AWARENESS, KNOWLEDGE AND THE HEALTH IMPLICATIONS OF ANAEMIA AMONG PREGNANT WOMEN ATTENDING ANTENATAL CLINIC IN CENTRAL HOSPITAL, WARRI NIGERIA

Oluwakemi Ajike Kolade RN, PhD[1], Victoria Funmilayo Hanson RN, PhD [2], Olayinka Senami Adebiyi RN, BNSc[3], Rachael Egoh RN, BNSc[4].

1. Faculty of Nursing Sciences, Ladoke Akintola University of Technology, Ogbomoso
2. Ras Al Khaimah Medical and Health Science University, RAK College of Nursing, Ras Al Khaimah, United Arab Emirate
3. Department of Nursing Science Afe Babalola University, Ado-Ekiti
4. Department of Obstetrics & Gynecology, Central Hospital, Warri

*Corresponding Author: Victoria Funmilayo Hanson Ras Al Khaimah Medical and Health Science University, RAK College of Nursing, Ras Al Khaimah, United Arab Emirate

ABSTRACT

Background: Anemia constitutes a major health challenge globally and has attracted attention towards curtailing its prevalence and it has been established to cause complications during child birth. **Aim**: The study aimed at investigating the awareness, knowledge and the health implications of anaemia among pregnant women attending antenatal clinic in central Hospital, Warri. **Methodology:** A descriptive cross sectional survey design using questionnaire adapted from predicting health behavior with social cognition models of MacKian with reliability of Cronbach's Alpha. 0.71 was used to gather data from 100 pregnant women selected through convenience sampling technique. Data collected was analyzed using SPSS version 21.0., regression analysis and Analysis of Variance
Results: Findings revealed that the relationship between awareness and knowledge of anaemia among the pregnant women is significant, however there is no significant difference in level of awareness of anaemia among the pregnant women with socio- demographic characteristics; also there is no significant relationship between the level of awareness and the health ensuring strategies undertaken to curtail anaemia during pregnancy. **Conclusion:** There is need to increase the level of awareness of anaemia among pregnant women in Warri, Nigeria towards ensuring better health ensuring strategies and prevention of maternal and neonatal morbidity and mortality.

Key words: Awareness, Knowledge, Health Implications, Anaemia, Pregnant Women

Introduction

Anaemia constitutes a major health challenge globally and has attracted attention towards curtailing its prevalence. In the United Nation's Millennium Development Goals (MDGs), reducing child mortality and improve maternal health was a major goal (goals 4 and 5) for attaining development for 2015. To correct this failure in African continent and their inability to succeed in the MDGs, a new development strategy and plan was initiated known as the Sustainable Development Goals (SDGs) on September 2015, by the General Assembly adopted the 2030 Agenda for Sustainable Development that includes 17 Sustainable Development Goals (SDGs) where ensuring good health and well-being, as goal three of the sustainable development goals (SDGs) has been a fundamental objective in transforming the global world economy. Shettima (2016) noted that Africa such as Nigeria plays a very important role in the attainment of the SDGS due to the fact that the SDGs will only succeed, if they succeed in Africa. To this end, there is a need to focus on Africa as a focal point at the planning, strategic, process and implementation levels of development. A major factor to this SDGs attainment is the increase of the level of awareness and knowledge of relevant health challenges such as Anemia.

Anemia could refer to as a reduction in the concentration of hemoglobin, packed cell volume or red blood cell count below that which is normal for the age and sex of an individual in a population (Okafor, Mbah&Usanga, 2012). It occurs below the levels of hemoglobin of 11g/dl for children aged six months to six years, 12g/dl for children aged between 6 and 14 years, 13g/dl for adult males, 12g/dl for non-pregnant adult females and 11g/dl for adult pregnant females. For pregnant women, World Health Organization (2011) noted that, maternal anemia occurs at a Hemoglobin (Hb) level of <11g/dl, or Hematocrit (Hct) of <33% in all trimesters of pregnancy and could be very dangerous to the life of the baby and the mother. According to Okafor et al. (2012), it is one of the clinical problems in pregnancy that is usually caused by increase demand imposed by the growing fetus and the most common symptom of malaria in pregnancy and usually develops during the second trimester. Qureshi, Rafique, Mahmood, Amin &Zaka (2011) noted that it is caused by nutritional deficiency and generally results when the iron demands need by the body are not met by iron absorption, regardless of the reason. There are several types of anaemia and could include Iron deficiency anaemia; Thalassemia; A-plastic anaemia; Hemolytic anaemia; Sickle cell anaemia; Pernicious anaemia; Fanconi anaemia; among others.

Noting the different types of anaemia, it is important to investigate the knowledge and awareness among pregnant women; its health consequence and implication of anaemia among pregnant women. Batool, Zafar, Maann and Ali (2010); Balarajan, Ramakrishnan, Özaltin, Shankar, and Subramanian (2011) and Suryanarayana, Santhuram, Chandrappa, Shivajirao and Rangappa (2016) noted that there is poor awareness and knowledge of the magnitude and consequences of anaemia burden and it is higher among developing countries such as Nigeria. In addition, there is a lack of education and information about anaemia prevention, and awareness of benefits of appropriate intervention; poor compliance with iron

supplementation; little individual and community awareness of anaemia status due to latent symptoms and signs (Balarajan et al., 2011).

Moreover, Adamu et al. (2017) noted that anemia has diverse health consequences which are fatigue and congestive cardiac failure. Balarajan et al (2011) noted that consequences of anaemia could include maternal and perinatal effect; cognitive development effect, work productivity effect, among others. According to Mayo Foundation for Medical Education and Research (MFMER) (2019), consequences of anaemia to pregnant women include severe fatigue, pregnancy complications, heart problems, and finally death. In addition, there may also be an increased blood loss at delivery which could put women at risk of postpartum hemorrhage, greater risk of delivering premature and low-birth-weight babies who have an increased risk of dying, etc. These consequences could be the major reason why the sustainable development goals (SDGs) include the enhancement of health challenges and well-being in transforming the global world economy hence, the need for this study toward the attainment of the sustainable development goals in Nigeria.

Statement of Problem: According to Okik (2012); Dattijo, Daru and Umar(2016); Department of Health, Government of South Australia (2019), the lack of awareness and knowledge of aneamia can affect the level of health consequences and the strategies deployed to curtail anaemia. Hence, the need to investigate the level of awareness and also the health implication of anaemia among pregnant women.

Aim: This study investigated the level of awareness and knowledge and the health implications of anaemia among pregnant women attending antenatal clinic in central Hospital, Warri.

Research questions:

i. Are pregnant women attending antenatal clinic in central Hospital, Warri aware of anaemia?
ii. Are pregnant women attending antenatal clinic in central Hospital, Warri knowledgeable about anaemia or not?
iii. What are the various health implication of anaemia among pregnant women attending antenatal clinic in central Hospital, Warri?

Hypotheses

Tested at 0.05 level of significance:

Ho_1: There is no significant relationship between the level of awareness and the knowledge of anaemia status among pregnant women in central hospital, Warri.

Ho_2: There is no significant difference in the level of awareness with respect to the demographic characteristics of pregnant women in central hospital, Warri.

Ho_3: There is no significant relationship between the level of awareness and the health ensuring strategies undertaken to curtail anaemia during pregnancy among pregnant women in central hospital, Warri.

Literature Review

Anaemia has been widely studied and it has been revealed that Africa has the highest prevalence of anaemia in the world. an average of 56% of pregnant women have anaemia in developing countries such as Nigeria and, 18% prevalence rate in industrialized countries (Suryanarayana et al., 2016). In the USA, Brabin, Hakimi and Pelletier (2001) and VanderJagt, Brock, Melah, El-Nafaty, Crossey, and Glew (2007) noted that, less than 30% of pregnant women develop anaemia, whereas the prevalence rates in Africa, Asia, and Latin America range from 35% to 75%. Furthermore, World Health Organization (1992) found that maternal deaths that resulted from anaemia range from 34 per 100,000 live births in Nigeria which shows a very huge statistics and therefore points to the grave consequence of anaemia among pregnant women.

Also, since this study focuses on the level of awareness and knowledge of anaemia, it is important to know previous studies. Balarajan et al. (2011) and Osungbade and Oladunjoye (2012) have noted that there is an increasing level of awareness and knowledge of anaemia. According to Balarajan et al. (2011), the lack of information and awareness of anaemia is an appropriate interventional strategy to curtailing anaemia among pregnant women. Batool et al. (2010) noted that awareness and knowledge of anaemia is low among pregnant women in Pakistan. In Nigeria, awareness and knowledge of anemia, sign and symptoms of anemia, proper diet to prevent anemia is poor (Yadav, Swamy and Bijendra, 2014). The result of Yadav et al (2014) could show evidence of poor awareness and knowledge level of anaemia. However, there seems to be a gap on studies relating to the level of knowledge and awareness among pregnant women. To this end, there is need to know the present level of the awareness and knowledge in Nigeria to be able to know the strategies that could be deployed to cushion the giant health development challenge towards the attainment of SDGs in Nigeria.

Furthermore, in pregnancy, anaemia has a significant impact on the health of the foetus as well as that of the mother (Nwizu, Iliyasu, Ibrahim, Galadanci 2011). The deleterious effects of anaemia in pregnancy include increased risk of maternal and foetal morbidity and mortality, preterm delivery, and low birth weight (Ahmad, Kalsoom, Sughra, Hadi&Imran, 2011; Sanam, 2013). Adamu et al. (2017) noted that consequences of anaemia could include maternal and perinatal effect; cognitive development effect, work productivity effect, fatigue and congestive cardiac failure; among others. Mayo Foundation for Medical Education and Research (MFMER) (2019) noted that the consequences of anaemia during pregnancy among women could include severe fatigue, pregnancy complications, heart problems, and finally death. According to Beard & Stoltzfus (2001), anaemia had six health outcomes: child mortality, maternal mortality, birth outcomes, morbidity, work productivity and child development. An anemic pregnant woman succumbs easily to obstetric haemorrhage and puerperal infection which are important causes of maternal mortality in developing countries. Severe anaemia is an important contributor to maternal death through the development of heart failure, particularly around the time of delivery (Anorlu, Oluwole, and Audu, 2006).

These health outcomes make anaemia a major health challenge in the world but higher in developing countries such as Nigeria hence, the need for this study.

Methodology

Study design

Descriptive survey design was used to investigate the level of awareness and knowledge and the health implications of anaemia among pregnant women.

Setting

The study was conducted in Shasha Community in Ado Local Government area, Ekiti State, Nigeria.

Population

100 ante natal women was used for the study selected using a convenience sampling technique

Tool and validity

One tool was developed by the researchers; a structured interviewing questionnaire which consists of four major sections namely: the demographic characteristics of respondents, health implications of anaemia and the strategies deployed to curtail them, and the level of awareness and knowledge of anaemia among pregnant women and factors that causes anaemia in pregnancy..

The content and construct validity of the research instruments was done to ensure that items in the instrument meet the desired research objective, questions and hypotheses of the study. Also, a reliability analysis was done using the Cronbach's alpha and yielded coefficients of .71 for health implications of anaemia;74 for the strategies deployed to curtail anaemia, 0.70 for the level of awareness; 0.69 for the level of knowledge of anaemia; and 0.65 for genetic factors, 0.75 for maternal factors, 0.67 for nutritional, and 0.81 for infectious agents

The predicting health behavior and social cognition was measured using adapted MacKian (2003) health belief model. The range of behaviors examined was categorized into broad

areas: preventive health behaviors, sick role behaviors and clinic use; threat perception and behavioral evaluation. The study used conceptual framework to support this study as presented in Figure 1:

Ethical considerations:

Ethical approval was obtained from the ethical committee of Ladoke Akintola University of Technology, Ogbomosho and the Gynecology & Obstetric Department central hospital, Warri, Delta state.

An informed oral consent was obtained from all participants who were willing to participate in the study after explanation of the purpose of the study, the benefits, the nature, the process and expected outcomes of the study. All rights, anonymity and confidentiality of the respondents were respected and they have the right to withdraw from the study at any time regardless of the cause.

Field work

Data was collected through a period of five weeks from February 2019 to March 2019 on Fridays after the mosque prayers in Central Hospital, Warri. 70 % of the women were illiterates so questions were interpreted to each woman in the local language by four research assistant who were nurses. Researchers met the women interview was carried out in the waiting area of the mosque and it took about 30 minutes for each one.

Instrument:

The questionnaire has four major sections namely: the demographic characteristics of respondents, health implications of anaemia and the strategies deployed to curtail them, and the level of awareness and knowledge of anaemia among pregnant women and factors that causes anaemia in pregnancy which is also divided into five sub sections: genetic factors, maternal factors, nutritional, and infectious agents. In section two, three and four, the variables of this study was captured in a likert scale.

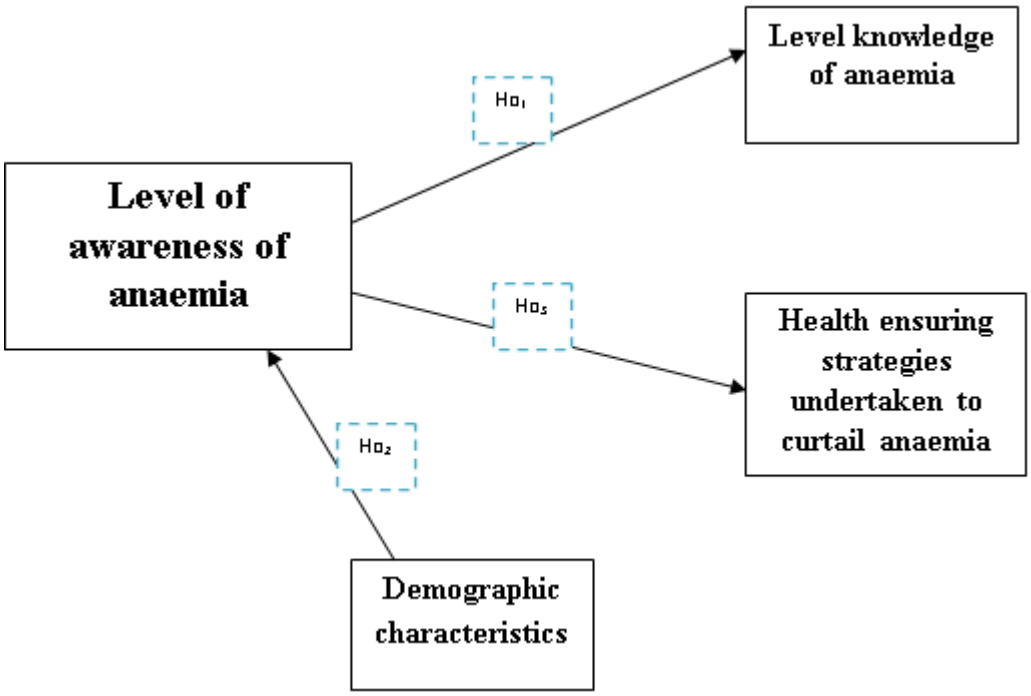

Figure 1: Increase awareness and knowledge of Anaemia model

From the conceptual framework (increase awareness and knowledge of anaemia model), there are four major variables: level of awareness, level of knowledge, health ensuring strategies to curtail anaemia and the demographic characteristics of pregnant women. It is assumed that the level of awareness could influence both the level of knowledge and also health ensuring strategies to curtail anaemia. It is also assumed that there could be different levels of awareness with respect to the socio-demographic characteristics of pregnant women hence, their use in this study.

Data analysis:

Data was collected and analyzed by computer program SPSS version 21. The quantitative variables were presented in tables as numbers and percentage; and analyzed by ANOYA, p-

value < 0.05 was considered to be statistically significant and regression model to examine the relationship between and among variables of interest in the study.

Results/Findings

The result of this study is presented in three subsections of this section namely: demographic characteristics; the responses to research questions and the hypotheses testing presentation.

Table 1: Demographic Characteristics of Respondents

Demographic Characteristics		Frequency	Percent
Age	Below 20 Years	17	17.0
	21-25 years	23	23.0
	26-30 years	30	30.0
	31-35 years	13	13.0
	Above 35 years	13	13.0
	Missing System	4	4.0
	Total	100	100.0
Marital Status	Single	14	14.0
	Married	66	66.0
	Separated	5	5.0
	Widowed	2	2.0
	Missing System	13	13.0
	Total	100	100.0
Education level	No formal education	6	6.0
	Primary education	8	8.0
	Secondary education	57	57.0
	Tertiary education	26	26.0
	Missing System	3	3.0
	Total	100	100.0
Occupation	Farming	10	10.0
	Self entrepreneur	51	51.0
	Civil servant	22	22.0
	Medical practitioner	5	5.0
	Student	7	7.0
	Missing System	5	5.0
	Total	100	100.0

Table 1 shows that respondents who are between the age brackets 26-30 years has the highest percentage (30%) and those who are married has the highest percentage (66%).Secondary

education has the highest percentage (57%), while those who had no formal education has the lowest percentage (6%). Self-entrepreneurs have the highest percentage (51%), while respondents who are medical practitioners has the lowest percentage (5%). This implies that pregnant women used for this study have moderate demographic characteristics.

Research Questions

Research Question one: Are pregnant women attending antenatal clinic in central Hospital, Warri aware of anaemia?

Table 2: Level of Awareness of Anaemia among pregnant women

Awareness of Anaemia		Frequency	Percent
I am aware that anaemia affect pregnant women	Disagree	4	4.0
	Agree	90	90.0
	Missing System	6	6.0
	Total	100	100.0
Fatigue is a major symptom of anaemia	Disagree	13	13.0
	Agree	82	82.0
	Missing System	5	5.0
	Total	100	100.0
Weakness is a major symptom of anaemia	Disagree	16	16.0
	Agree	75	75.0
	Missing System	9	9.0
	Total	100	100.0
Pale or yellowish skin is a major symptom of anaemia	Disagree	13	13.0
	Agree	84	84.0
	Missing System	3	3.0
	Total	100	100.0
Irregular heartbeats is a major symptom of anaemia	Disagree	4	4.0
	Agree	92	92.0
	Missing System	4	4.0
	Total	100	100.0
Shortness of breath is a major symptom of anaemia	Disagree	14	14.0
	Agree	83	83.0
	Missing System	3	3.0
	Total	100	100.0
Dizziness or lightheadedness is a major symptom of anaemia	Disagree	13	13.0
	Agree	78	78.0
	Missing System	9	9.0
	Total	100	100.0
Chest pain is a major symptom of anaemia	Disagree	13	13.0
	Agree	84	84.0

	Missing System	3	3.0
	Total	100	100.0
Cold hands and feet is a major symptom of anaemia	Disagree	15	15.0
	Agree	82	82.0
	Missing System	3	3.0
	Total	100	100.0
Headache is a major symptom of anaemia	Disagree	1	1.0
	Agree	97	97.0
	Missing System	2	2.0
	Total	100	100.0

Table 2 shows that 90% are aware that anaemia affect pregnant women. 82% stated that fatigue is a major symptom of anaemia; while 84% stated that pale or yellowish skin is a major symptom of anaemia. Also 92% stated that irregular heartbeats is a major symptom of anaemia while 97% stated that headache could also be one of the major symptoms of anaemia.

Research Question two: Are pregnant women attending antenatal clinic in central Hospital, Warri knowledgeable about anaemia or not?

Table 3: Level of Knowledge of Anaemia among pregnant women

		Frequency	Percent
Anaemia is a deadly challenge in pregnant women	Disagree	6	6.0
	Agree	93	93.0
	Missing System	1	1.0
	Total	100	100.0
It can affect the health of the mother	Disagree	10	10.0
	Agree	87	87.0
	Missing System	3	3.0
	Total	100	100.0
It can also affect the health of the child in pregnancy	Disagree	11	11.0
	Agree	82	82.0
	Missing System	7	7.0
	Total	100	100.0
Anaemia is a condition where the number of red blood cells or the oxygen-carrying capacity in a pregnant woman is insufficient to meet the physiologic needs	Disagree	7	7.0
	Agree	88	88.0
	Missing System	5	5.0
	Total	100	100.0

Maternal anemia occurs at a Hemoglobin (Hb) level of <11g/dl, or Hematocrit (Hct) of <33% in all trimesters of pregnancy	Disagree	6	6.0
	Agree	90	90.0
	Missing System	4	4.0
	Total	100	100.0

Table 3 shows that 93% stated that anaemia is a deadly challenge in pregnant women that it can affect the health of the mother and the child in pregnancy. In addition, 88% of the respondents stated that anaemia refers to a condition where the number of red blood cells or the oxygen-carrying capacity in a pregnant woman is insufficient to meet the physiologic needs and maternal anemia is a condition that occurs at a Hemoglobin (Hb) level of <11g/dl, or Hematocrit (Hct) of <33% in all trimesters of pregnancy.

Research Question three: What are the various health implication of anaemia among pregnant women attending antenatal clinic in central Hospital, Warri?

Table 4: Health Implication of Anaemia among pregnant women

		Frequency	Percent
Anaemia could affect the health of the foetus	Disagree	14	14.0
	Agree	86	86.0
	Total	100	100.0
Anaemia could affect the health of the mother	Disagree	16	16.0
	Agree	83	83.0
	Missing System	1	1.0
	Total	100	100.0
Anaemia could lead to low birth weight	Disagree	22	22.0
	Agree	73	73.0
	Missing System	5	5.0
	Total	100	100.0
Anaemia could cause morbidity	Disagree	17	17.0
	Agree	82	82.0
	Missing System	1	1.0
	Total	100	100.0
Anaemia could lead to heart failure among pregnant women	Disagree	8	8.0
	Agree	91	91.0
	Missing System	1	1.0
	Total	100	100.0
Anaemia could lead to obstetric haemorrhage	Disagree	6	6.0

and puerperal infection	Agree	93	93.0
	Missing System	1	1.0
	Total	100	100.0
Anaemia could cause postpartum depression	Disagree	3	3.0
	Agree	94	94.0
	Missing System	3	3.0
	Total	100	100.0
Anaemia could affect child development	Disagree	10	10.0
	Agree	89	89.0
	Missing System	1	1.0
	Total	100	100.0
It could also affect work productivity	Disagree	10	10.0
	Agree	87	87.0
	Missing System	3	3.0
	Total	100	100.0

Table 4 shows 86% that anaemia could affect the health of the fetus and mother can also cause low birth weight and morbidity. 91% stated that anaemia could lead to heart failure, obstetric haemorrhage, puerperal infection and postpartum depression among pregnant women. 89% stated that anaemia could affect child development while 87% stated that it could also affect work productivity of the women.

Research Hypotheses

Ho_1: There is no significant relationship between the level of awareness and the knowledge of anaemia status among pregnant women in central hospital, Warri.

This subsection provides the regression analysis result to hypothesis one, and this is presented in table 5. The adjusted R square is .49, which shows a 49% goodness of fit and implies that the regression analysis could only explain the relationship between the variable of interest.

Table 5: Regression Analysis awareness and knowledge of anaemia

Coefficients						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	5.301	.972		5.457	.000
	Awareness	.316	.037	.704	8.533	.000
a. Dependent Variable: Knowledge						

Table 5 shows that the relationship between awareness and knowledge of anaemia among pregnant women is significant ($p<0.05$). This implies that the null hypothesis which stated that there is no significant relationship between awareness and knowledge is rejected ($p<0.000$). Hence, there is a significant relationship between awareness and knowledge of anaemia among pregnant women.

Ho_2: There is no significant difference in the level of awareness with respect to the demographic characteristics of pregnant women in central hospital, Warri.

Table 6: Analysis of Variance level of awareness of anaemia

Tests of Between-Subjects Effects						
Dependent Variable: Awareness						
Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	125.163[a]	4	31.291	1.071	.379	.072
Intercept	1244.356	1	1244.356	42.610	.000	.437
Age	53.759	1	53.759	1.841	.180	.032
Marital status	31.719	1	31.719	1.086	.302	.019
Education	56.137	1	56.137	1.922	.171	.034
Occupation	6.884	1	6.884	.236	.629	.004
Error	1606.170	55	29.203			
Total	40238.000	60				
Corrected Total	1731.333	59				
a. R Squared = .072 (Adjusted R Squared = .005)						

ANOVA result in table 6 shows that there is no significant difference in level of awareness of anaemia among pregnant women with respect to their demographic characteristics such as age, occupation, education level, etc. ($p>0.05$). This implies that the null hypothesis which stated that there is no significant difference in level of awareness of anaemia among pregnant women is accepted. ($p>0.05$). Hence, there is no significant difference in the level of awareness of anaemia among pregnant women and social demographic variables.

Ho_3: There is no significant relationship between the level of awareness and the health ensuring strategies undertaken to curtail anaemia during pregnancy among pregnant women in central hospital, Warri.

This subsection provides the regression analysis result to hypothesis three presented in table 7. The adjusted R square is .39, which shows a 39% goodness of fit and implies that the regression analysis could only explain the relationship between the variable of interest.

Table 7: Regression Analysis

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	14.066	1.055		13.329	.000
	Awareness	.028	.040	.081	.698	.488
a. Dependent Variable: strategies						

The result in table 7 shows that the level of awareness and the health ensuring strategies undertaken to curtail anaemia during pregnancy among the participants is not significant ($p>0.05$). This implies that the null hypothesis which states that there is no significant relationship between the level of awareness and the health ensuring strategies to curtail anaemia during pregnancy among pregnant women is not accepted ($p>0.05$). Hence, there is no significant relationship between the level of awareness and the health ensuring strategies undertaken to curtail anaemia during pregnancy among pregnant women.

Discussion of Findings

The findings of this study revealed that the level of awareness and knowledge of anaemia and its symptoms are high among pregnant women in Central Hospital, Warri. Majority are aware that anaemia is a deadly challenge that affect the health of pregnant women and their fetus. The major symptoms of anaemia identified are weakness, fatigue, irregular heartbeats, shortness of breath, dizziness/lightheadedness; chest pain among others this collaborate with the study of Balarajan et al. (2011); Adamu et al. (2017) and MFMER (2019) which states that consequences of anaemia includes maternal and perinatal effect; pregnancy complications, cognitive development effect, heart problems, work productivity effect, fatigue and congestive cardiac failure; among others.

The findings of this study is at variance with the study of Batool et al. (2010); and Suryanarayana et al. (2016) that level of awareness and knowledge of the extent and consequences of anaemia burden is poor in developing countries such as Nigeria. The findings of this study support the works of Balarajan et al. (2011); Yadav et al. (2014) and Osungbade and Oladunjoye (2012) that there is an increasing level of awareness and knowledge of anaemia in Nigeria. However, this contrasts Batool et al. (2010) that the level of awareness and knowledge of anaemia is low among pregnant women.

The findings of this study also revealed that the health implications of anaemia is higher on pregnant women in Central Hospital, Warri than in the fetus. There was a significant relationship between awareness and knowledge of anaemia among pregnant women in

Central Hospital, Warri. There were no significant relationship between awareness and knowledge anaemia among pregnant women and also between the level of awareness and the health ensuring strategies undertaken to curtail anaemia during pregnancy among pregnant women in central hospital, Warri. Hence, there is need to increase the level of awareness of anaemia among pregnant women in this region of Nigeria towards ensuring better health ensuring strategies. This reinforces the study of Omiunu (2015) that the awareness of anaemia among pregnant women is important to curtail its effect on the pregnant mother and fetus towards the attainment of SDGs. The study findings buttresses Osungbade & Oladunjoye (2012) and Omiunu (2015) that revealed that to there is the dire need to enhance the strategies to improve the level of awareness and knowledge among mothers and health workers.

This study finding supports Balarajan et al. (2011) that revealed lack of education and information about anaemia prevention, and awareness of the benefits of appropriate intervention measures among pregnant mothers in developing countries such as Nigeria. It also supports the study of Okik (2012); Dattijo et al. (2016); Department of Health, Government of South Australia (2019), that lack of awareness and knowledge of aneamia can affect the level of health consequences and the strategies deployed to curtail anaemia while it contrast the study by Verma et al. (2004) that there is no significant relationship between knowledge of anaemia and its prevalence.

Conclusion and Recommendations

In conclusion, the level of awareness and knowledge of anaemia and its symptoms are high among pregnant women in Central Hospital, Warri. Anaemia is a deadly challenge that affects the health of pregnant women and their fetus; it causes weakness, fatigue, irregular heartbeats, shortness of breath, dizziness/lightheadedness; chest pain; among others, and the health implications of anaemia are higher in pregnant women and their fetuses in Central Hospital, Warri.

There was a significant relationship between awareness and knowledge of anaemia; no significant difference in the level of awareness of anaemia among pregnant women and socio demographic variables in Central Hospital, Warri; and no significant relationship between the level of awareness and the health ensuring strategies undertaken to curtail anaemia during pregnancy among pregnant women in central hospital, Warri. In conclusion, there is need to increase the level of awareness of anaemia among pregnant women in Warri, Nigeria towards ensuring better health ensuring strategies.

Recommendations:

i. Anaemia has become a major health challenge among pregnant women, it is important that the government and hospitals should help raise its level of awareness by organizing workshop to lecture pregnant women especially during pregnancy in various hospitals.
ii. Major drugs that could help curtail anaemia among pregnant women should be provided for free during pregnancy by governments and hospitals.

iii. Women should be subjected to constant free blood test due to a very low level of socio economic development and high poverty rate in Nigeria to be able to cater for at least a higher percentage, if not all pregnant women.
iv. It should also be mandated that pregnant women should know their blood level status before registering for antenatal and also during the antenatal. This must be done in the third trimester to ensure the life of the baby and that of the mother are save.
v. Government and hospitals should endeavor to also reduce the hospital bills, due to the fact that many pregnant women could find other options of place of delivery such as homes and other cheap avenue which could raise the probability of endangering the baby and the mother.

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Completing interest:

The authors declare that they have no competing interest.

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