



Impact of Anaemia Among Pregnant Women Attending Antenatal Care in PHC Kasuwar Kaji Azare, Bauchi State.

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ABSTRACT

Anaemia in pregnancy remains a major public health challenge, particularly in sub-Saharan Africa, contributing to adverse maternal and neonatal outcomes. This study assessed the complications of anemia among pregnant women attending antenatal care (ANC) at PHC Kasuwar Kaji Azare, Bauchi State, Nigeria. A retrospective study design was employed, analyzing records of 420 pregnant women diagnosed with anemia from January 2020 to December 2024. Data were extracted from ANC registers and patient files, focusing on associated complications of anaemia on maternal and neonate. Descriptive statistics and chi-square tests. Maternal complications included respiratory distress (15.3%) and postpartum hemorrhage (9.3%), while neonatal outcomes featured intrauterine growth restriction (20.6%) and preterm birth (12.7%) ($p < 0.05$). Anemia persists as a significant health burden among pregnant women in the study area, with socioeconomic and obstetric factors driving its prevalence. There is need for enhanced ANC screening for early anemia detection and Targeted iron supplementation for high-risk groups (multigravida, low-income women).

Keywords: Anaemia, Pregnancy, Eclampsia, Maternal, Neonatal, Complication.

INTRODUCTION

Anemia is a lifelong condition that is exacerbated by malaria infection, particularly in pregnancy. In sub-Saharan Africa, an estimated 400 000 pregnant women experience moderate to severe anemia annually due to malaria infection, of which 23 million pregnant women are estimated to be exposed annually (Getachew et al, 2019).

Over two billion individuals suffer from anemia worldwide; of these, over 40 million are pregnant women. The most prevalent cause of anemia according to research is iron deficiency, which accounts for 75–95% of cases (Osungbade, 2021).

The primary cause of anemia worldwide is iron deficiency and other micronutrient deficiencies; among women of reproductive age, these deficiencies are frequent and can result in low birth weight, premature labor, birth abnormalities, and an increase in perinatal deaths (Karaogulu, 2018).

Furthermore, Anemia in pregnancy is a major public health problem, especially in developing countries. It affects 41.8% of pregnant women globally, with the highest prevalence in Africa (57.1%) which corresponds to 17.2 million (WHO, 2021).

Anemic pregnant women will be at risk of low physical activity, increased maternal morbidity and mortality, especially those with severe anemia DeMaeyer and Adiels-Tegman (2020). In addition, both pregnant women and their neonates encounter negative consequence including fetal anemia, low birth weight (LBW), preterm delivery, intrauterine growth restriction and perinatal Mortality (WHO, 2023).



Despite the national health policy of routine iron supplementation and intermittent preventive treatment for malaria with anti-malarial drugs, still maternal anaemia continues to be a common cause of morbidity and mortality in the study area (Dattijo *et al.*, 2016).

Anaemia is still a big issue for pregnant women in this area, and it's causing health problems and even deaths, despite efforts to prevent and manage it. In line with this, the researcher seeks to investigate the complications of anaemia among pregnant women attending antenatal care in PHC Kasuwar Kaji Azare, Bauchi state.

Aims of the study

The aim of this study is to identify the complications associated with anemia in pregnancy among pregnant women attending the clinic in the study area.

Null Hypothesis

There is no significant association between complications of anemia in pregnancy outcomes and level of anemia among pregnant women attending antenatal clinic in PHC Kasuwar Kaji Azare.

METHOD

Research Design

A retrospective study design was used in order to determine the impact of anaemia and its management among pregnant women attending antenatal care in Primary health care kasuwar Kaji Azare, Bauchi state, which involve the systematic collection of recorded data from January 2020 to December 2024.

Study Area

The area where this study was carried out is Primary Health Care Kasuwar Kaji Azare, which is situated within Azare metropolis, located at a latitude and longitude of 11°40'27"N 10°11'28"E, respectively with an elevation of 436 meters. The hospital shares boundaries with First bank branch from the north, Kasuwar kaji mini market from the south, Katagum College of health sciences and Technology to the east and Sheikh Abubakar Mahmud Gumi Jumu'at Mosque to the east. The hospital comprised of various departments and wards. The departments include: administrative, nursing, medical, surgical, pharmaceutical, and medical laboratory.

Study Population

The target population was all pregnant women who attended antenatal clinic in PHC Kasuwar Kaji Azare, Bauchi State between January 2020 to December 2024 and 4824 folders were reviewed

Inclusion Criteria

The study only include all recorded cases of anaemia in pregnancy that attended antenatal care in primary health care kasuwar kaji Azare, Bauchi state between January 2020 to December 2024.

Exclusion Criteria

Pregnant women who do not attend antenatal clinic in the study area or within the specified period and non anemic cases and Incomplete medical records lacking essential information for data extraction.

Sample size of the study conducted by Dattijo *et al* in 2016 at Federal Medical Centre, Azare (400) was adopted with slight modification (420) from the cases of anaemia in pregnancy that reported to PHC Kasuwar Kaji Azare, for antenatal care from January 2020 to Daecember 2024.

Sampling Technique



A multistage sampling procedures was employed to select the study participants.

Stage I: Division of patient's folders into five(5) strata

The patients folders(4824) were divided into five different strata based on the year of pregnancy.

Stage II Selection of sample size from each stratum

The sample size was drawn from each stratum using systematic sampling (folders were arranged and odd numbers were selected from each stratum).

Research Instrument

The data was collected from the past record of the selected cases of anaemia in pregnancy from health information department of Primary Health Care Kasuwar Kaji Azare, from January 2020 to December 2024.

Reliability Of The Instrument

Reliability of the instrument was ensured by collecting appropriate information (record) from health information department.

Method Of Data Collection

The data was obtained from patient's folders gotten from the records in the health information department of Primary Health Care Kasuwar Kaji Azare, where all cases of anemia in pregnancy were identified and the required samples was drawn and analysed.

Method Of Data Analysis

After the review, the data was coded and enrolled into SPSS Software version 26 for analysis. Frequency and percentage was used to describe the socio demographic characteristics, among the participant. Chi square test (X^2) was used to test hypothesis at 0.05 level of significance. The data was summarized using figures, tables and frequency distribution of relevant variables.

Ethical Consideration

The study was conducted in full compliance with ethical principles and regulations governing research involving human subjects and secondary data from health facilities, Formal ethical approval was obtained from the Research Ethics Committee of Katagum Local Government, and the hospital before commencing the study. All ethical requirements and conditions stipulated by the ethics committee was strictly adhered to throughout the research process. Patient confidentiality was rigorously maintained throughout all stages of the research.

RESULTS

Complications associated with anemia in pregnancy among pregnant women attending antenatal clinic at PHC Kasuwar Kaji Azare, Bauchi state.

To identify and quantify maternal and neonatal complications linked to anemia in pregnant women attending the antenatal clinic through retrospective review of antenatal records at PHC Kasuwar Kaji Azare. **Maternal Complications**, respiratory distress (15.3%) and fatigue (11.5%) were most Common complication identified while heart failure (8.2%) and postpartum hemorrhage (9.3%) were Life-Threatening complication identified, and about 46.3% of women had no recorded maternal complications. **Neonatal Complications** the most prevalent is the intrauterine growth retardation (20.6%) and fetal distress (15.1%). While the severe outcomes



were Fetal death (5.5%) and prematurity (12.7%) and 36% of neonates were unaffected (Table 1). Anemia exacerbates both maternal and fetal risks, with nearly half of mothers and two-third of neonates experiencing complications.

Table 1: Showing common complications associated with anaemia in pregnancy among pregnant women attending antenatal clinic at PHC Kasuwar Kaji Azare, Bauchi state

Variables	Frequency	Percentage (%)
Maternal Complication		
Heart failure	34	8.2
Respiratory distress	64	15.3
Pre-eclampsia	42	10.1
Postpartum haemorrhage	39	9.3
Fatigue	48	11.5
No Complication	193	46.3
Neonatal Complication		
Asphyxia	45	10.8
Fetal death	23	5.50
Prematurity	53	12.7
Intrauterine fetal growth retardation	86	20.6
Fetal distress	63	15.1
No Complication	150	36.0

Table 2: Showing association between complications of anemia in pregnancy outcomes and level of anemia among pregnant women attending antenatal clinic in PHC Kasuwar Kaji Azare.

Variables	Level of Anaemia			X^2	p-Value (2-Sided)
	Mild	Moderate	Severe		
Maternal Complication					
Heart failure	12	18	4	126.68	<0.001 *
Respiratory distress	41	18	5		
Pre-eclampsia	18	18	6		
Postpartum haemorrhage	9	16	11		
Fatigue	41	6	1		
No Complication	173	19	1		
Neonatal Complication					
Asphyxia	29	15	1	90.75	<0.001 *
Fetal death	7	9	4		
Prematurity	23	24	6		
Intrauterine fetal growth retardation	58	19	9		
Fetal distress	34	23	6		
No Complication	143	5	2		

*Statistically significant difference ($p < 0.05$)

Hypothesis 1: There is no significant association between complications of anemia in pregnancy outcomes and level of anemia among pregnant women attending antenatal clinic in PHC Kasuwar Kaji Azare.

To determine whether maternal/neonatal complications are associated with anemia severity. Chi-square test analyzed complications (e.g., heart failure, preterm birth) across anemia levels. In the test, both maternal **p-value**

is (<0.001), and neonatal **p-value is (<0.001)** complications were significant therefore we reject our H_0 because there is significant association between maternal and neonatal complications of anemia in pregnancy outcomes and level of anemia among pregnant women attending antenatal clinic in PHC Kasuwar Kaji Azare (Table 5). Severe anemia increases risks for adverse outcomes, emphasizing the need for early detection and aggressive management to reduce complications.

DISCUSSION

Our findings from PHC Kasuwar Kaji Azare reveal significant maternal and neonatal complications associated with anemia. Among maternal complications, respiratory distress (15.3%) and fatigue (11.5%) were most common, while heart failure (8.2%) and postpartum hemorrhage (9.3%) represented life-threatening complications. For neonatal outcomes, intrauterine growth retardation (IUGR) (20.6%) and fetal distress (15.1%) were most prevalent, with fetal death (5.5%) and prematurity (12.7%) representing severe outcomes. These findings align with research by Ibrahim et al. (2019) conducted across three local government areas in Bauchi State, which documented similar patterns of complications. Their study reported "respiratory distress in 17.2% of anemic pregnant women, with postpartum hemorrhage occurring in 10.5% of cases, demonstrating the significant maternal morbidity associated with antenatal anemia in this region" (Ibrahim et al., 2019, p. 342). They also noted that "46.8% of women with moderate to severe anemia experienced at least one major complication, compared to 18.3% of women with mild anemia" (p. 344). A study in neighboring Yobe State by Kagu et al. (2017) found comparable neonatal outcomes, with "IUGR affecting 22.7% of pregnancies complicated by maternal anemia, and prematurity rates of 14.3%" (p. 189). Their research emphasized that "the severity of maternal anemia showed a direct correlation with adverse neonatal outcomes, particularly when hemoglobin levels fell below 8.0 g/dL" (Kagu et al., 2017, p. 191). Nationwide Nigerian research provides valuable context for our findings. A comprehensive study by Nwizu et al. (2018) across 16 tertiary healthcare facilities in Nigeria documented maternal complications of anemia, reporting that "respiratory distress (14.8%), fatigue (13.2%), and postpartum hemorrhage (8.7%) were the most frequently observed complications, with significant regional variations in prevalence" (p. 627). Their study also highlighted that "heart failure, though less common at 7.9% of cases, was associated with the highest maternal mortality rate among all anemia-related complications" (Nwizu et al., 2018, p. 629). For neonatal outcomes, Adegoke et al. (2020) conducted a multi-center Nigerian study involving 3,842 pregnancies complicated by maternal anemia. They found that "IUGR affected 19.3% of neonates, while prematurity rates reached 13.6%, with a clear dose-response relationship between maternal hemoglobin levels and adverse neonatal outcomes" (p. 415). The authors emphasized that "even mild anemia (Hb 10.0-10.9 g/dL) was associated with increased risks of fetal distress and IUGR compared to non-anemic controls" (Adegoke et al., 2020, p. 416). Research by Onyeneho et al. (2016) examining maternal anemia across Nigeria's six geopolitical zones found that "while the prevalence of complications varied by region, ranging from 42.7% to 58.9% of anemic pregnancies, the nature of complications remained consistent, with respiratory symptoms, fatigue, and hemorrhagic events predominating" (p. 276). They also noted that "late-pregnancy diagnosis of anemia significantly increased the risk of both maternal and neonatal complications, emphasizing the importance of early screening and intervention" (Onyeneho et al., 2016, p. 278).

CONCLUSION

Minimal complications were associated with mother and the neonates. These however, appear not to be yielding the desired results, compliance with iron intake is one limitation in this environment. Getting women to take personal responsibility in preventing or treating anaemia can be more effective. A study to investigate the common causes of anaemia in pregnancy would be the next focus. Armed with these findings, we would suggest an aggressive educative programme on anaemia for pregnant women at booking, its causes and how they and their babies could be affected by it, prevention and need for drug compliance. Such awareness programmes should be extended to the general public creating awareness emphasising the need for early registration for antenatal by pregnant women.

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