

Prevalence of Anaemia and its Socio-Demographic Characteristics among Pregnant Women Attending the Antenatal Booking Clinic in Esut Teaching Hospital (Esuth), Enugu

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ABSTRACT

Background: Anaemia is the commonest haematological abnormality diagnosed in pregnancy and continues to be a major public health problem in the developing, poor resource countries. It is associated with increased rates of maternal and perinatal morbidity and mortality. The prevalence of anaemia among pregnant women is estimated to be very high in Nigeria and other developing countries. Knowledge of the current situation in our environment will help antenatal care-givers in prevention, early detection and prompt management of anaemia so as to mitigate its attendant complications in pregnancy.

Aim: To determine the prevalence and socio-demographic characteristics of anaemia among pregnant women in ESUTH.

Specific objectives

The objectives of this study were to determine:

- the prevalence of anaemia
- the prevalence of the different grades of anaemia
- the distribution of anaemia based on socio-demographic characteristics among pregnant women at the antenatal booking clinic of ESUTH.

Method: This was a cross-sectional study of 370 women who booked for antenatal care at the ESUTH from August 1, to December 31, 2020. Women who came for antenatal booking were counseled on the study and informed consent obtained. A proforma was used to collect their bio-data and other relevant obstetric and medical information. A sample of venous blood was collected and the haemoglobin concentration determined using haemoglobinometer.

Data analysis: Data was analyzed using Statistical Package for Social Sciences, SPSS version 20.0 for Windows. Frequencies and percentages were calculated and represented in tables and charts.

Result: The result showed that out of the 370 women recruited into the study 295 (65.1%) had anaemia of which 155 (41.9%) were mild, 69 (18.6%) were moderate and 17 (4.6%) were severe.

Conclusion and recommendation: Anaemia in pregnancy has an unacceptably high prevalence among our pregnant women. Efforts should be made to increase community health education/awareness on child spacing, consumption of balanced diet and early antenatal booking so as to prevent, enhance early detection and adequate treatment of anaemia in pregnancy.

Keywords

Prevalence, Anaemia, Pregnancy, Enugu, Nigeria.

Introduction

Anaemia in pregnancy is a global public health challenge [1]. It is one of the most intractable public health problems in the developing countries and the commonest complication in pregnancy in sub-Saharan Africa, more so with the advent of the HIV/AIDS pandemic [2]. It is also a significant cause of maternal and perinatal morbidity and mortality, especially in the developing world [3-5]. WHO defined anaemia in pregnancy as the presence of haemoglobin concentration of less than 11g/dl and it estimates that more than half of pregnant women in the world are anaemic; and the prevalence may be as high as 56% to 61% in developing countries [6]. However, Nigerian women with haemoglobin levels between 10g/dl and 11g/dl go through pregnancy without any apparent ill effects to themselves or their offspring. Thus, in practice, only anaemia with haemoglobin lower than 10g/dl is deemed worthy of further investigations and treatment in our environment [7,8]. However, developing countries should be guided by the WHO definition especially now that Africa is striving to eliminate most of the aetiological factors of anaemia. The prevalence of anaemia has been found to be highest among pregnant women in sub-Saharan Africa followed by south-East Asia and lowest in south America [9]. In a survey carried out in Abeokuta a prevalence among all pregnant women was 76% out of which 80.6% of the primigravidae and 74.5% of the multigravida were involved [10]. In another study in Shagamu Ogun state, 32.5% of the women were anaemic, of these 72.1% were mildly anaemic and 27.1% moderately anaemic [11]. In a systemic review of 6 studies on iron deficiency anaemia in pregnancy carried out in Abakalikki, Southeast, Nigeria, 3 of the 6 studies revealed a prevalence of 25-45% [12] and in Enugu, Southeast, Nigeria, a prevalence of 40.4% was found [13]. The importance of good haemoglobin concentration during pregnancy for both the mother and the fetus cannot be over emphasized; being a driving force for oxygen for the mother and the fetus and a reduction below the acceptable levels can be detrimental to both [13].

The predisposing factors to anaemia in pregnancy were noted to include grand-multiparity, low socio-economic status, malaria infestation, HIV/AIDS, and inadequate child spacing [14,15]. The commonest causes of anaemia in pregnancy are nutritional deficiencies of iron and folate and haemolysis due to malaria infestation with increased demands of pregnancy, haemoglobinopathies and helmimthiasis [5,13]. Hence, the routine check for haemoglobin/packed cell volume at booking and use of oral haematinics for every pregnant woman in our environment.

This study therefore, was important in order to ascertain the outcome of various interventions in our environment to prevent anaemia among women of reproductive age. The result will furnish antenatal care-givers with adequate information to educate women on the need to prevent anaemia, stimulate efforts on early screening, diagnosis and treatment of anaemia in pregnancy in

order to improve maternal and perinatal outcomes.

Aim

To determine the prevalence and socio-demographic characteristics of anaemia among pregnant women in ESUTH.

Specific objectives

The objectives of this study were to determine:

- the prevalence of anaemia
- the prevalence of the different grades of anaemia
- the distribution of anaemia based on socio-demographic characteristics among pregnant women at the antenatal booking clinic of ESUTH.

Materials and Method

The study was carried out in ESUT Teaching Hospital, Enugu, a tertiary hospital in the capital of Enugu state, south-East, Nigeria. The centre serves as a training centre for undergraduates and resident doctors. It also serves as a referral centre for both government-owned and private facilities in Enugu and the neighboring states of Ebonyi, Anambra, Imo, Abia and Delta. The booking clinic holds every Thursday except public holidays.

The minimum sample size using Kish Leslie formula for cross-sectional studies and average prevalence of anaemia of 60%, was 369; a total of 370 women were recruited. The inclusion criteria included pregnant women at their first ante-natal visit with gestational age range of 12 to 36 weeks old and were willing to participate in the study.

A total of 2,256 women booked for antenatal care annually from review of the previous two-year records, giving an average booking rate of 47 women per week. The study was designed to be performed over 16 weeks during which an estimated 564 women were expected to book for antenatal care, and at least 31 women were recruited every week to make up the sample size. Three hundred and seventy women at the booking clinic who met the inclusion criteria and had given their informed consent were recruited. About 2-3ml of venous blood sample was collected in an EDTA bottle for estimation of haemoglobin concentration using haemoglobinometer in the laboratory attached to the antenatal clinic. The results were collected same day and entered into the proforma for subsequent analysis.

Data for this study was collected over a 16-week period (August 1- November, 30, 2020). During that time the consenting pregnant women at their antenatal booking visits that met the criteria were recruited. They were interviewed with a copy of the proforma, by me to ensure as much as possible, that the necessary information was obtained. The following information was recorded: maternal age, parity, gestational ages, last child birth, level of education and occupation of the woman her partner. Also recorded were history of fever in the index pregnancy, presence of any chronic illness or vaginal bleeding.

Ethical approval was obtained from ESUT Teaching Hospital Ethical Committee, before the commencement of the study.

Exclusion criteria

- Pregnant women at their follow-up antenatal visits
- Those who had received blood transfusions in the index pregnancy
- Those already receiving treatment for anaemia in pregnancy before their booking visit.
- Sickle disease patient
- Those who refused to give their consent.

Age	Anaemia				Total
	Not anaemic (Hb≥11g/dl)	Mild (Hb =10-10.9g/dl)	Moderate (Hb =7-9.9g/dl)	Severe (Hb<7g/dl)	
<20	4 (1.1%)	10 (2.7%)	2 (0.5%)	1 (0.3%)	17 (4.6%)
20-24	37 (10%)	55 (14.9%)	19 (5.1%)	6 (1.6%)	117 (31.6%)
25-29	55 (14.9%)	56 (15.1%)	30 (8.1%)	7 (1.9%)	148 (40%)
30-34	27 (7.3%)	27 (7.3%)	13 (3.5%)	2 (0.5%)	69 (18.6%)
35-39	5 (1.4%)	4 (1.1%)	5 (1.4%)	1 (0.3%)	15 (4.1)
>39	1 (0.3%)	3 (0.8%)	0 (0%)	0 (0%)	4 (1.1%)
Total	129 (34.9%)	155 (41.9%)	69 (18.6%)	17 (4.6%)	370 (100%)

Data analysis

Data were analyzed using the Statistical Package for Social Sciences (SPSS) version 20.0 for Windows. Statistical analysis was descriptive. The socio-demographic variables were used to categorize the data and this was subjected to statistical evaluation to yield frequencies and percentages and the results were represented in tables and charts for easy understanding.

Result

The result showed that out of the 370 women recruited into the study 295 (65.1%) had anaemia of which 155 (41.9%) were mild, 69 (18.6%) were moderate and 17 (4.6%) were severe.

Table 1 and figure 1 showed the distribution of anaemia with respect to the maternal ages. The highest percentage was among women aged 25-29 (40%) followed by women 20-24 (31.69%) while the least was among women aged 35-39 (18.6%).

Table 2 and figure 2 showed the distribution of anaemia with respect to tribe of the women. The highest was among the Igbos (56.8%) followed by the Hausas (4.9%) and the Yorubas, (3.5%).

Table 3 and figure 3 showed the distribution of anaemia with respect to the marital status of the women. Of all the anaemic women, the married women constitute 61.9%, followed by the separated (1.6%) while the least was among the singles (0.3%).

Table 4 and figure 4 showed the distribution of anaemia with respect to the parity of the women. Twenty one percent (29.7%)

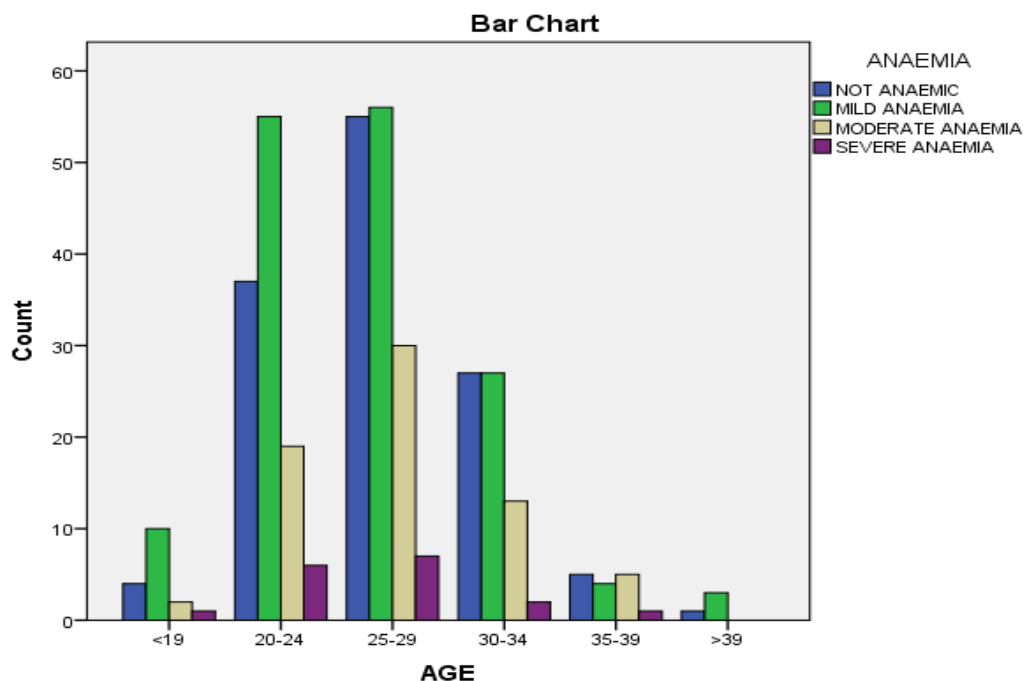


Figure 1:

Table 2: Relationship between tribe and anaemia in pregnancy.

Tribe	Anaemia				Total
	Not anaemic (Hb \geq 11g/dl)	Mild (Hb =10-10.9g/dl)	Moderate (Hb=7-9.9g/dl)	Severe (Hb<7g/dl)	
Igbo	114 (30.8%)	137 (37%)	58 (15.7%)	15 (4.1%)	324 (87.6%)
Hausa	9 (2.4%)	11 (3%)	7 (1.9%)	0 (0%)	27 (7.3%)
Yoruba	6 (1.6%)	7 (1.9%)	4 (1.1%)	2 (.5%)	19 (5.1%)
Total	129 (34.8%)	155 (41.9%)	69 (18.7%)	17 (4.6%)	370 (100%)

Table 3: Relationship between marital status and anaemia.

Marital status		Anaemia				Total
		Not anaemic (Hb \geq 11g/dl)	Mild (Hb=10-10.9g/dl)	Moderate (Hb=7-9.9g/dl)	Severe (Hb<7d/dl)	
	Married	124 (33.5%)	147 (39.7%)	68 (18.4%)	14 (3.8%)	353 (95.4%)
	Separated	1 (0.3%)	3 (0.8%)	0 (0%)	3 (0.8%)	7 (1.9%)
	Divorced	2 (0.5%)	0 (0%)	0 (0%)	0 (0%)	2 (0.5%)
	Widow	0 (0%)	5 (1.4%)	0 (0%)	0 (0%)	5 (1.4%)
	Single	2 (0.5%)	0 (0%)	1 (0.3%)	0 (0%)	3 (0.8%)
Total		129 (34.9%)	155 (41.9%)	69 (18.6%)	17 (4.6%)	370 (100%)

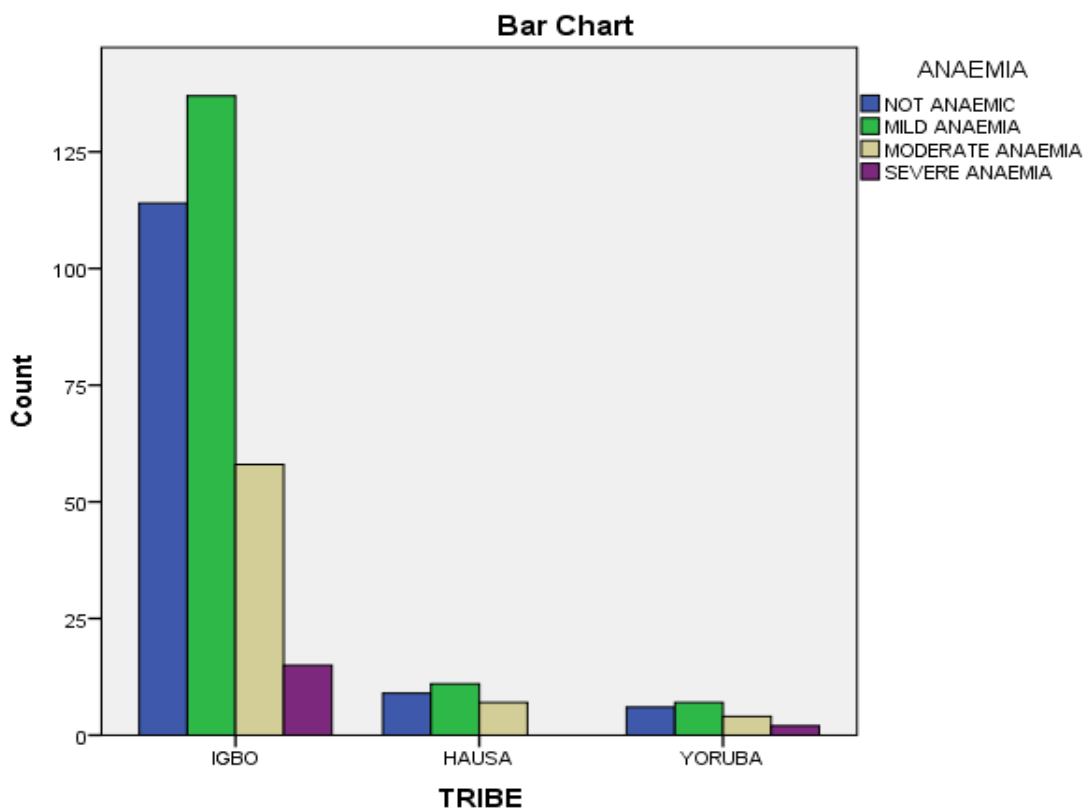


Figure 2:

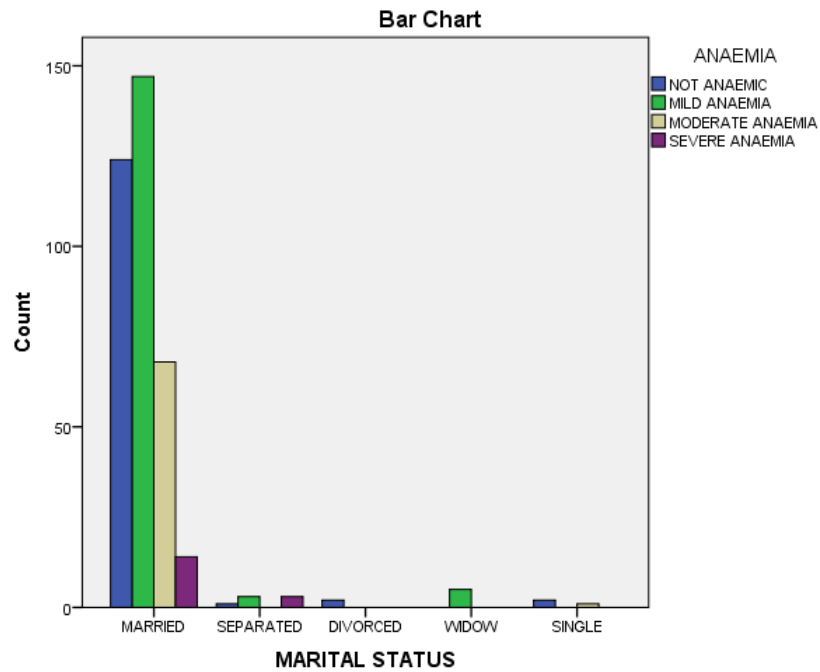


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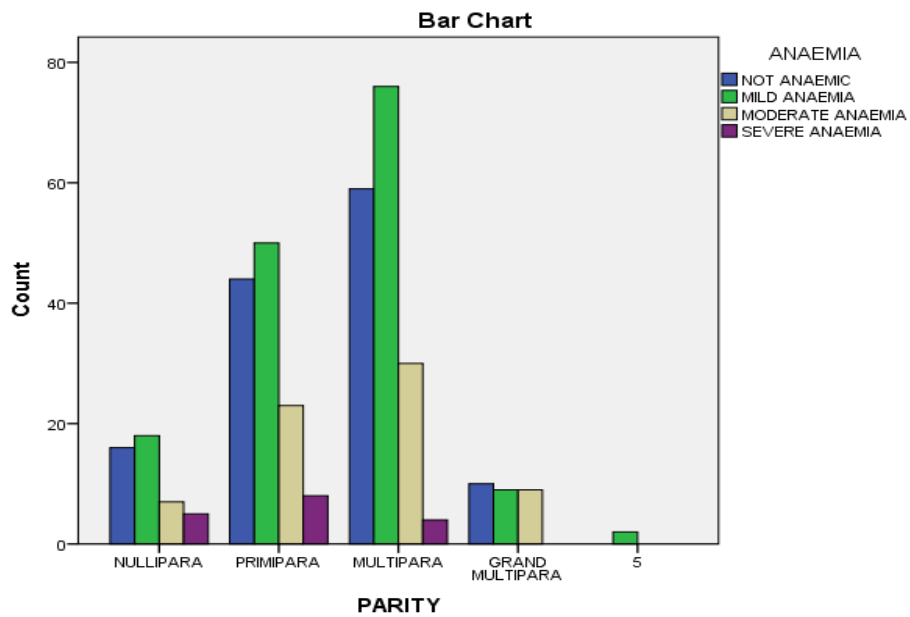


Figure 4:

Table 4: Relationship between parity and anemia.

Parity	Anaemia				Total
	Not anaemic (Hb \geq 11g/dl)	Mild (Hb=10-10.9g/dl)	Moderate (Hb=7-9.9g/dl)	Severe (Hb<7g/dl)	
Nullipnullipara	16 (4.3%)	18 (4.9%)	7 (1.9%)	5 (1.4%)	46 (12.4%)
Primipara	44 (11.9%)	50 (13.5%)	23 (6.2%)	8 (2.2%)	125 (33.8%)
Multipara	59 (15.9%)	76 (20.5%)	30 (8.1%)	4 (1.1%)	169 (45.7%)
Grand-multipara	10 (2.7%)	9 (2.4%)	9 (2.4%)	0 (0%)	28 (7.6%)
Total	129 (34.9%)	155 (41.9%)	69 (18.6%)	17 (4.6%)	370 (100%)

were multiparous, 21.9% were primiparous while the least was among the grand multiparous, 4.8%.

Table 5 and figure 5 showed the distribution of anaemia with respect to the number of years from the last child birth. Those who had the last delivery about 1-2 years earlier had the highest prevalence of anaemia at 27.3%, followed by those less than 1 year (17.3%) while the least was among women who had their last delivery more than 2 years earlier (14%).

Table 6 and figure 6 showed the distribution of anaemia with respect to gestational age at booking. Those at gestational age between 12 to 20 weeks constitute 31.9%, 20% were at gestational age of 20 to 28 weeks and the least was among those less than 12 weeks old.

Discussion

The aim of this study was to determine the prevalence and socio-demographic characteristics of anaemia among pregnant women in ESUTH. The various distributions with respect to tribe, marital status gestational age may be due to the natural distribution of these women in our study area and may not have any significant relationship.

From the study the prevalence of anaemia among the antenatal women in the centre was 295 (65.1%) out of which 155 (41.9%) were mild, 69 (18.6%) were moderate and 17 (4.6%) were severe. This was similar to the estimated national anaemia prevalence by WHO [6]. However, the value was lower than 76% [10] found in Abeokuta but the survey in Abeokuta was done in two hospitals and a traditional maternity home as against our own study done

Table 5: Relationship between years after last delivery and anaemia.

Years after last delivery	Anaemia				Total
	Not anaemic (Hb \geq 11g/dl)	Mild Hb=10-10.9g/dl)	Moderate (Hb=7-9.9g/dl)	Severe (Hb<7g/dl)	
Not applicable	16 (4.3%)	13 (3.5%)	5 (1.4%)	5 (1.4%)	39 (10.5%)
<1	30 (8.1%)	40 (10.8%)	20 (5.4%)	4 (1.1%)	94 (25.4%)
1-2	64 (17.3%)	70 (18.9%)	27 (7.3%)	5 (1.4%)	166 (44.9%)
>2	19 (5.1%)	32 (8.6%)	17 (4.6%)	3 (0.8%)	71 (19.2%)
Total	129 (34.9)	155 (41.9%)	69 (18.6%)	17 (4.6%)	370 (100%)

Table 6: Relationship between gestational age and anaemia.

Gestational age (weeks)	ANAEMIA				Total
	Not anaemic (Hb \geq 11g/dl)	Mild (Hb10-10.9g/dl)	Moderate (Hb=7-9.9g/dl)	Severe (Hb<7)	
<12	28 (7.6%)	32 (8.6%)	12 (3.2%)	1 (0.3%)	73 (19.7%)
12-19*6	61 (16.5%)	78 (21.1%)	32 (8.6%)	8 (2.2%)	179 (48.4%)
20-27*6	36 (9.7%)	44 (11.9%)	22 (5.9%)	8 (2.2%)	110 (29.7%)
28-36	4 (1.1%)	1 (0.3%)	3 (0.8%)	0 (0%)	8 (2.2%)
Total	129 (34.9%)	155 (41.9%)	69 (18.5%)	17 (4.7%)	370 (100%)

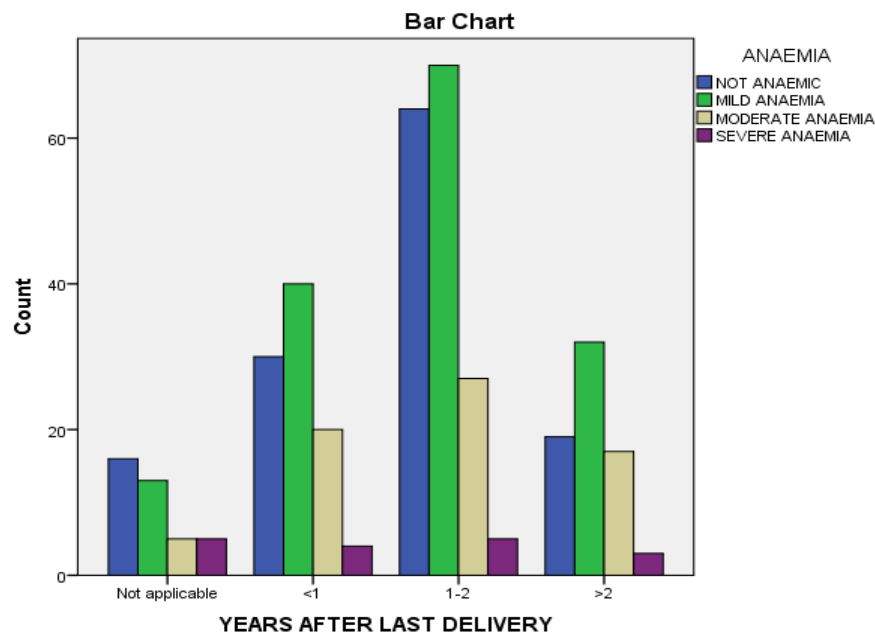


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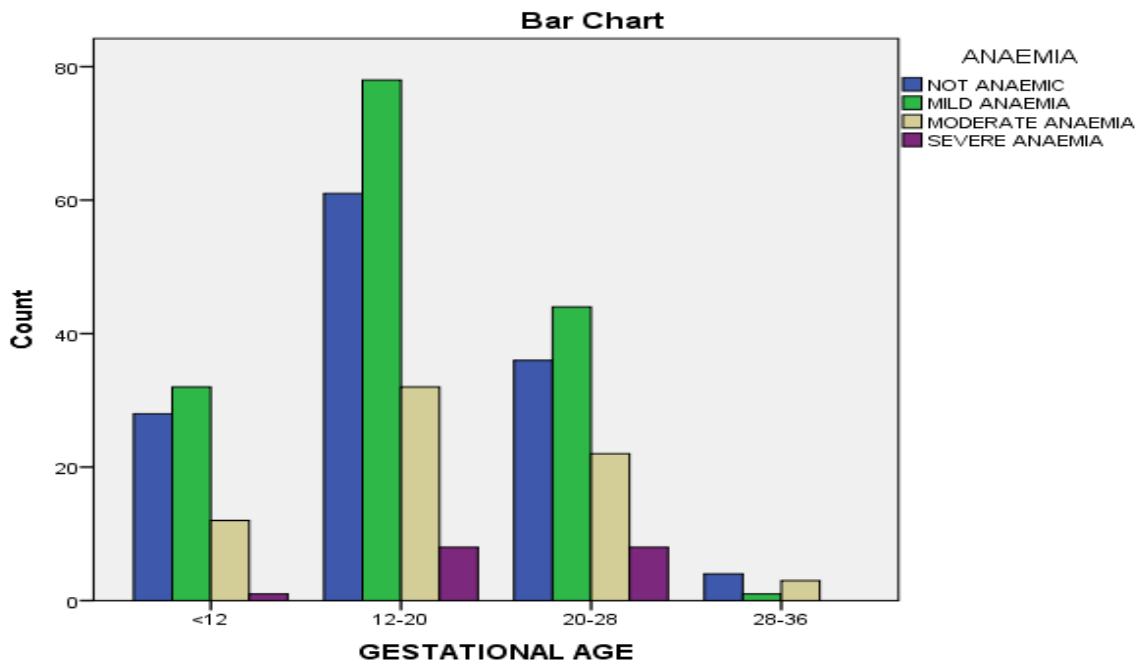


Figure 6:

in a single tertiary centre. The two studies were also done in two geopolitical zones of Nigeria with different local diets, customs and tradition. The study was also a prospective study while ours was a cross-sectional study. Conversely, the prevalence was higher than a similar study in Sagamu, Ogun state, 32.5% [11], even though it was a cross-sectional study. Also, the distribution showed 72.1%, mild as against 41.9% we found and 27.1% moderate as against 18.6% we found. The dissimilarities could arise from the differences in the geopolitical zones. However, the zone was closer to that done Abeokuta within the same state of Ogun despite the dissimilarities in the results. When compared with the finding of a systemic review done in Abakalikki, Ebonyi state, south-east Nigeria that gave a range of 25-45% [12], though this was a systemic review while our study was a cross-sectional study. Another study in Enugu revealed a prevalence of 40.4% [13] though this was in the same state but this was done in 2007 while our study was in 2020 and their study was a retrospective study as against our study that was a cross-sectional study.

All these buttresses the point that the prevalence of anaemia was quite significant in our environment and need to be addressed to ameliorate the accompanying complications in pregnancy.

Conclusion and recommendation

Anaemia has an unacceptably high prevalence among women accessing antenatal care at the ESUTH, Enugu. Efforts should be made to increase community health education on child spacing, consumption of balanced diet and early antenatal booking so as to prevent, enhance early detection and adequate treatment of anaemia in pregnancy.

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