

Preventive Measures of Anemia in Pregnancy Among Pregnant Women Attending Antenatal Clinic in Ibadan, Nigeria

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ABSTRACT

Anemia is a major cause of morbidity and mortality among pregnant women in developing countries like Nigeria. The burden and predisposing factors varies even within countries. It is one of the potential lethal complications of pregnancy leading to large number of maternal and fetal death. However, it is preventable and curable. The aim of this study was to find out the preventive measures and knowledge of anemia in pregnancy among pregnant women attending antenatal clinic in Adeoyo Maternity Teaching Hospital, Ibadan.

The study utilized the use of non-experimental cross sectional type of descriptive survey and a convenient sampling technique was used to select 384 participants. Data were obtained using a self-administered questionnaires and analyzed using SPSS version 20.0, $p \geq 0.05$ significant level.

The results of the study unveiled majority 282 (73.4%) of the respondents have adequate knowledge of anemia in pregnancy. Majority 242 (63%) of the respondents adopt use of iron supplements and folic acid as a preventive measure against anemia in pregnancy. However, a large percentage (79.9%) of them avoid eating culturally forbidden foods rich in iron. Also, a good proportion 252 (62%) of the respondents have good perception on anemia in pregnancy. The findings based on the hypothesis revealed a significant association between respondents' antenatal clinic attendance and knowledge of preventive measures of anemia in pregnancy.

It was concluded that pregnant women's knowledge of preventive measures against anemia in pregnancy is paramount to healthy life in pregnancy and good pregnancy outcome.

Keywords

Preventive measures, Knowledge, Anemia, Pregnancy.

Introduction

Anemia is a global public health problem and is a major contributor to maternal deaths especially in developing countries [1]. Globally, it contributes to 20% of all maternal deaths. Anemia in pregnancy remains one of the most intractable public health problems in developing countries. It can lead to premature births, low birth weight and neonatal death.

Anemia has been defined by the World Health Organization [2] as "a condition in which the number of red blood cells (RBCs) or

their oxygen-carrying capacity is inadequate to meet physiologic demands in the body, in which the hemoglobin level may vary by age, sex, altitude, smoking, and pregnancy status" [3]. According to WHO, anemia in pregnancy is identified by hemoglobin level less than 11g/dl and can be categorized into three levels of severity; mild anemia (Hb level 9 - 10.9g/dl), moderate anemia (Hb level 7 - 8.9g/dl) and severe anemia (Hb level 7 - 4.5 g/dl) [4].

Anemia affects over two billion people globally, among whom over 40 million are pregnant women, where iron deficiency is thought to be the most common cause of anemia and it accounts for 75% - 95% of cases [5]. Iron deficiency and other micronutrients are the main cause of anemia throughout the world and it is common in

women of reproductive age where these deficiencies may lead to birth defects, preterm labor, low birth weight and resulting in an increase in perinatal death [6].

Moreover, malaria infection contributes to anemia throughout life, especially during pregnancy, and it is estimated that in sub-Saharan Africa 23 million pregnant women are exposed to malaria infection annually and approximately 400,000 pregnant women develop moderate or severe anemia each year [7].

Despite anemia having been identified as a global public health problem for several years, no rapid progress has been observed, and the prevalence of the disease is still high globally [8]. The WHO and the United Nations Children's Fund have stated that there is an immediate need to reduce the prevalence of anemia and highlighted the importance of identifying its numerous determinants, in order to reach the global nutrition targets of 50% reduction of anemia in women of reproductive age by 2025 [2]. Recent statistics indicate that anemia affects 57% of pregnant women globally with the highest prevalence in sub-Saharan Africa [9].

In Africa, the prevalence of anemia in pregnant women is reported to be 66.8% [10]. Furthermore, other studies in Africa have shown high prevalence of anemia in pregnancy ranging from 41 to 84% in different settings [11-13]. WHO identifies and categorizes anemia prevalence as a mild public health problem when it is between 5.0% and 19.9%, a moderate public health problem when it is between 20.0% and 39.9% and a severe public health problem when the prevalence is $\geq 40.0\%$ [14].

Material and Method

This study utilized a descriptive cross-sectional research design. The study elicited information about the preventive measures and knowledge of anemia in pregnancy among pregnant women attending antenatal clinic at Adeoyo Maternity Teaching Hospital, Ibadan. The hospital offers primary, secondary, tertiary and specialized health services to people of Ibadan and its environment. It also serves as a referral center for the South-Western parts of Nigeria. The hospital provides various care including ante-natal care, post-natal care, family planning and labor care. The study was conducted among pregnant women at ante-natal clinic. The clinic runs every day with about 60-70 pregnant women.

The study population was statistically determined using the formula:

$$n = 1 + N (e)^2$$

Where,

N = estimated population

n = required sample size

e = level of error tolerance 5%

$$n = \frac{2570}{1 + 2570 (0.05)^2}$$

$$n = \frac{2570}{7.425}$$

$$n = 346$$

To adjust for 10% Non-response rate due to nature of the population

$$n_f = \frac{n}{1 - NR}, NR = \text{Non-response rate } 10\%$$

$$n_f = \frac{346}{1 - 10\%}$$

$$n_f = \frac{346}{0.9}$$

$$n_f = 384$$

Antenatal clinic	Number of pregnant women
Adeoyo Maternity Teaching Hospital, Yemetu	2570
TOTAL	2570

Ethical approval was received prior to data collection from Ethical Review Board of University of Ibadan and University College Hospital. Consent was also obtained from the participants who indicated their willingness to participate having understood the details and the purpose of the study.

Data collection was by means of structured questionnaire containing 55 items developed after an in depth literature review. It consists of four sections: section A consists of questions to elicit data on the demographic variables; section B consist of knowledge of pregnant women on anemia in pregnancy; section C consists of perception of pregnant women towards anemia in pregnancy; section D consist of preventive measures against anemia in pregnancy, while section E consists of knowledge of preventive measures against anemia in pregnancy. Face and content validation of the instrument was done. The instrument was scrutinized by thorough literature review. No previous pilot study was done prior to the study. Data was analyzed using frequency and percentages.

Results

The results show that respondents with age range of 26 to 30 dominated the study with 152 (39.6%), while respondents with age range of 31 to 35 years was next with 141 (36.7%) and respondents with the age range of 36 and above were 11 (2,9%).

Respondents' socio demographic characteristics:

Three ethnic groups participated in the study, the Yoruba ethnic group were more in number in the study with 308 (80.2%) respondents. The study group consists of respondents from the two major religions in Nigeria with education level ranging from none 81 (21.1%) to tertiary education 136 (35.4%), the study population was also dominated 243 (63.7%) by traders. The study group respondents are more from extended families 173 (44.1%).

Details are shown in table 1.

Table 1: Socio-Demographic characteristics of the respondents.

Characteristics	Responses	Frequency N=384	Percentage (%)
Age at Birth	20 – 25 years	80	20.8
	26 – 30years	152	39.6
	31 – 35 years	141	36.7
	36 and above	11	2.9
Age at Marriage	18 – 20 years	94	24.5
	21 – 23 years	82	21.4
	24 – 25 years	138	35.9
	26 – 30 years	63	16.4
	31 years above	7	1.8
Marital Status	Single	13	3.8
	Married	336	87.5
	Divorced	19	4.7
	Separated	11	2.7
	Widowed	5	1.3
Tribe	Yoruba	308	80.2
	Hausa	16	4.2
	Igbo	50	13.0
	Others	10	2.6
Religion	Christianity	266	69.3
	Islam	108	28.1
	Traditional	7	1.8
	Others	3	0.8
Level of Education	No formal Education	81	21.1
	Primary Education	74	19.3
	Secondary Education	93	24.2
	Polytechnic	91	23.7
	University	45	11.7
Occupation	Students	64	16.3
	Trader	243	63.7
	Teaching	73	19.0
	Security officer	4	1
Estimated Monthly income	N 10,000-20,000	96	25.0
	N 20,001- 30,000	129	33.6
	N 30,001- 40,000	27	7.0
	N 40,001- 50,000	69	18.0
	N 50,001 - 100,000	38	9.9
	N 100,001 – 150,000	25	6.5
Parity	1	127	32.1
	2	114	29.7
	3	45	11.7
	4	38	9.9
	5	36	9.4
	6	13	3.4
	7	11	2.9
Type of Family	Nuclear family	142	37.0
	Extended family	173	44.1
	Others family	69	18.0

Attendance	One time	85	22.1
	Two times	83	21.6
	Three times	32	8.3
	Four times	87	22.7
	Five times and above	97	25.3

Respondents’ report on knowledge of pregnant women on anemia in pregnancy

The respondents demonstrated adequate knowledge on anemia in pregnancy with 282 (73.4%).

Table 2: Respondent knowledge of anemia in pregnancy.

Knowledge	Frequency	Percentage
Inadequate knowledge	102	26.6
Adequate knowledge	282	73.4
Total	384	100

Respondents’ report on preventive measures on anemia in pregnancy among pregnant women

Majority of respondents reported positive preventive measures on anemia in pregnancy. 268 (69.8%) reported that use of insecticides treated net can prevents anemia in pregnancy, also majority 242 (63.0%) reported that iron supplements and folic acid can prevent anemia in pregnancy. Many reported that avoidance of culturally forbidden foods during pregnancy prevents anemia in pregnancy. They also reported that personal, environmental and food hygiene is important in prevention of anemia 287 (74.7%). This same group indicated that its God that protects women during pregnancy 287 (69.3%).

Table 3: Respondents’ preventive measures on anemia in pregnancy among pregnant women.

Items	Yes (%)	No (%)	I don’t Know (%)
I eat four times a day	253 (65.9)	89 (23.2)	42 (10.9)
I use insecticides treated net	268 (69.8)	77 (20.1)	39 (10.2)
I use herbs and concoction during pregnancy	301 (78.4)	52 (13.5)	31 (8.1)
I avoids some culturally forbidden foods like snail during pregnancy	307 (79.9)	54 (14.1)	23 (6.0)
I prefer taking pica than eating food during pregnancy	280 (72.9)	65 (16.9)	39 (10.2)
Taking of Iron supplements and folic acid can prevent anemia during pregnancy	242 (63.0)	82 (21.4)	60 (15.6)
I prefer eating foods reach in carbohydrates during pregnancy in order to gain strength	257 (66.9)	98 (25.5)	29 (7.6)
I engage in Intermittent and early preventive treatment of malaria	264 (68.8)	64 (16.7)	56 (14.6)
God only protects a women during pregnancy, I don’t need to prevent anything	266 (69.3)	84 (21.9)	34 (8.9)
Personal, environmental and food hygiene is important to prevent anemia during pregnancy	287 (74.7)	40 (10.4)	57 (14.8)
I use over the counter drugs often to prevent anemia	287 (74.7)	46 (12.0)	51 (13.3)

Respondents report on factors influencing knowledge of preventive measures against anemia in pregnancy:

The respondents reported majority of factors influencing knowledge of preventive measures against anemia in pregnancy. A large number 278 (72.4) reported that its necessary to take supplements during pregnancy, 260 (67.7%) reported that attending antenatal clinic prevents anemia in pregnancy. Majority reported that smoking and drinking of alcohol during pregnancy can lead to anemia in pregnancy and that is why they avoid taking them now that they are pregnant. They also reported that increase of iron intake can prevents anemia.

Table 4: Respondents' Perceived factors influencing knowledge of preventive measures against anemia in pregnancy.

Items	Yes (%)	No (%)	I don't Know (%)
Is it necessary to take supplements during pregnancy?	278 (72.4)	59 (15.4)	47 (12.2)
Do you have to attend ant natal care clinic?	260 (67.7)	77 (20.1)	47 (12.2)
Do you use of insecticides treated nets?	264 (68.8)	62 (16.1)	58 (15.1)
God only protects a woman during pregnancy, I don't need to prevent anything?	244 (63.5)	76 (19.8)	64 (16.7)
Is personal environmental and food hygiene important to prevent anemia in pregnancy?	264 (68.8)	65 (16.9)	55 (14.3)
Do you drink alcohol during pregnancy?	292 (76.0)	49 (12.8)	43 (11.2)
Is it good to take Intermittent and early preventive treatment of malaria?	277 (72.1)	74 (19.3)	33 (8.6)
Do you increase your dietary iron intake during pregnancy?	309 (80.5)	43 (11.2)	32 (8.3)
Do you use of over the counter drug?	315 (82.0)	43 (11.2)	26 (6.8)
Do you take early treatment and control of infection and helminthes infestations like hookworm, guinea, worm during pregnancy?	305 (79.4)	49 (12.8)	30 (7.8)
Do you use de-worming medications?	314 (81.8)	54 (14.1)	16 (4.2)
Do you use herbs and concoctions during pregnancy? to prevent anemia?	181 (73.2)	50 (13.0)	53 (13.8)
Does smoking and drinking of alcohol during pregnancy lead to anemia in pregnancy?	287 (74.7)	59 (15.4)	38 (9.9)

Respondents report on perception of pregnant women on anemia in pregnancy

Majority of the respondents reported good perception of pregnant women on anemia in pregnancy 252 (66%). Details are shown in table 5.

Table 5: Perception of pregnant women on anemia in pregnancy.

Perception	Frequency	Percentage
High/good perception	252	66
Low/wrong perception	132	34
Total	384	100

Discussion

This study examines the preventive measures and knowledge of anemia in pregnancy among pregnant women attending antenatal clinic in selected hospital in Ibadan metropolis. The result of the finding reveals that majority of pregnant women in the selected hospital have adequate knowledge about anemia in pregnancy. This adequate knowledge about anemia can influence their practice of preventive measures during pregnancy.

This outcome corroborates the outcome of a study conducted on maternal knowledge and practices related to anemia and iron supplementation in Rural Malawi in 2009 by Kalimira, Mtmuni and Chilima, the findings shows that the knowledge of the study sample were as follows: Large majority of the women (96.6%) knew about anemia and most of them correctly indicated its causes, signs, prevention and treatment, about 78.5% indicated that eating adequate amounts of food is a means of preventing anemia, whereas iron supplementation and blood transfusion were stated as the main means to treat anemia. Eventually, this study shows that majority of the women have adequate knowledge regarding the definition, common signs and symptoms of anemia.

The result of the findings revealed that, out of 384 respondents that participated in the study 307 (79.9%) reported avoidance of culturally forbidden foods as preventive measures against anemia in pregnancy, 301 (78.4%) participants use herbs and concoction, 287 (74.7%) respondents reported personal environmental and food hygiene as important to prevent anemia during pregnancy while 287 (74.7%) use over the counter drugs often to prevent anemia in pregnancy. This is in line with Timothy, Ekwere, Anyiekere and Ekanem (2015) who conducted a study on maternal knowledge, food restriction and prevention strategies to anemia in pregnancy in University of Uyo Teaching Hospital in the year 2015. A substantial proportion of the respondents believed that nutritional supplements such as iron and folic acid, eating of balanced diet, regular antenatal check-up visits, deworming among others are important strategies that could help mitigate anemia in pregnancy.

Perception of pregnant women on anemia in pregnancy was examined and the result showed that majority of them reported high/good perception on anemia in pregnancy. This high/good perception has been established to have significant influence on preventive measures on anemia in pregnancy. This is in line with the outcome of a study carried out on anemia in pregnancy in a sahelian tertiary hospital in North-Eastern Nigeria by Kanuwa and Gadzama between June 2005 and 2006 and majority of them reported high perception of anemia in pregnancy While these results appear encouraging, it is important to not that good perception results in appropriate behavioral change and enhance their preventive measures on anemia in pregnancy. Hence, there is need to maintain and sustain this relatively high perception of anemia among these women as this may ultimately influence positive change

Conclusion

A healthy and varied diet is important at all times in life, but

particularly so during pregnancy. The maternal diet must provide sufficient energy and nutrients to meet the mother's usual requirements, as well as the needs of the growing fetus, and enable the mother to lay down stores of nutrients required for fetal development as well as for lactation. The dietary recommendations for pregnant women are actually very similar to those for other adults, but with a few notable exceptions. This becomes very important as anemia has been a long suffered ailment among pregnant women and, the utilization of balanced diet and appropriate feeding at pregnancy has been discovered a way out of the avoidable pregnant women stress thus, Hospital staff should educate pregnant women on the awareness and effect of anemia on their birth outcomes. This orientation should include the types of food to be taken during pregnancy and those that are not safe for consumption alongside reasons.

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