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AWARENESS AND INTAKE OF FOLIC ACID BY REPRODUCTIVE AGE WOMEN IN OZORO, ISOKO NORTH LOCAL GOVERNMENT, DELTA STATE, NIGERIA

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ABSTRACT

Purpose: The purpose of the study was to determine the level of awareness and intake of folic acid supplementation among reproductive age women in Isoko Local Government Council. Delta State. Nigeria.

Method: The study adopted a cross-sectional design. Purposive sampling was used to select two hundred and eighty (280) women. Self-developed close-ended questionnaire was used to collect data. The questions were about biography, awareness and knowledge of folic acid intake before conception, intake of folic acid, factors associated with intake of folic acid. Data was analysed using descriptive (frequency and percentage) and inferential (chi-square and regression) statistics.

Result: A majority 192(70.3%) of respondents' awareness of folic acid supplement intake before pregnancy was high but have low knowledge 42(15.4%) of folic acid function as regards prevention of neural tube defect. A majority 209(76.6%) of respondents took folic acid. Folic acid intake one month before conception was 66(24.2%) and in the first three months during conception was 36(13.2%) while throughout pregnancy 152(55.7%). Factors associated with folic acid supplementation intake are tertiary education, married women and planned pregnancy. Predictors of folic acid supplementation intake are parity and awareness.

Recommendation: Findings show that, respondents' awareness and intake of folic acid supplementation is high but has poor knowledge on the function of folic acid as regards prevention of neural tube defect. The high awareness and intake did not translate to recommended guideline which is the proper timing of FA supplementation.(one month before conception and three months during pregnancy).

KEY WORDS: Folic acid, Neural tube defect, Awareness, Preconception, Reproductive age women.

INTRODUCTION

Proper maternal nutrition is important for coping with the extra demands for normal development of a growing foetus. Although a pregnant woman is able to compensate for nutrient deficiencies and excess, she cannot provide the essential nutrient for her child if she herself is deficient[1]. A balanced diet is the best way to receive nutrients, but vitamin Supplements can also be beneficial. Supplements do not replace a healthy diet but rather ensure that a woman is receiving enough daily nutrients[2], Folic acid is a B- Vitamin, which is found in various foods but can be best obtained through multivitamin. Leafy green vegetables, fortified cereals, citrus fruits, wheat bread and legumes such as beans are some of the many foods that contain folic acid. These foods alone may not contain the entire recommended daily 400mcg since some of the folates can be reduced through cooking it[1].

Folic acid intake during the preconception period helps protect against a number of congenital malformations such as neural tube defects. The risk of neural tube defect is significantly reduced when supplemental folic acid is taken four weeks before conception and twelve weeks of conception (first trimester)[3]. Neural tube defect (NTDs) are congenital structural anomalies of the embryonic structure that develop in the brain , spinal cord and their surrounding structures and they are common worldwide[4]. These serious birth defects are to a large extent preventable by adequate intake of folic acid by women of reproductive age and several studies reported that pre-conception supplementation of folic acid can prevent up to 50% of cases of NTDs as well as cardiac and craniofacial abnormalities[3]. Folic acid intake during the first trimester would also play a role in promoting normal embryonic development[5].

In a study carried out in Jos, Nigeria, it was noted that folic acid awareness as a vitamin supplement was relatively high among the women surveyed[3] . Even in an earlier study among reproductive age women in Turkey, it was reported that the women were aware of folic acid use for the prevention of NTDs but the intake is poor which led to relative high incidence of NTDs in Turkey. This was linked to the inadequate information about NTDs and the use of folic acid and it was recommended that, primarily, health care professionals such as midwives, nurses and family physicians should aim to inform all reproductive age women about folic acid for the

prevention of NTDs. They should be encouraged to take the supplement when planning pregnancy and during pregnancy[6].

Similarly, a study carried out among women in the childbearing age in Hail region –Saudi Arabia on awareness of folic acid intake revealed that awareness was high 91%, intake of folic acid prior and during a certain stage of pregnancy was also high 84%. It also recorded that University education was the strongest predictor of knowledge compared to subjects with lower education level[7]. According to Nelson – Leon and Evans[8] in a study carried out in Canada on the relationship between awareness and supplementation, it was revealed that although most women understood the benefits of folic acid supplementation, a little over a third of them do not take folic acid supplements prior to becoming pregnancy and less than half supplemented according to national guidelines.

Data from three birth centres in italy[9], on women‘s knowledge and peri-conceptional use of folic acid: revealed that women had better knowledge with increasing use of folic acid because they had information on correct period of assumption of folic acid . And also stated that investing on provision of information instead of the directive approach represented by the compulsory fortification of food, appears to be an appropriate action. Similarly in a study[10] on awareness, knowledge and use of folic acid carried out in Korean revealed that women with knowledge of folic acid are likely to take folic acid supplement. In another study carried out in Benghazi Libya, it was noted that overall knowledge regarding the periconceptional use of folic acid was relatively low when compared to other studies worldwide[11]

Furthermore, another study on the use of folic acid among pregnant women attending antenatal care clinic at Al-hejrah primary health care center, Makkah Al Mokarramah, Saudi Arabia revealed that two-third (69.7%) of the women had their information from physicians followed by internet (33.4%) and TV (19.7%). Almost two-thirds (65.2%) of participant of pregnant women had sufficient knowledge about the importance of folic acid supplementation during pregnancy[5]. However, pregnant women who read about folic acid and those having more sources of information about the importance of folic acid intake during pregnancy had sufficient knowledge about it. Also a majority had taken folic acid during pregnancy[5].

Similarly, another study on folic acid and knowledge about women in reproductive age found that a majority of the women of reproductive age did not use folic acid and lack adequate levels of information[12]. The study on prevalence and determinants of perception of folic acid use: an Italian multicentre study revealed that preconception folic acid supplement use in many Italian women is low, women who do not plan their pregnancy or do not request a preconception health visit to their doctor have among the lowest prevalence of preconception folic acid use. The findings also revealed that preconception folic acid use was also associated with higher maternal age, higher education, marriage/cohabitation, lower parity, infertility treatment and chronic disease[13].Folic acid usage among pregnant women in Ethiopia have noted to be very low in a study carried out in Ethiopia.[14].

In another study[15] as regard intake of folic acid by Polish women with higher education in Polish revealed that better education programs may improve knowledge about prophylaxis. Also that compliance with recommendations of Primary prevention program of Neural tube defect is unsatisfactory.

Studies show that supplementation of 0.4mg folic acid during the periconceptional period prevents 50-70% of NTDs[16,17,18,19]. Furthermore, Public health approaches aimed at increasing the consumption of folic acid by women of reproductive age so as to prevent NTDs include improvement in dietary habits, fortification of stable foods and peri-conceptional use of multivitamin supplement containing folic acid [20].Daily intake of 0.4-0.5mg of folic acid is recommended during the periconceptional period which encompasses the interval from four weeks (1month) before conception to twelve weeks (3month)[20] . As a result of this health authorities in many developed countries have recommended that all women planning to become pregnant should consume additional dietary and supplementary folic acid peri –conceptionally[21,22].

Despite, the recommendation and the benefits of the folic acid in the prevention of NTDs, peri –conceptional intake of this micronutrient remain low in several countries as many women are unaware of its recommendation [23,24]. Therefore, reproductive age women need to be aware and have knowledge about supplementary folic acid use. Hence, assessment of awareness and intake pre-conception and conceptionally is crucial to prevention of neural tube defect. However to the knowledge of the researcher,

no studies have been undertaken to explore the level of awareness and intake of folic acid among reproductive age women in Isoko North Local Government of Delta State, Nigeria.

Objective of Study:

- To assess the level of awareness and knowledge of folic acid among reproductive age women in Isoko North Local Government, Delta State.
- To ascertain the timing of intake of folic acid among reproductive age women
- To determine factors associated with the intake of folic acid.

Methods and Materials

This is a cross-sectional descriptive survey. The study population was reproductive age women in Isoko North Local Government Council. Purposive sampling technique was used to select two hundred and eighty participants.

Instrument for Data Collection

The research instrument for the study was a self-developed questionnaire with closed ended questions. It is designed to assess the level of awareness and intake of folic acid among reproductive age women. It is divided into four sections. Section A: Elicit information on respondent's biographic data, Section B: Awareness and knowledge of folic acid, Section C: intake of folic acid: Section D: Factors associated with intake of folic acid. The questionnaire was tested for content validity which led to the modification of some of the items. Its reliability was tested through test retest method and the correlation co-efficient test yielded 0.89% at 5% level of significance. (The instrument was administered to 28 reproductive age women of Oleh in Isoko South Local Government Council twice with an interval of two weeks and the co-relation co-efficient was found to be r=0.89).

Method of Data Collection

Data required for this study was collected through a self-administered questionnaire to the women in their different units in the Council. Two hundred and eighty questionnaires were distributed and two hundred and seventy -three were

retrieved from participants after two weeks13th -23rd September 2016 with 97.5% response rate.

Data Analysis

All data were entered and analysed using Statistical Package for Social Sciences (SPSS) version 21.0 for window. Data obtained were analysed using descriptive statistics such as frequency, and percentages and inferential statistics such as Chi-Square(x^2) and regression was used to test for association between variables. Level of significance was set at 0.05.

Ethical Consideration

Ethical approval was sought from Delta State Ministry of Health Ethical Committee. Before data collection commenced, a careful explanation of the objective and implication of the study was made known to participants who gave their consent and were given assurance of confidentiality and anonymity.

RESULT

Table 1: Demographic characteristics of respondents

	Frequency n=273	**Percentage**
Age		
16-19yrs	57	20.9
20-25yrs	26	9.5
26-30yrs	78	28.6
31-35yrs	33	12.1
36-40yrs and above	79	28.9
Educational status		
Primary	35	12.8
Secondary	67	24.5
Tertiary	171	62.6
Marital Status		
Married	204	74.7
Single	69	25.3
Parity		
None	87	31.9
1–2	105	38.5
3–4	63	23.1
5 and above	18	6.6
Pregnancy		
Planned	177	64.8
Unplanned	96	35.2

Field Survey, 2017

Table 1; Demographic characteristics of respondents show that on the basis of age a majority 79(28.9%) of the respondents are within the age range of 36-40 years and above, 78(28.6%) of the respondents are within the age range of 26-30 years, 57(20.9%) of the respondents are within the age range of 16-19 years, 33(12.1%) are within the age range of 31-35 years, while the remaining 26(9.5%) are within the age range of 20-25 years. The educational status of respondents showed that a majority 171(62.6%) of them respondents have tertiary education, followed by 67(24.5%) of the respondents who have secondary education while the remaining 35(12.8%) have primary education. The marital status of the respondents shows that a majority 204(74.7%) are married while the remaining 69(25.3%) are single. On parity of respondents; a majority 105(38.5%) got pregnant within the parity range of 1-2, followed by 87(31.9%) who have never been pregnant, 63(23.1%) got pregnant within the parity range of 3-4 while the remaining 18(6.6%) of the respondents got pregnant within the parity range of 5 and above. On the basis of respondents pregnancy, a majority 177(64.8%) said their pregnancy was planned while the remaining 96(35.2%) said their pregnancy was unplanned.

Table2: Awareness and knowledge of folic acid amongst respondents show that a majority 192(70.3%) of the respondents have heard about folic acid use before pregnancy. On the recipient of folic acid benefit, a majority 150(54.9%) of the respondents said folic acid is beneficial to both mother and infant. On the function of folic acid, a majority 112(50.5%) of the respondents said folic acid prevents anaemia, 48(17.5%) said folic acid performs as routine function, 42(15.4%) said folic acid prevents neural tube defect. On the source of folic acid; 167(61.2%) of the respondents said fresh green vegetables, leafy vegetable (e.g. pumpkin spinach) is a source of folic acid. On respondents' source of information on folic acid; a majority 216(79.1%) of the respondents got their information from the health centre.

Table 2: Knowledge and awareness of Folic acid amongst respondents

	Frequency	Percentage
Have you heard of folic acid use before pregnancy?		
Yes	192	70.3
No	81	29.7
Who does folic acid benefit		
Mother	78	28.6
Infant	32	11.7
Both	150	54.9
No information	13	4.8
Function of Folic Acid		
Routine	48	17.5
Prevention of Anaemia	112	41.0
Preventive of Neural tube defect	42	15.4
Others	20	7.3
Don't Know	51	18.7
Source of Folic Acid		
Fresh green vegetables leafy vegetable (e.g. pumpkin spinach)	167	61.2
Legume (Beans)	111	40.7
Citrus fruit (oranges, grapes)	129	47.3
Synthetic folic acid (drugs)	164	60.1
Source of Information		
Internet	138	50.5
Health centre	216	79.1
Friends	165	60.4
Newspaper	125	45.8
Television / Radio	133	48.7
Relations	138	50.5
Others	122	44.7

Field Survey, 2017

Table 3 Intake of folic acid by respondents show that a majority 209(76.6%) of the respondents take folic acid. On the dosage of folic acid by respondents; a majority 110(53.0%) of the respondents take one tablet of 5mg, 48(15.8%) take one tablet of 0.4mg.On the best time to take folic acid; a majority of the respondents 152(55.7%) said it is throughout pregnancy, 37(13.6%) said it is before and during the first three months of pregnancy. On the reason for respondents not taking folic acid; 49(17.9%) said it is not recommended. On the intake of folic acid by respondents; a majority of them 153(56.0%) said it is throughout pregnancy, 31(11.4%) said it is two months before pregnancy and three months during pregnancy.

Table 3: Intake of folic acid by respondents

	Frequency	Percentage
Do you take Folic acid		
Yes	209	76.6
No	64	23.4
The dose of folic acid		
One tablet of 0.4mg	48	15.8
Half of 2.5mg	11	5. 4
One tablet of 5mg	110	53.0
One tablet of 10mg	25	25.7
None	64	23.4
Best time to take Folic Acid		
Before pregnancy	66	24.2
First three months of pregnancy	36	13.2
Throughout pregnancy	155	55.7
Before and during the first three month of pregnancy	37	13.6
Reason not taking Folic Acid		
Not recommended	49	17.9
No information	48	17.6
Never heard of it	25	9. 2
Bad taste	36	13.2
Allergic reactions	32	11.7
No reason	46	16.8
When Intake of Folic Acid		
Before pregnancy	49	17.9
two months before pregnancy	25	9. 2
Throughout pregnancy	153	56.0
Two months before pregnancy and three months during pregnancy	31	11.4

Table 4: Factors associated with intake of folic acid by respondents. The age factor shows that 70(89.7%) of those within the age range of 26-30 years took folic acid. 72(91.1%) of those within the age range of 36-40 years took folic acid. The age factor was significantly associated (p<0.001) with intake of folic acid. The educational factor shows that among those who have tertiary education, a majority of them 150(87.7%) took folic acid while 43(64.2%) of those that have secondary education take folic acid. The educational factor was significantly associated (p<0.001) with intake of folic acid. On the marital factor, a majority171(83.8%) of those who are married took folic acid. The marital factor was significantly associated (p<0.001) with uptake of folic acid. The parity factor shows that 85(81.0%) of the respondents who fell within the parity range of 1-2 take folic.While53(84.1%) of the respondents that fell within the parity range of 3-4 took folic acid. The parity factor was significantly associated (p<0.001) with intake

of folic acid. The pregnancy factor shows that, a majority 152(85.9%) of the respondents whose pregnancy was planned took folic while 57(59.4%) of the respondents whose pregnancy was not planned took folic acid. The pregnancy factor was significantly associated (p<0.001) with intake of folic acid

On the awareness factor of folic acid use before pregnancy, a majority 167(87.0%) have heard about folic acid use before pregnancy, while 42(51.9%) who have not heard use folic acid before pregnancy.

Table 4: Factors associated with intake of folic acid

	Do you take Folic acid		
	Yes	**No**	**P**
Age			
16 - 19 yrs	22(38.6)	35(61.4)	0.000
20 - 25 yrs	17(65.4)	9(34.6)	
26 - 30 yrs	70(89.7)	8(10.3)	
31 - 35 yrs	28(84.8)	5(15.2)	
36 - 40yrs and above	72(91.1)	7(8.9)	
Educational Status			
Primary	16(45.7)	19(54.3)	0.000
Secondary	43(64.2)	24(35.8)	
Tertiary	150(87.7)	21(12.3)	
Marital Status			
Married	171(83.8)	33(16.2)	0.000
Single	33(55.1)	31(41.9)	
Parity			
None	53(60.9)	34(39.1)	0.000
1 - 2	85(81.0)	20(19.0)	
3 - 4	53(84.1)	10(15.9)	
5 and above	18(100.0)	0(0.0)	
Pregnancy			
Planned	152(85.9)	25(14.1)	0.000
Unplanned	57(59.4)	39(40.6)	
Have you heard of folic acid use before pregnancy?			
Yes	167(87.0)	25(13.0)	0.000
No	42(51.9)	39(48.1)	

Table 5: logistic regression shows that the significant predictors of intake of folic acid are parity and awareness before pregnancy.

Table 5: Multivariate logistic regression of predictors of Intake of folic

	p	OR	95% C.I.for OR
Age	0.003	1.644	1.19 - 2.27
Educational Status	0.596	1.173	0.65 - 2.12
Marital Status	0.457	0.736	0.33 - 1.65
Parity	0.953	1.027	0.42 - 2.52
Pregnancy	0.354	0.671	0.29 - 1.56
Awareness before pregnancy	0.000	0.286	0.15 - 0.57

Discussion

Findings in this study show that a majority of the reproductive age women are aware of folic acid use before pregnancy. This high level of awareness among respondents in this study is similar to the findings of other studies[3,6,7,8.]. Findings also reveal that respondents have poor knowledge of the function of folic acid as regards prevention of neural tube defect (NTDs) despite their claim of folic acid being beneficial to mother and infant. The possible explanation could be related to their source of information and content of the information. This is at variance with a study carried out in three birth centres in Italy that recorded better knowledge with increased use of folic acid supplementation[9]. It was noted that investment in the provision of correct information is vital folic acid supplementation intake.

Findings reveal that a majority of the women's source of information was from health centre, friends, internet followed by relations. This finding is in consonance with Al-Ahmadi who reported that women's source of information was from physicians followed by television [12, 5]. It is pertinent to note in this study that, a majority of respondents took folic acid. This is at variance with Akkoca, Kurt, Karapinor & Ozer study[12] who reported that a majority of the women of reproductive age did not use folic acid and lack adequate level of information.

However, despite high awareness and intake of folic acid, the timing of intake did not conform to recommended guideline. In this study, a majority use folic acid throughout pregnancy rather than four weeks before and twelve weeks during pregnancy. This is contrary to the recommended guideline [18, 19, 20]. This shows that there is a gap in knowledge.

In this study, factors that are associated with the folic acid intake are high maternal age, awareness, married women, planned pregnancy and tertiary education. This is supported by an Italian multicentre study [13], which reported that pre-conception use of folic acid was associated with higher education higher, maternal age, marriage/cohabitation, lower parity and infertility treatment. Regression analysis reveals that parity and awareness are significant predictors of folic acid supplement intake. This is contrary to a study in Hail region of Saudi Arabia which reveals that university education is a predictor of folic acid supplementation use. The study suffers from a number of limitations. The limitations stem from the fact that, data was collected from self-reports which were not independently verified. The possibility of recall bias may have existed.

Conclusion

From findings of the study, respondents' awareness and intake of folic acid supplementation is high but has poor knowledge on the function of folic acid as regards prevention of neural tube defect. The high awareness and intake did not translate to recommended guideline which is the proper timing of FA supplementation (one month before conception and three months during conception).

Recommendation

Based on the findings of the study the following recommendations were made.-

Healthcare providers such as Nurses, Midwives and Gynaecologists should spread the message of folic acid supplementation among women of reproduction age.

National and Local campaigns may be necessary to promote more knowledge of folic acid supplementation. Valid information on the correct period of intake should be emphasized during antenatal visit; visual media may also serve as a tool for information dissemination.

Necessary basic policies should be developed in order to achieve primary protection for the infant.

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