

# **Knowledge, attitude and practices regarding prevention of anaemia amongst non-pregnant women of reproductive age in rural communities of South-West Nigeria**

## **ABSTRACT**

### **Background:**

Anaemia in women of reproductive age (WRA) is a common health problem in the developing countries and non-pregnant WRA constitute the third most affected group after preschool-aged children and pregnant women. This study was carried out to assess the knowledge, attitude and practice regarding anaemia prevention amongst non-pregnant WRA in rural communities of South-West Nigeria.

### **Materials and Methods:**

This cross-sectional study was carried out among two hundred non-pregnant WRA aged 18-43 years. After ethical clearance was obtained, data which included socio-demographic, knowledge, attitude and practice-related issues were collected from the respondents with pretested interviewer-administered questionnaire which was designed by the authors, adjusted to local setting and pre-tested for congruency and exclusion of ambiguities.

### **Results:**

The mean age of the non-pregnant women of reproductive age in this study was  $31 \pm 7.6$  years. Many of the respondents, 82 of 200 (40.5%) were in the age group 35-43 years. More than half 106(53%) of respondents had secondary education. While only 18.5% of the respondents obtained their nutritional information from doctors/nurses, many (38%) got their information from neighbours, family members and friends. The knowledge score in this study was adequate 9.5%, moderate 67.5% and inadequate 23.5%. In all age groups, the highest scores were found in the average knowledge category and respondents in the 30-34 years age group had the

highest average knowledge score of 76.5%. Respondents with post-secondary education had the highest average and good knowledge scores while respondents with no education or those with primary education, had the worst scores. There was a significant relationship between marital status and level of knowledge. While housewives and farmers had poorest knowledge scores, artisans and the employed had the highest average and good knowledge scores.

**Conclusion:** Respondents had a fairly good knowledge relating to nutrition and majority of them had positive attitude and good practices in the prevention of anaemia. There is a need to improve the knowledge of the rural women on anaemia which will in turn enhance their practices. The community health personnel must play a vital role in healthcare delivery in these communities.

**Key Words:** Anaemia, knowledge, attitude and practice.

## **INTRODUCTION**

Anaemia is a global health challenge which affects around 40% of children and 30% of women of reproductive age (1). Non-pregnant women of reproductive age (WRA) constitute the third most affected group after preschool-aged children and pregnant women (2)

The WHO-defined haemoglobin (Hb) cut-offs specific to sex, age and pregnancy status, are most widely used in the diagnosis of anaemia, with the threshold being <12 g/dL for non-pregnant and <11 g/dL for pregnant women of 15–49 years of age(3).

Though interventions, policies and programs aimed at reducing anaemia in WRA have the potential to improve overall health of women and children and nutrition outcomes, relatively little progress has been made in reducing anaemia prevalence among the women of this age group(4).

Anaemia in non-pregnant WRA most especially in resource poor countries may be due to poor dietary intake, poverty, ignorance, disease, inadequate nutrients such as iron, folic acid and vitamin B12, blood loss from pregnancy and child birth, sickle cell disease (SCD), human immunodeficiency virus (HIV) infection, malaria and intestinal parasitic infestations such as

hookworm. However, in all of these, iron deficiency is thought to be the most common cause accounting for 50% of all causes of anaemia (2).

In rural communities of SW Nigeria, WRA are predisposed to anaemia due to poverty, exposure to contaminated water, poor sanitary conditions, cultural/religious beliefs and practices in food restrictions (5). Since age and level of education are factors that affect knowledge of good nutrition, majority of women in these regions have poor knowledge of a balanced diet and therefore do not get enough nutrients in their diet(5).

Findings of a study by Shukla et al revealed that WRA had inadequate knowledge on iron deficiency anaemia (IDA) and its prevention (6). It is believed that in WRA, anaemia most especially IDA can be prevented and treated through proper guidance and awareness through education (7).

Women with anaemia most especially IDA depending on its severity, may be asymptomatic, may complain of fatigue, low energy level and low mental concentration. They are more susceptible to infection and are prone to an increased chance of preeclampsia and postpartum hemorrhage (8).

In our earlier study on pregnant women in the rural communities of SW Nigeria, we found out that many of them were anaemic at booking and could have become pregnant with sub-optimal haemoglobin concentrations (9). This we later confirmed in another study on non-pregnant WRA in the same community where majority of them were also anaemic (10).

The aim of this study was to assess the knowledge, attitude and practices regarding anaemia prevention amongst non-pregnant women of reproductive age in these rural communities of South-West Nigeria.

## **MATERIALS AND METHODS**

### **Profile of the study area**

This cross-sectional study was carried out from July 2021 to February 2022 in Ikenne Local Government Area of Ogun State, Nigeria. Ikenne Local Government is one of the three local government areas where Remo people are found. The other two local governments are Sagamu and Remo North Local Governments. According to Nigeria Population Census of 2006, Remo

Land had a population of 628,560 people (Ikenne LG-165,700; Sagamu LG-253,421; Remo North LG- 209,439) (11) Remo land which is within latitude 60° South and 90° North and Longitude 20 30 mins West and 60 30 mins East has a tropical climate, a land area of 971.0 Km<sup>2</sup>, a temperature range of 27° C - 29° C and annual rainfall of 105-128 cm (12).

### **Study Population**

Two Hundred non-pregnant women of reproductive age with age range 18-43 years were recruited for the study.

### **Inclusion Criteria**

Included in the study were women who had no evidence of chronic inflammatory disorders such as tuberculosis, human immunodeficiency virus, diabetes mellitus and those with inherited anaemic disorders such as sickle cell anaemia, thalassaemia and glucose -6-phosphate dehydrogenase deficiency.

### **Exclusion Criteria**

Women with history of chronic inflammatory disorders such as tuberculosis, human immunodeficiency virus, diabetes mellitus and those with inherited anaemic disorders such as sickle cell anaemia, thalassaemia and glucose -6-phosphate dehydrogenase deficiency were excluded.

### **Study design, data collection, instrument and procedures:**

Pre-tested interviewer-administered questionnaire which included socio-demographic, knowledge, attitude and practice-related issues, was used to collect data. The questionnaire was designed by the authors and adjusted to local setting and pre- tested for congruency and exclusion of ambiguities. It was refined thereafter and applied in the target population. The English version of the questionnaire was translated into the native language of the study area and then translated back to English language by language and public health experts.

Three days of training was given to data collectors and supervisors. Pretest was done on 5% of the total sample size out of the study area in any of the Health Centres. During pre-test, the

applicability of data collection procedures and tools were evaluated. Regularly, all questionnaires were checked for completeness, clarity and consistency by the supervisors and investigators including dietitians.

The section on knowledge on nutrition and anaemia was divided into 3 subsections with questions relating to balanced diet, sources of iron-rich foods and health risks of iron shortage. There were TEN questions on attitude of respondents towards anaemia and FIVE on practices on prevention of anaemia.

Respondents were expected to tick the correct options in each section. One mark was awarded for identifying the correct answers while zero mark was awarded for wrong answers. The total knowledge score was 10 marks and 1-4 marks out of 10 marks was considered as poor, 5-7 as average and 8-10 as good.

### **Ethical Considerations**

Ethics clearance was granted from the Office of the Medical Officer of Health (MOH), Ikenne Local Government Area of Ogun State, Nigeria with approval Memo number **IKLG 102/21** dated 27 June 2019. Informed consent was sought from the respondents surveyed who were assured of confidentiality of information.

### **Data processing and analysis**

Data was analyzed using the Statistical Package for Social Sciences (SPSS) version 20. Descriptive statistics, including frequencies and proportions were used to summarize the variables. A Chi-square analysis was done to determine the association between variables. Variables with a P-value of  $<0.05$  was used to declare the statistical significance in the study.

## **RESULTS**

### **Sociodemographic characteristics of the respondents**

The mean age of the non-pregnant women of reproductive age in this study was  $31 \pm 7.6$  years while age range was 18-43 years. As shown in Table 1, many of the respondents, 82 of 200 (40.5%) were in the age group 35-43 years. This was followed by respondents in the age group 18-24 years with 32%. Respondents in the age group 30-34 years (12.5%) were the least. With regards to tribal groupings, majority, 139(69.5%) of respondents were of Yoruba extraction; respondents of Ibo extraction were (23.5%) while the Hausa/Fulani were the least with 1.5%. Many, 114(57%) of the respondents were married. Respondents who were single were 75(37.5%) and only 11(5.5%), were divorced or separated. With regard to education, more than half 106(53%) of respondents had secondary education. This was followed by those with tertiary education (36%) and those with primary education (10%). Only two respondents (1%) had no education.

Most, 123(61.5%) of the respondents were self-employed as artisans or traders. Following this group were 37(18.5%) respondents who were employed as teachers, cleaners, messengers in small/medium enterprises. The rest were farmers (15%) and housewives (5%).

### **Knowledge on Nutrition and Anaemia**

The knowledge score in this study was adequate, 9.5%, moderate 67.5% and inadequate 23.5%. Sources of nutritional information included doctors/nurses 18.5%; TV/radio 13.5%, neighbours/family members/friends 38%, Schools 21% and social media 8.5%. Table 2 shows the respondents' knowledge scores on nutrition and anaemia. Majority of respondents knew the definition of balanced diet. About 85% of them could correctly define a balanced diet as a diet that is adequate in all nutrients that are needed to stay healthy. They also knew it is not a diet that one eats to fill the stomach (91.5%) or diet that one likes to eat (97%), that makes one fat (96.5%). However, only 3 (1.5%) of respondents could list foods that are rich in iron such as the animal protein group- beef, liver, chicken, egg (67.5%); vegetables (56%) and only few (12%) knew that beans and peanuts are rich in iron. Majority of respondents knew foods that are poor sources of iron such as the carbohydrate group- bread, yam, white rice (94.5%); tea or coffee (32.5); sweets, biscuits, carbonated drinks (100%) However, less than half of them knew

the health risks of iron shortage such as dizziness (43%), weakness/fatigue (45%). Only a few (7%) knew that iron shortage could cause headache.

The association between demographic characteristics and knowledge score is shown in Table 3. Though best and poorest scores were found in respondents in the 18-24 years age group, the highest scores were found in the average knowledge category in all age groups. Respondents in the 30-34 years age group had the highest average knowledge score of 76.5%. This was followed by age group 35-43 years and 18-24 years with 70.7% and 62.5% scores respectively. Age group 25-29 years had the lowest average knowledge score of 55.2%.

Artisans (68%) and the employed (64.9%) groups had better knowledge score than housewives (40%) and farmers (40%) in the average knowledge category. Farmers (76.7%) and housewives (60%) also had the highest poor knowledge score. None of the farmers and housewives was in the good knowledge score.

In the marital status group, all the respondents had their highest score in the average knowledge category with the single women scoring the highest percentage (70.7%). This was followed by married women (62.3%), the same group with the highest poor score 27.2%. Divorced or separated women though had the lowest average knowledge score, had the highest good knowledge score of 27.3%.

All the respondents, except those with no formal education who had the highest poor knowledge score, also had their highest score in the average knowledge category. This was followed by those with primary education with 40%. Those with post-secondary education had the highest average knowledge score 68.1%. They also had the highest score in the good knowledge category and the lowest in the poor knowledge category. Finally, none of the respondents with no formal education and primary education had good knowledge score.

### **Attitude and Practices on Nutrition and Anaemia**

Table 4 shows the distribution of respondents regarding their attitude towards nutrition and anaemia. Results showed that on a 3-point scale (1-disagree; 2-neither agree/disagree; 3-agree), majority of respondents agreed that regular blood checks are essential in pregnancy

(92.5%); 75% considered anaemia to be dangerous; that anaemia is a common problem in pregnancy (62%); that it is possible to prevent anaemia in pregnancy (78.5%). However, more than half of respondents (60%) claimed they had not heard of anaemia or iron deficiency anaemia before. About 57.5% disagreed that it is difficult to afford special diet in pregnancy. While about half 102(51%) do not know, less than half 83(41%) of respondents disagreed that preparing iron rich diet can be difficult. Finally, only 67(33.5%) respondents believed that it is difficult to treat anaemia during pregnancy.

Respondents' practices on prevention of anaemia are shown in Table 5. Only 7 of 200(3.5%) respondents had a practice of eating more than three times daily. About 65% also engaged in practices of drinking tea or coffee regularly. However, majority (90%) regularly eats food that is rich in iron (meat, liver, chicken, some vegetables) and 97% of them do not eat mainly carbohydrate diet regularly.

**Table 1: Socio-demographic characteristics of respondents**

<b>Variables</b>		<b>N(%)</b>
Age (years)	18-24	64(32)
	25-29	29(14.5)
	30-34	25(12.5)
	35-43	82(41)
Tribe	Yoruba	139(69.5)
	Ibo	47(23.5)
	Hausa	3(1.5)
	Others	11(5.5)
Marital status	Single	75(37.5)
	Married	114(57)
	Divorced/separated	11(5.5)
Education	None	2(1.0)
	Primary	20(10)
	Secondary	106(53)
	Tertiary	72(36)
Occupation	Housewife	10(5)
	Farmer	30(15)
	Artisan/trader	123(61.5)
	Employed	37(18.5)

**Table 2: Knowledge on nutrition and anaemia**

<b>Statement</b>	<b>Correct</b>	<b>Wrong</b>		
<b>Balance diet</b>	1. A diet that one eats to fill the stomach	183	17	
	2. A diet that is adequate in all nutrients that are needed to stay healthy	170	30	
	3. A diet that contains what one likes to eat	194	6	
	4. A diet that makes one fat	193	7	
<b>Iron rich foods</b>	1. List five foods that are rich in iron	3	197	
	2. Which of these food groups are rich sources of iron			
	a. Pumpkin leaves(ugu), Jute(ewedu), Amaranthus (tete), Spinach	112	88	
	b. Meat, liver, chicken, fish	135	65	
	c. Beans, Groundnut, cashew nut, walnut	24	176	
<b>Knowledge</b>		<b>N</b>	<b>%</b>	
	d. Bread, yam, white rice, cocoyam	189	11	
	e. Tea, coffee	65	135	
	f. Sweets, biscuit, carbonated drinks	200	0	
	<b>Health risk of iron shortage</b>	a. Dizziness	86	124
		b. Weakness/fatigue	90	110
c. Stooling frequently		197	3	
d. Headache		14	186	

Poor	47	23.5
Average	134	67
Good	19	9.5

**Table 3: Association between demographic characteristics and knowledge score**

Total	Poor knowledge n(%)	Average knowledge n(%)	Good knowledge n(%)	X <sup>2</sup>	df	P-value
<b>Age</b>				11.6	6	0.072
18-24	64	16	40			
25-29	29	12	16			
30-34	25	4	19			
35-43	82	14	58			
<b>Occupation</b>				1.04	4	0.904
Housewife	5	3	2			
Farmer	30	23	7			
Artisan	128	28	87			
Employed	37	8	24			
<b>Marital status</b>				8.5	4	0.000
Single	75	15	53			
Married	114	31	71			
Div/Sep	11	2	6			
<b>Educational status</b>				4.28	4	0.369
None	2	0	0			
Primary	20	8	12			
Secondary	106	28	60			

**Table 4: Attitude towards anaemia**

Statement	Agree	Disagree	I Don't Know
Regular blood checks are essential in pregnancy	185	12	3
Anaemia is considered to be dangerous in pregnancy	150	25	25
I have heard of iron deficiency anaemia before	21	120	59
Preparing iron rich diets can be difficult	15	83	102
Anaemia is a common problem in pregnancy	124	22	54
It is essential to take a special diet during pregnancy	127	43	30
It is possible to prevent anaemia during pregnancy	157	30	13
It is difficult to afford a special diet during pregnancy	42	115	43
It is difficult to treat anaemia during pregnancy	67	94	39
Pregnant women should take iron supplement regularly	82	33	85

**Table 5: Practices on prevention of anaemia**

Statement	Yes	No
Eats more than three times daily	7	193
Eats food rich in meat, liver, fish and vegetables	180	20
Eats mainly carbohydrate rich foods	6	194
Drinks tea and or coffee regularly	130	70

## DISCUSSION

Anaemia most especially IDA is one of the foremost health issues among WRA. With the current trend it is unlikely that the World Health Organization's target of 50% global reduction of anaemia among women of reproductive age by 2025 will be achievable (13).

There is a need to improve the health care services and more importantly knowledge among the women on topics relating to anaemia and its prevention (14) because adequate maternal knowledge on anaemia may encourage women to take iron supplements during pregnancy and after childbirth.

The knowledge score in this study was adequate in 9.5%, moderate in 67.5% and inadequate in 23.5%. This shows that the respondents had a fairly good knowledge relating to nutrition. The moderate score obtained in this study almost agrees with a similar study conducted by Shukla et al from India, where it was reported that 72% had moderate knowledge score but had higher (22%) adequate knowledge score and lower (6%) inadequate knowledge score (6). However, in a cross-sectional study done in Indonesia in women in reproductive age in health care facility,

respondents had lower (52.1%) moderate(fair) level of knowledge 43.7% had good (adequate) level of knowledge and only 4.2% with poor (inadequate) level of knowledge about iron-deficiency anaemia (15). This shows that respondents in their study had a better knowledge of anaemia than those in our study. It is however in contrast to a report from a cross-sectional study conducted in 330 female adolescents aged between 15-19 years from five schools in Gaza strip, Palestine, where about 91.6% have no knowledge about the causes of IDA (16).

Creating more awareness among WRA through the implementation of health education programs regarding diet rich in iron, importance of regular intake of iron supplementations and complications of anaemia in WRA will prevent or at least reduce the incidence of IDA in pregnancy and thereby reduce maternal mortality. This is because health education constitutes an important approach to educating WRA on exposures, risk factors, essential nutritional ingredients and the importance of iron supplementation during pregnancy (17)(18).

Though relationships existed between age, occupation, marital and educational status towards level of knowledge, it was only significant between marital status and level of knowledge. Sry Suryani Widjaja et al also found no significant relationship between age and occupation towards level of knowledge in their study (15).

With educational status, respondents with post secondary education had the highest average and good knowledge scores while respondents with no education or those with primary education, had the worst score. This finding is similar to a report by Shukla et al which found significant relationships between educational status and level of knowledge (6).

Majority of respondents had positive attitude towards prevention of anaemia. This is revealed by the fact that many of them agreed that regular blood checks are essential especially in pregnancy; that anaemia is dangerous and is a common problem in pregnancy and it is essential to take special diet in pregnancy. However, awareness on iron deficiency anaemia was poor in majority of them as they did not believe that pregnant women should take iron supplement in pregnancy. This is contrary to a report from Pakistan in which majority of the women surveyed were aware of IDA (7).

In our study, respondents' practice towards prevention of anaemia was good. Though most of them did not eat between meals, they ate food rich in iron such as meat, liver, vegetables. They did not eat mainly carbohydrate food and a large proportion of them did not drink tea or coffee. This is contrary to a study carried out by Tashara et al, where majority of women of reproductive age did not give much importance for dietary iron and therefore did not have favourable practices on prevention of IDA (18)).

## CONCLUSION

Respondents had a fairly good knowledge relating to nutrition and majority of them had positive attitude and good practices in the prevention of anaemia. Since, assessments of knowledge and practice and health education are essential step towards prevention of anaemia in pregnancy, there is a need to improve the knowledge of the rural women on anaemia which will in turn enhance their practices. The community health personnel must play a vital role in healthcare delivery in these communities.

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