Local Government Area, Oyo State. Menstrual periods are a risk factor for anemia among pregnant women attending antenatal care at the primary health care center in Irepo Local Government Area, Oyo State.

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