

Prevalence of Anaemia at Booking in Northwestern Nigeria Tertiary Hospital

Bello MA¹ and Abidemi O^{2*}

¹Department of Obstetrics and Gynecology, Federal Medical Centre, Gusau, Nigeria

²Department of Obstetrics and Gynecology, Ahmad Sani Yarima Bakura Specialist Hospital, Gusau, Nigeria

*Corresponding author:

Oyaromade Abidemi,
Department of Obstetrics and Gynecology,
Ahmad Sani Yarima Bakura Specialist
Hospital, Gusau, Nigeria.
(orcid number: 0000000218950843)

Received: 01 July 2024

Accepted: 15 July 2024

Published: 22 July 2024

J Short Name: COS

Copyright:

©2024 Abidemi O, This is an open access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and build upon your work non-commercially.

Keywords:

Pregnant Women; Ahmad Sani Yarima Bakura Specialist Hospital (ASYBSH); Ante-natal care (ANC); Grand Multipara

Citation:

Abidemi O. Prevalence of Anaemia at Booking in Northwestern Nigeria Tertiary Hospital.

Clin Surg. 2024; 10(10): 1-6

1. Abstract

1.1. Background: Anaemia in pregnancy is one of the commonest medical problem among pregnant women in Nigeria and developing countries in general. It is associated with increased maternal and fatal morbidity and mortality if not corrected.

1.2. Objectives and Methods: This study was carried out to establish the prevalence of anaemia among pregnant women who presented for booking at the antenatal clinic of Ahmad Sani Yarima Bakura Specialist Hospital (ASYBSH). It is a cross-sectional descriptive study conducted between January to April 2023 on three hundred and eighty-five (385) women. Semi-structured interviewer questionnaires were administered.

1.3. Results: Using the World Health Organization (WHO) criteria of pack cell volume of less than thirty-three percent (<33%), 76.3% women were anaemic at booking. Mild anaemia (PCV 26-32.9%) were most prevalent 43.6% while 9.6% had severe anaemia. Grand multiparous women->5 parities were mostly affected with anaemia 36.6%. It was observed that women who presented for booking at third trimester of pregnancy had the highest prevalence of anaemia- 43.4%. 12.5% of the women had severe anaemia across all trimesters. Majority of the anaemic women 57.9% were not educated while only 1% of women were educated. 40% of the women who were anaemic at booking were of low socio-economic status. It was also observed that majority of the women presented late for booking 67.3% which might not be unconnected to absence of symptoms of ill health, economic reasons and need for permission from spouses.

1.4. Conclusion: Advocacy and public awareness on importance

of early booking, improved socio-economic powers of women, girl child education, family planning and other obstetrics and non-obstetrics interventions will go a long way in reducing the incidence of anaemia in pregnancy in our environment.

2. Introduction

One of the deadliest and commonest complications in pregnancy is anaemia and it is associated with increased mortality and morbidity [1]. World Health Organisation (WHO) has indicated that more than 50% of pregnant women have haemoglobin levels of (<11.0g/dl) indicate of anaemia, infact, the figure in developing countries are more alarming during pregnancy, iron demand and other substances are physiological changes in pregnancy, hence, increased in iron demand, inadequate nutritional consumption, poor absorption of iron, infections in pregnancy especially malaria in pregnancy and other socio-economic and cultural factors usually responsible for the high prevalence of anaemia in pregnancy [8,9,14,15].According to WHO, anaemia is classified into: Severe anaemia, Moderate anaemia, Mild anaemia. As hemoglobin values of 10.0-10.9g/dl (mild anaemia), 7-9.9g/dl (moderate anaemia) and <7.0g/dl (severe anaemia). Many studies have shown high prevalence malaria in pregnancy as one of the major risk factors for anaemia in pregnancy [4, 5, 6, 9, 10, 11]. Maternal consequences of anaemia in pregnancy include: Anaemic heart failure, Infections such as urinary tract infection and maternal mortality, Foetal complications include; pregnancy loses, preterm delivery, low birth weight and increased perinatal mortality [4, 5,10,11,12]. Reported significant causes of anaemia in pregnancy in developing countries include: Nutritional inadequacy, Malaria in pregnancy, parasitic

infections, Recent Immuno-suppressive disease such as HIV [7, 8, 9, 14, and 15].

3. Method

3.1. Study Area/Centers

The study was carried out in Ahmad Sani Yarima Bakura Specialist Hospital, Gusau, Zamfara state, Northwestern Nigeria. A tertiary hospital owned by the state government. It caters for patients from all the 14 local government in the state, and neighboring states like Sokoto, Katsina and Kebbi states.

3.2. Ethical Clearance and Consent

Ethical clearance was obtained from the ethical committee in the hospital prior to the commencement of the study. Consent of all the participants in the study were duly taken.

3.3. Sample Collection

Pregnant women who presented for booking were enrolled for the study between January to April 2023. Following written consent, blood samples were collected and hemoglobin analysis were also administered to obtain demographic data while estimated gestational age were obtained from last menstrual period date and/or obstetric ultrasound.

3.4. Data Analysis

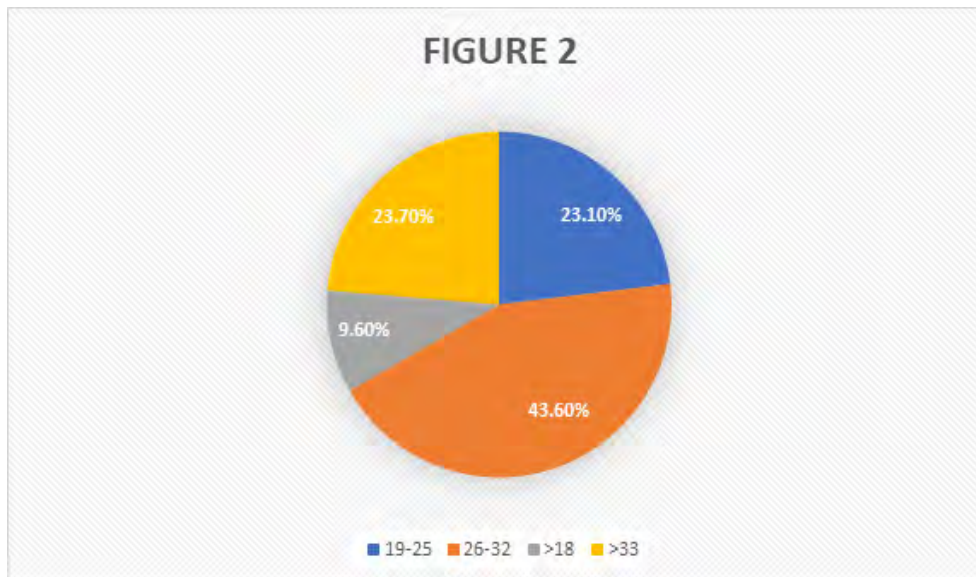
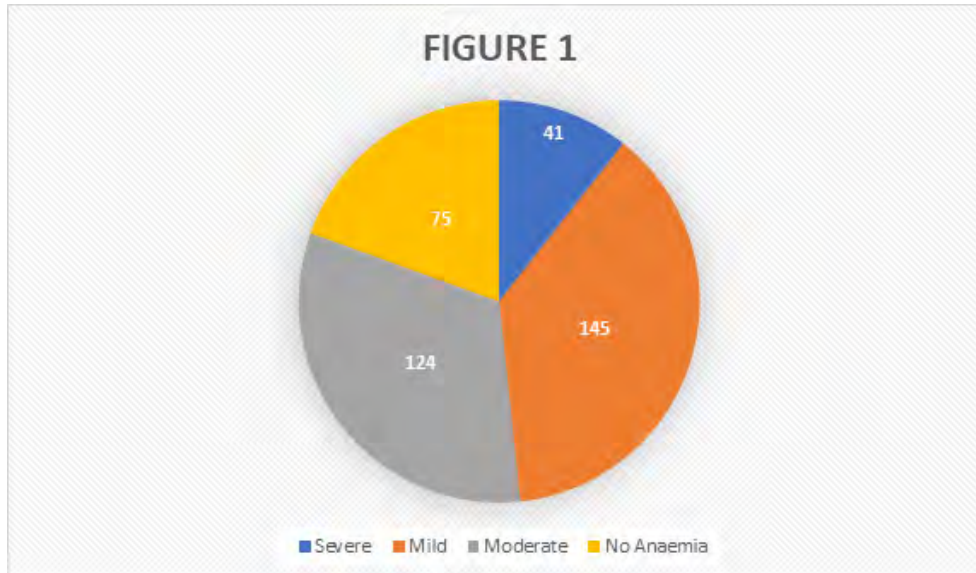
All quantitative data were entered and analysed using SPSS-25 version for windows. Descriptive analysis done for all relevant data. Association between anaemia in pregnancy and gestational age, parity, educational levels and socio-economic status were done using chi-square. All significance are reported at $P < 0.05$.

3.5. Results

Three hundred and eighty-five (385) pregnant women were recruited for the study. From the (Table 4) of 71 primigravida and 314 multigravida were enrolled. 77 of the women were grand multipara. 187(48.6%) of the women had no formal education. While 45(11.7%) of the pregnant women had western education. (Table 5).

130(33.8%) of the women were twenty-year-old and below while only 9(2.3%) were above 40 years of age. Table 1. Majority of the women were full-housewife. 281(73.0%) while only 35(9.1%) were civil servants. (Table 2) Majority of the women are Muslims 357(92.7%) as expected due to the location of the study while 28(7.3%) were Christians (Table 3). Majority of the women 259(67.3%) presented for booking after 25 weeks gestation while only 37(9.6%) presented for booking at 18 weeks gestation and below (Table 6) 91(23.7%). 35(9.7%) had severe anaemia (packed cell volume < 21) while 43.6% had moderate anaemia (PCV 22-26.9). only 33(8.6%) had packed cell volume (> 33). 141(36.6%)

of women who had anaemia in pregnancy were grand multipara. While 93(24.3%) of women who had anaemia in pregnancy were primigravida. (Table 7). 22(5.7%) out of the 48 women (45.8%) who had severe anaemia in pregnancy presented for booking beyond 33 weeks gestational age. 88(52.4%) out of the 168 women with moderate anaemia (PCV 22-26.9) presented beyond 33 weeks gestational age for booking (Table 8). From (Table 9)- 37(90.2%) out of 41 women who had severe anaemia in pregnancy (PCV < 21) had no formal education. 62(92%) out of 75 women who were not anaemic were educated. 96(66.2%) out of 145 women who had moderate anaemia in pregnancy (PCV 22-26.9%) were not educated while only 37(29.8%) out of 124 women who had mild anaemia in pregnancy were educated. (Table 9). 41(60.3%) out of 68 women who had severe anaemia in pregnancy were of low socio-economic status while 72(20.1%) out of 343 women who had anaemia in pregnancy were of upper socio-economic class (Table 10). The prevalence of anaemia based on WHO (33.0% PCV) recorded in this study was 80.5 percent which is almost similar to figures recorded in Shagamu (76.5%) Jigawa, Katsina and Yobe estimated to be 61.2-88.7% but lower than prevalence of 43.5% recorded in Jos [1, 2, 3] the difference in the prevalence might not be unconnected with levels of education, early booking and economic status of women in Jos-Plateau State compared to women in Zamfara State. The commonest type of anaemia in this study was moderate anaemia 168(43.6%) similar to results obtained in Jos¹ and Shagamu [3]. The peak of anaemia recorded in this study were second trimester similar to work done in Abakaliki, Shagamu and Kano, Shagamu [1,2,6,8]. This might not be unconnected to late booking period of hemoglobin peak, and malaria endemicity in Nigeria as well as malnutrition. The prevalence of anaemia in pregnancy voted to be the highest in women who have been pregnant for 5 times or more 148(38.4%) which was different from results obtained in Jos¹, where anaemia in pregnancy were commonest among primigravida at booking. This might not be unconnected with socio-cultural differences, educational status and economic differences among women in the two study locations. Severe anaemia at booking were commonest among grand multiparous women 17() out of 35. This might not be unconnected with poor family planning uptake, malnutrition, short pregnancy intervals and high prevalence of malaria among pregnant women in the state. This was similar to findings in Kano and Bauchi [7, 8]. Severe anaemia were highest among women with no formal education 37(90.2%) out of a total of 41 pregnant women while 68(92.0%) out of 75 pregnant women who were not anaemic were educated. It was also noted from the study that majority of the pregnant women 260(67.5%) presented for booking after 25 weeks gestational age, similar to results from Kano and Zaria [5, 6,13].



Socio-demographic distribution of women (Tables 1, 2,3,4,5 and 6)

Table 1

Age (years)	No	Percentage
<15	43	11.2
16-20	87	22.6
21-25	102	26.5
26-30	67	17.4
31-35	52	13.5
36-40	25	6.5

Table 2

Occupational status	No	Percentage
Housewife	281	73
Civil Servant	35	9.1
Business	57	16.1
No response	12	1.8

Table 3

Religion	No	Percentage
Islam	357	92.7
Christianity	28	7.3
Traditional		

Table 4

Parity	No	Percentage
0	71	18.4
1	40	10.4
2	37	9.6
3	53	13.8
4	107	27.8
5	34	8.8
6	43	11.2

Table 5

Educational Status	No	Percentage
Arabic only	187	48.6
Western only	45	11.7
Arabic +Western only	67	17.4
None	86	22.3

Table 6 (Gestational age at booking)

Gestational age at booking	No	Percentage
>18	37	9.6
19-25	89	23.1
26-32	168	43.6
>33	91	23.7
Total	385	100

Packed cell volume versus parity, gestational age, educational status and socio-economic status (Table 7, 8, 9 and 10)

Gestational age at booking	No	Percentage
>18	37	9.6
19-25	89	23.1
26-32	168	43.6
>33	91	23.7
Total	385	100

Table 7

PCV	Parity			Total	Percentage
	0	01-Apr	>5		
<21	11	7	17	35	9.1
22-26.9	57	24	87	168	43.6
27-32.9	25	87	37	149	38.7
>330	8	18	7	33	8.6
Total	101	136	148	385	100

Table 8

PCV	Gestational age weeks			Total	Percentage
	>25	26-33	>33		
<21	17	9	22	48	12.5
22-26.9	51	29	88	168	43.7
27-32.9	50	41	57	148	38.4
>33	10	4	7	21	5.4
Total	128	83	174	385	100

Table 9

PCV	Educational status		Total	Percentage
	None	Educated		
<21	37	4	41	10.7
22-26.9	96	49	145	37.7
27-32.9	87	37	124	32.2
>33	6	69	35	19.4
Total	226	159	385	100

Table 10

Packed cell volume	Economic Status			Total	Percentage
	Low	Middle	Upper		
<21	41	19	8	68	17.7
22-26.9	87	67	25	179	46.5
27-32.9	26	31	39	96	24.9
>33	13	11	18	42	10.9
Total	167	128	90	385	100

4. Conclusion

This study clearly emphasized the earlier documentation that anaemia in pregnancy remains a major health problem among pregnant women in Nigeria, especially in northwestern region of the country. Higher parity, lack of western education, low socio-economic status and late antenatal booking were major contributors to anaemia in pregnancy in Gusau, Northwestern Nigeria. Therefore, promotion of girl child education, women economic empowerment, early booking, promotion and increased up-take of family planning as well as prevention of malaria in pregnancy and use of Iron and Folate supplements in pregnancy will help to ameliorate the prevalence and consequences of anaemia in pregnancy in Zamfara state and Nigeria as a whole.

5. Recommendation

Based on the results from this study, early registration for antenatal care by all pregnant women, women economic empowerment, female child education promotion and free antenatal care are highly recommended. Further studies on anaemia during pregnancy, labour as well as maternal and foetal outcomes following anaemia in pregnancy are recommended.

6. Conflict of Interest

None

United Prime Publications LLC., <https://clinicofsurgery.org>

7. Acknowledgement

We sincerely appreciate the management of ASYBSH as well as members of staff at obstetrics department as well as all respondents in the study.

References

1. Bassi Amos Paul, Idoko Lucy, Dibigbo-Ibeaji Ndudi Mary, Adeniyi Olusegun Godwin, Ramyil Mamzhi-Crown Seljul, Ogundeko Timothy Olugbengae t al. Prevalence of anaemia in pregnancy among women visiting Antenatal clinic in Bingham University Teaching Hospital Jos, Nigeria. *Clin Med Res.* 2016;5(3):52-62.
2. Idowu OA, Mafina CF, Sotiloye D. Anaemia in pregnancy: A survey of pregnant women in Abeokuta, Nigeria. *Afr Health Sci.* 2005;5(4):295-8.
3. Ugwu NI, Uneke CJ. Iron deficiency Anaemia in pregnancy in Nigeria. A systematic review. *Niger J Clin Pract.* 2020;23(7):889-96.
4. Mohammed YG, Emmanuel AU. The pattern of anaemia in Northern Nigeria women. *Journal of Medicine and Medical Sciences.* 2013;4(8):319-23.
5. Oladipo AR, Falana AO, Adegoke O, Sambo A, Kungu J. Prevalence of Anaemia among pregnant women and determinants in Northern Nigeria. 2005.
6. Adinma JI, Ikechebelu JL, Onyejimbe UN, Amilo G. Influence of

- antenatal clinic on the hematocrit value of pregnant women. *Trop J Obstet Gynaecol.* 2002;19(2):68-70.
7. Lawson JB. Anaemia in pregnancy. In Lawson JB, Stewart DB editors. *Obstetrics and gynaecology in the Tropics.* London Edwards Arnold. 1967.
 8. Esike CO, Anocie OB, Onuh RC, Sunday UC. The prevalence at booking in Abakaliki, Nigeria. *Trop Y obstet Gynecology.* 2016;33:332-6.
 9. Hassan AA, Mamman AL, Adaji S, Musa B, Kene S. Anaemia and iron deficiency in pregnant women in Zaria, Nigeria. *Sub-Saharan Africa J Med.* 2014;1(1):36-9.
 10. Oluboyede OA, Topley E, Ogunbode O. Iron deficiency in pregnant women in Ibarapa District of Western Nigeria. *Br J Haematol.* 1997;36:527-31.
 11. Dairo MD, Lawoyin TO. Demographic factors determining compliance to iron supplementation in pregnancy in Oyo state, Nigeria. *Niger J Med.* 2006;15(3):241-4.
 12. Olatubosun OA, Abasiattai AM, Bassey EA, James RS, Iban-ga G, Morgan A. Prevalence of anaemia among pregnant women at booking in the university of Uyo, Nigeria. *Biomed Res Int.* 2014:2014:849080.
 13. Oyelese AT Ogbaro DD, Wakama TT, Adediran A, Gbadegesin A, Awodele IO, et al. Socio-economic determinants of prenatal anaemia in rural communities of Southwest Nigeria: a preliminary report. *Am J Blood Res.* 2024;11(4):410-6.
 14. Woldegebriel AG, Gebregziabiler GG, Aregay DA, Ajemu KF, Berhe AA, Woldearegay TW, et al. Determinants of anaemia in pregnancy: Findings from the Ethiopian health and demographic survey. *Anemia.* 2020:2902498.
 15. Olusegun OO, Nkanga EA, Oyerinde IE, Akintoye O, Asekun-Olarinmoye I, Alabi QK, et al. Factors Affecting Anemia in pregnant women in Ibeju-Lekki, Lagos State, Nigeria. *Inquiry.* 2023;60.