JMBR: A Peer-review Journal of Biomedical Sciences
June 2016, Vol. 15 No. 1 pp 83-91

FACTORS INFLUENCING ADHERENCE TO ROUTINE IRON SUPPLEMENTATION AMONG PREGNANT WOMEN IN AKINYELE LOCAL GOVERNMENT, IBADAN.

Ohaeri, Beatrice M.[1], Joseph, Blessing E.

ABSTRACT

Anemia in pregnancy is a common problem especially in developing countries. and has been linked with feotal and maternal complications. Taking iron supplements could reduce anaemia in pregnancy but some pregnant women do not adhere to this. The study identified some factors associated with non adherence among pregnant women in three selected health centers in Akinyele Local Government Area, Ibadan Nigeria.

Using a descriptive cross- sectional design, 200 pregnant women who consented were purposively selected. Data were collected using 32- item self- structured questionnaire with a reliability of 0.75.

Forgetfulness (82%), too many tablets (77%), unavailability of supplements and poor information from nurses (58%) were some of the factors identified. A significant relationship existed between respondent's age, parity, knowledge and adherence ($P > 0.05$).

A good nurse-patient relationship can help in motivating adherence, reduce anemia, curb maternal and infant morbidity and mortality thereby facilitating achieving of the millennium goal.

INTRODUCTION

A moderate degree of anemia affects approximately 610 million people worldwide or 8.8% of the population [1]. In Africa, the prevalence of anemia in pregnancy has been estimated to be 35-75 %.[2]. It continues to be a topical issue in many developing countries because of its association with adverse pregnancy outcomes such as increased rates of perinatal mortality, premature delivery, low birth weight and others [3; 4]. Pregnant women are also at risk of anaemia in industrialized countries. Representative data from the United States indicates that 5% of non-pregnant women are anaemic, its prevalence rate increases to 17% among pregnant women, while it is as high as 33% among pregnant women of low socioeconomic groups. Furthermore, iron deficiency anaemia among white non-pregnant women in the United States is reported to be 10%, while it is 19% among African Americans and 22% among Mexican Americans despite fortification of flour with iron. [5].

In Nigeria, where a conservative maternal mortality ratio of 1,000-1,500/100,000 live births is reported, anemia has been estimated to contribute to 11.0% of these deaths.[6]. Anemia may worsen the prognosis of postpartum hemorrhage and predispose to puerperal infection, both

KEYWORDS: *Pregnancy; Adherence; Iron supplements: Anaemia; Nigeria*

Ohaeri, Beatrice M. *(RN, PhD);*
Tel *+ 23481612904* ***Email:*** *bmkohaeri@yahoo.co.uk*

AND

Joseph, Blessing E. *(RN, RPHN);*
Tel *+2348167139173;* ***Email:*** *ehiobute@gmail.com*

Department of Nursing, Faculty of Clinical Sciences, College of Medicine,University of Ibadan, Ibadan, Nigeria

****Correspondence***
Dr. OHAERI, Beatrice M
Tel *+ 23481612904*
Email: *bmkohaeri@yahoo.co.uk*

important causes of maternal mortality in developing countries. It is equally a risk factor for iron deficiency anemia in infants, which if un-corrected, can be associated with adverse behavioral and cognitive development [7], as well as poor psychomotor development [8].Iron Deficiency Anaemia (IDA) continues to be a major public health problem in Nigeria especially among women of reproductive age. Prevalence of IDA in pregnant women was reported as 76.5% in Abeokuta [9] and 62.86% in Enugu [10]. The etiological factors for anemia in pregnancy are multiple and their relative contributions vary by geographical area and by season. In West Africa, the most common cause is nutritional deficiency especially of iron and folic acid. Other causes include parasitic infestations such as malaria and hookworm; infections like HIV and hemoglobinopathies. The predisposing factors are grand-multiparity, young age, low socioeconomic status, and illiteracy. [12]. Others include inter-pregnancy spacing of less than 1 year and late booking among others.[13], .These factors abound among pregnant women in Nigeria, making anemia in pregnancy an important reproductive health problem.[14]. Ideally, to meet iron needs during gestation, women should have 300 mg or more of iron reserves prior to conception. [15]. Although distribution of iron supplements is practiced in many antenatal care programs in developing countries, observation has shown that many pregnant women still present with anemia[16, 17]. With the attainment of the Millennium Development Goals becoming increasingly distant, it is important to constantly examine factors such as anemia in pregnancy, which contributes to adverse maternal and infant health outcomes.

This study identified the factors that influenced pregnant women in Akinyele LGA to adhere to iron supplements. Three objectives and hypotheses guided the study. These were assessing participant's knowledge; adherence level; and factors that affected their choice and looking into relationships between adherence and age; parity and knowledge respectively The identified factors will be useful in planning specific interventions that will increase adherence to iron supplementation by pregnant women, thereby reduce anaemia, maternal and perinatal mortality, and facilitate achievement of the millennium goal.

MATERIALS AND METHODS

The study was carried out among pregnant women in Akinyele local government area that was carved out of the former Ibadan North district council in the year 1976. The LGA is divided geopolitically into two constituencies, and further into twelve wards. There are about seventeen primary health centers (PHCs) in Akinyele LGA, out of which only seven are functioning and three were selected using simple random sampling technique. Each health centre is headed by a Medical Officer, while other workers include, doctors, nurses, medical record officers and Community Health Extension Workers (CHEW). Three PHCs Ojoo, Moniya and Ajibode were randomly selected using ballot method.

The target population consisted of pregnant women attending antenatal clinic at the selected PHCs. Cross -sectional design was used to collect data from 200 pregnant women using purposive sampling technique. Consecutive attendees who met the inclusion criteria (willing to participate, verbally consented, and booked in any the selected PHCs,

conscious and alert) completed the questionnaire with the assistance of one of the researchers.

The instrument consisted of a 32- items self- report instrument of four parts developed by the researchers. Part one was made up of six questions that assessed the socio-demographic characteristics of the client; part two consisted of seven questions that focused on the knowledge level of the participants in relation to iron supplementation; three was made of four questions that assessed their level of adherence to iron supplement, while last section consisted of 15 questions that elicited information on factors that affected adherence to iron supplement. Test- retest reliability using 10 pregnant women from Orayan PHC which was not part of the setting showed reliability coefficient of 0-75.

Permission to use the centers were obtained through the coordinators who were presented with copies of the approval from the joint Institutional Review Board (IRB) of University of Ibadan and University College Hospital, Ibadan. One of the researchers was then introduced to the other staff in each centre in order to elicit their support. The questionnaires were distributed to pregnant women who met the eligibility criteria after proper information on the purpose of the study and its benefits. Although the instructions on how to complete the questionnaire were part of the introductory note, they were equally explained in order to ensure good level of understanding The questionnaires were returned after completion which lasted 20 minutes.

Data were analyzed using Statistical Package for Social Sciences (SPSS) version 20. Firstly, they were summarized using frequencies and percentages. Then the hypotheses were tested with the Pearson correlation and Chi-square at 0.05 significant level.

RESULTS

Majority of the participants were married (82.0%), had secondary education (59%), petty traders (38%), with a mean age of 26.5 ±4-9. In addition they were largely of moderate parity with one or two children 80% or 76% respectively. Only 4 (2%) had no children and 16 (8%) had more than 3 children (Table 1).

The respondents had good knowledge about routine iron supplementation since mean knowledge score was 3.79 out of a total of 7. This mean knowledge score is slightly higher than the average rating score which serves as the cut-off for knowledge (3.5). 57% of the respondents had good knowledge of routine iron supplementation in pregnancy (Table 2).

Table 3 on the adherence level of the participants revealed that the mean score was 2.35 out of a total of 4. This was also slightly higher than the average rating score which served as the cut-off for adherence (2.0) Majority (42%) of the participants were consistent with taking their iron supplements.

Most of the respondents did not adhere for various reasons. Highest reasons were forgetfulness (82%), followed by too many supplements (79%), while financial burden (47%) and no spousal support 47% were the least (table 4)

Results showed significant relationship between participant's age, parity, knowledge and their adherence to iron supplements ($p = 0.02$; $p = 0.03$ and $p = 0.0001$) respectively (Table 5).

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

Variable	Frequency	Percentage
Age(years)		
15- 19	14	7.0
20 – 24	64	32.0
25 – 29	66	33.0
30 – 34	46	23.0
34-38	10	5.0
Mean ± SD		26.5 ± 4.9
Marital Status		
Single	34	17.0
Married	164	82.0
Separated	2	1.0
Education		
Primary	32	16.0
Secondary	118	59.0
Tertiary	50	25.0
Religion		
Christian	84	42.0
Muslim	116	58.0
Occupation		
Civil servants	28	14.0
House wife	58	29.0
Trading	76	38.0
Others	38	19.0
Parity		
None	4	2.0
One	80	40.0
Two	76	38.0
Three	24	12.0
More than three	16	8.0

Table 2: Level of knowledge on routine iron supplementation

Variable	Score	Frequency	Percentage	Average Rating score	Remark
Knowledge	0.0	16	8.0		Low
	1.0	24	12.0		Low
	2.0	16	8.0		Low
	3.0	30	15.0		Low
	4.0	32	16.0		High
	5.0	28	14.0		High
	6.0	34	17.0	3.5	High
	7.0	20	10.0		High

Table 3: Frequency distribution of participant's level of adherence with routine iron supplementation**.**

Variable	Score	Frequency	Percentage	Average Rating score	Remark
Adherence	0.0	14	7.0		Low
	1.0	18	9.0		Low
	2.0	84	42.0		Low
	3.0	52	26.0	2.0	High
	4.0	32	16.0		High

Table 4: Factors influencing adherence to routine iron supplementation

FACTORS	YES (%)	NO (%)
"My spouse encourages me to take my daily supplements"	104 (52.0)	96 (48.0)
Iron supplements make me have constipation"	122 (61)	78 (39)
"Iron supplements are too expensive"	100 (50)	100 (50)
"Iron supplements are too many to be taken daily"	154 (77)	46 (23)
"I do not take supplements daily because my baby might grow too big"	100 (50)	100 (50)
"Taking the supplements daily is too tiring"	158 (79)	42 (21)
"I do not take the supplements daily because it makes my urine smell badly"	142 (71)	58 (29)
"I do not take supplements daily because it turns my stool black"	128 (64.0)	72 (36)
"I do not take my supplements daily because my mother in law is against it"	90 (45.0)	110 (55)
"I do not take my supplements daily because I forget"	164 (82.0)	36 (18)
"I don't not take my supplements daily because they are not available whenever I go to the hospital"	130 (65.0)	70 (35.0)
"I do not take my supplements daily because the hospital I get them from is far from my house"	118 (59.0)	82 (41.0)
"I do not take my iron supplements daily because the	116 (58.0)	84 (42.0)
nurse/midwife did not explain how I am expected to use them"		
"I do not take iron supplements daily because it won't make any difference in my health status"	134 (67.0)	66 (33.0)

Table 5: Relationship between participants' age, parity, and knowledge with adherence to iron supplements.

Hypothesis 1				
	Adherence			
Age in years	**Low %**	**High%**	**X^2**	**P -Value**
≤ 19	85.7	14.3		
20-24	65.6	34.4		
25-29	57.6	42.4	11.6	0.02
30-34	43.5	42.4		
> 35	40.0	60.0		
Parity		**Hypothesis 2**		
0/ 1	61.9	38.1		
2	50.0	50.0	8.87	0.03
3	50.0	50.0		
< 3	87.5	12.5		
Knowledge		**Hypothesis 3**		
< 3.5	76.7	23.3		
≥ 3.5	43.9	56.1	21.6	0.0001

DISCUSSION

The 42% level of adherence in this study is close to the 49.2% reported in a Malaysian study [22]. However, this level is lower than result from other studies. For instance an overall adherence level of 69% was reported among pregnant women in Senegal [23] and 80.74% in India [24] Although the reason for this disparity is not clearly delineated in our study, but suffice it to suggest that it could largely be attributed to the poor socio-economic conditions of the clients since majority of them were petty traders.

The adherence being lower among younger respondents is similar to earlier reports that middle and elderly women were slightly more adherent [24]. Being older could have made them become more sensitive to the negative impact associated with pregnancy and advancing age . Such fears could have positively influenced their behavior. In other words they might have considered themselves vulnerable and therefore acted in order to prevent being ill. Also the fact that they reported more social support from their spouses further confirms the view of increasing age being a factor on positive concern with regards to health issues. In addition, parity and knowledge on routine iron supplementation being significantly associated with adherence is in line with previous findings. A hospital based study in Ibadan observed that parity and socioeconomic factors were factors associated with anemia in pregnancy [17].

Majority of the respondents stated that their non- adherence was based on the fact that nurses did not give them adequate information on their expected roles. To ensure adherence the importance of information about treatment patterns, side effects of these treatments and expected clients role has been observed [25]. This further reiterates the significant role of the nurse as an important source of positive health information to clients, their relation and the society. This has been associated with positive health behavior and outcome. However, the fact that this important role has been neglected by nurses either as a result of poor knowledge or lack of interest, commitment, or too busy schedule has been observed [25]. The implication of this is that nurses should wake up to their responsibilities and drop the reticence attitude towards giving information to clients. Caring should be both physical and psycho-social in order to achieve maximum health outcome. This strongly suggests the need for health education of women of child bearing age on the purpose and benefits of routine iron supplementation in pregnancy by nurses at the earliest contact. Implementing this will positively enhance adherence, thereby reducing its adverse effects on the physiological and psycho-social effects on child bearing families.

CONCLUSION

In conclusion, nurses being the highest number of care givers and are always with the clients should take proactive steps to ensure that the clients are well informed about the benefits of iron supplements and the expected side effects. This will go a long way in ensuring adherence; reduce maternal and perinatal morbidity and mortality thereby enhancing achievement of the millennium goal.

REFERNCES

1. Vos, T. "Years lived with disability (YLDs) for 1160; sequelae of 289 diseases and injuries 1990-2010: A systematic analysis for the Global Burden of Disease Study 2010." Lancet, 2012: 380 (9859): 2163-96.

2. World Health Organization. The prevalence of Anemia in women: A tabulation of available information. Geneva Switzerland , 2000

3. Dim, C.C., Onah, H.E. The prevalence of anemia among pregnant women at booking in Enugu, South Eastern Nigeria. Med Gen Med, 2007: 9 : 1

4. Anorlu, R.I., Oluwole, A. A., Abudu, O.O. (2006). Socio- demographic factors in anemia in pregnancy at booking in Lagos, Nig J. of Obstet and Gynecol, 2006: 26 : 773

5. Bodnar, L.M., Scanlon, K.S., Freedman, D.S. High prevalence of postpartum anemia among low-income women in the United States. Am J. Obstet Gynecol., 2001: 185: 438-443

6. National Planning Commission/United Nations Children Fund Child Protection and Development. Key social statistics. Abuja: National Planning Commission, 1998. Retrieved from Google on 10th April,2015

7. Bukar, M., Audu, B.M., Yahaya, U.R., Melah, G.S. Anaemia in pregnancy at booking in Gombe, North-eastern. Nig. J. Obstet Gynecol., 2008: 28: 775-8

8. McCann J.C., Ames, B.N. An overview of evidence for a casual relation between iron deficiency during development and deficits in cognitive or behavioural function. Am J. Clinl Nutr. 2007; 85 (4): 931-45

9. Idowu, O.A., Mafiana, C.F., Dapo, S. Anaemia in pregnancy: A survey of pregnant women in Abeokuta, Nigeria. Afr Health Sci., 2005; 5: 295-9

10. Ekejindu, I.M., Udigwe, G.O., Chijioke, I.R.C. Malaria and anemia in pregnancy in Enugu, Southeast, Nigeria. Afr J M Sci, 2006; 35(1): 1-3

11. Brownline, T., Utermohlen, V., Hinton, P.S., Haas, J.D. Tissue iron deficiency without anemia impairs adaptation in endurance capacity after aerobic training in previously untrained women. Am J. Clin Nutr., 2004 ; 79(3): 437-7

12. Van den Broek N.R., Rogerson, S.J., Mhango C.G., Kambala, B., White, S.A., Molyneux, M.E. Anaemia in pregnancy in Southern Malawi: Prevalence and risk factors. Br J of Gynaecol, 2000:

13. Adinma, J.I., Ikechebelu, J.I., Oneyejimbe, U.N., Amilo, G., Adinma, E. Influence of antenatal care on the haematatocrit value of pregnant Nigerian Igbo women. Tropical J Obstet Gynecol, 2002: 19: 68-70

14. Bukar, M., Audu, B.M., Yahaya, U.R., Melah, G.S. Anaemia in pregnancy at booking in Gombe, North-eastern Nig J Obstet Gynaecol, 2008 : 28 : 775-8

15. Fernandez-Ballart, J. Iron metabolism during pregnancy. Clinical Durg Investment, 2000: 19: 9-19

16. Lutsey, P.L, Dawe D, Villate E, Valencia, S & Lopez, O. Iron supplementation compliance among women in Bicol, Philippines. Pub Health Nutr, 2007: 11(1): 76-82

17. Adesina, O., Akinyemi, O., Oladokun, A. Anemia in pregnancy at two levels of health care in Ibadan south west Nigeria. Annals of African Medicine, 2007: 10: 272-277

18. Hajian S, Vakilian K, Najabadi KM, Hosseini J, Mirzaei HR: Effects of education based on the health belief model on screening behavior in high risk women for breast cancer, Tehran, Iran. Asian Pac J Cancer Prev, 2011: 12(1):49-54.

19. Glanz, Karen; Bishop, Donald B. "The role of behavioral science theory in development and implementation of public health interventions". Annual review of public health, 2010:31: 399–418. doi:10.1146/annurev. publhealth.012809.103604

20. Zhi-Juan Cao, Yue Chen and Shu-Mei Wang Health belief model based evaluation of school health education programme for injury prevention among high school students in the community context. BMC Pub Health, 2014: 14:26 doi:10.1186/1471-2458-14-26

21. Nigerian 2006 Census. Retrieved from Google on 26th February 2015: Africa Masterweb@http://www.africamasterweb.com/

22. Central Intelligence Agency (CIA) World Fact book, 2012. Retrieved from Google on 26th February,2015. https://www.cia.gov/library/publications/download/download-2012/index.html

23. Thirukkanesh S and Zahara, A. M. "Compliance to vitamin and mineral supplementation among pregnant women in urban and rural areas in Malaysia," Pakistan J Nutr, 2010 : 9 (8) : 744–750, 2010.

24. Seck BC, Jackson RT. Determinants of compliance with iron supplementation among pregnant women in Senegal. Public Health Nutr., 2008;11(6):596-605.

25. Godara S, Hooda R, Nanda S,Mann S. Compliance of antenatal women in relation to iron supplementation in routine ante-natal clinic at a tertiary health care centre. J Drug Del. and Therapeutics, 3:3 2013