IOSR Journal of Nursing and Health Science (IOSR-JNHS)
e-ISSN: 2320–1959.p- ISSN: 2320–1940 Volume 10, Issue 4 Ser. V (Jul. – Aug. 2021), PP 45-50
www.iosrjournals.org

Assessment of Knowledge of Dietary Choices and Practices of Pregnant Women Attending Antenatal Care At A Primary Health Centre In Aba, Nigeria

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Abstract
BACKGROUND: *Pregnancy is a time of tremendous physiological change that demands healthy dietary lifestyle choices. Nutritional knowledge has been proven to play a very vital role in adopting optimal nutrition practices that affect the health of every expectant mother.*
AIM: *To assess the knowledge of dietary choices and practices of pregnant women attending Antenatal care at Aba South Primary Health Care (PHC).*
MATERIALS AND METHODS: *This was a descriptive cross-sectional study of 255 pregnant women attending antenatal care at Aba south PHC. Structured questionnaires were used for data collection which was analyzed using SPSS version 20.*
RESULTS: *Ninety seven percent of respondents were knowledgeable about nutrition during pregnancy while 80% had good practice of it. Equally, 96.9% was currently taking supplements and Seventy four percent of them strongly agreed that adequate nutrition is important for the growth and development of the baby. 45.5% of the respondents did not eat certain foods during pregnancy because they did not like the food. Spouse's level of education as well as family income showed statistically significant association with practice of adequate nutrition during pregnancy (P<0.05).*
CONCLUSION: *Knowledge and practice of adequate nutrition during pregnancy is enhanced by education of both the pregnant women and their spouses. Family income is also relevant to the dietary choices of pregnant women.*

Keywords: *Knowledge, Dietary choices, Practices, Antenatal care*

Date of Submission: 06-08-2021 Date of acceptance: 19-08-2021

I. Introduction

Healthy children are the foundation of a healthy population. A healthy diet is essential for normal growth and development of the fetus. For children to enjoy good health, healthy practices and care should start during or before pregnancy.[1] The incidence of dietary inadequacies as a result of dietary habits and patterns in pregnancy is higher during pregnancy when compared to any other stage in the lifecycle.[2] Different scholars discovered that many women in developing countries restrict their food intake during pregnancy for different reasons such as: to have smaller infants because smaller infants will carry a lower risk of delivery complications, cultural reason and perceived severity of delivery complications because big babies make delivery difficult.[3]

Nowadays processed foods are rapidly replacing organic foods. Another change is a rapid increase in the number of restaurants and people's tendency to eat fast food.[4]

Nutritional knowledge has been proven to play a very vital role in adopting optimal nutrition practices in the health of every expectant mother. Health and nutritional status of the population of a nation is an important indicator of development of the country. Evidence showed that nutrition education during pregnancy has significant impact on dietary habit of pregnant women and on maternal and birth outcome of pregnancy. WHO recommends that health care providers need to give adequate, specific and acceptable nutrition related advice to pregnant women during every visit of antenatal care (ANC).[4]

Even though there is existence of government health sector development programs, it was recognized that poor nutritional status of children and women continues to be a serious problem. Limited studies explored factors influencing maternal dietary practices in different parts of the country. In addition, age at first marriage, meal frequency, educational status, occupation of head of household, religion, maternal age and marital status were discovered as predictors of maternal nutritional status which in turn influence dietary practices of mothers.[2]

Globally, approximately 13% of women were estimated to be undernourished, and 38% of all pregnant women suffered from anemia. Furthermore, micronutrient deficiencies- in particular vitamin A, zinc, iodine and iron- are estimated to affect more than 2 billion people worldwide, with adverse effects that include premature death, poor health, blindness, stunting, reduced cognitive development and low productive capacity.[5] Nigeria is among the nations with the highest infant mortality rate (67 deaths per 1000 live-births) and maternal mortality rate (517 deaths per 100,000 live-births) in the world attributable to the inter-generational effect of protein energy under-nutrition and micro nutrient deficiencies.[6] Maternal anaemia in Nigeria is estimated to contribute to 20% of maternal deaths while the prevalence of anaemia among pregnant women is about 35-75%.[7] In addition, prevalence of overweight and obesity are estimated to be 18.1% and 7.1% respectively[8] with subclinical iodine deficiency during pregnancy being between 46-76% in Nigeria.[9]

Maternal diet is an important determinant of outcomes of pregnancy as such; malnutrition during pregnancy and its consequence maximally affect the health and long-term outcomes of the population. Recently, high rate of low-birth weight has been reported in most developing countries such as Nigeria accounting for almost 30% of all births with maternal malnutrition as a dominant risk factor.[10]

Obesity in pregnancy is associated with unfavorable clinical outcomes for both mother and child. Stubert et al found that the relative risk of gestational diabetes and that of preeclampsia increased by approximately 10% each with a 10% increase of pre-gravid BMI. Similarly, a 5 kg/m^2 increase of BMI elevates the relative risk of intrauterine death. An estimated 11% of all neonatal deaths can be attributed to the consequences of maternal overweight and obesity.[11]

II. Methodology

This descriptive, cross sectional study was carried out in Aba south Primary Health Centre in Abia State, south east Nigeria. The study population comprised of 255 pregnant women who visited the antenatal clinic. Interviewer-administered questionnaire was used to obtain information from consenting participants. IBM SPSS software package version 20 was used to analyze the data. Descriptive statistics of the variables were presented in frequency tables and charts. Dietary practice was classified as good or poor using 5 parameters (food preference, use of food supplements, type of food supplements, inclusion of fruits/vegetables and quantity of water intake). Having at least 3 correct responses was classified as good practice while responses below 3 were classified as poor practice. The Chi square ($\chi 2$) test was used to compare the relevant socio-demographic variables with dietary practice. P-value was set at significance level of $P<0.05$ and confidence interval of 95%.

III. Results:

This study comprised of 255 participants.

Table 1: Socio-demographic characteristics of respondents

CHARACTERISTICS	FREQUENCY (N=255)	PERCENT
Age group (in years)		
18-22	32	12.5
23-27	91	35.7
28-32	82	32.2
33+	50	19.6
Marital status		
Single	2	0.8
Married	252	98.8
Divorced	1	0.4
Type of family		
Monogamous	253	99.2
Polygamous	2	0.8
Educational status		
None	2	0.8
Primary	6	2.4
Secondary	128	50.2
Tertiary	119	46.7
Spouse's educational status		
None	2	0.8
Primary	23	9.0
Secondary	118	46.3
Tertiary	112	43.9
Occupation		
Unemployed	68	26.7
Self employed	155	60.8
Civil servant	32	12.5
Spouse's occupation		
Unemployed	2	0.8
Self employed	207	81.2
Civil servant	46	18.0

Family income		
<N30,000	17	6.7
N31,000-N60,000	138	54.1
N61,000-N90,000	58	22.7
N100,000 & above	42	16.5
Number of living children		
None	67	26.3
1	61	23.9
2	65	25.5
3	48	18.8
>3	14	5.5

Mean age= 31±4.9 years

Table 1 shows the socio-demographic characteristics of the respondents. Their mean age was 31±4.9 years with those between 23 and 27 years having the greater proportion (35.7%). Nearly all were married (98.8%) and in a monogamous family setting (99.2%). Half of the women and nearly half of their spouse (46.3%) had a secondary education. Majority of the women (60.8%) and their spouses (81.2%) were self employed with those earning at least N60, 000 monthly having the greater proportion (54.1%).

Table 2: Nutrition knowledge of the respondents

Variables	FREQUENCY (N=255)	PERCENT
Ever heard of balanced diet		
Yes	249	97.6
No	6	2.4
Source of information	**n=249***	
Healthcare worker	108	42.4
School	138	54.1
Family	1	0.4
Friends	1	0.4
Mass media	1	0.4
Types of food that make up balanced diet	**n=1249***	
Protein	247	19.8
Carbohydrates	245	19.6
Vitamins	234	18.7
Fats & oil	188	15.1
Mineral salts	161	12.9
Water	174	13.9
Balanced diet includes fruits & vegetables		
Yes	248	97.3
No	7	2.7
Knowledge of dietary supplements		
Yes	247	96.9
No	8	3.1
Common dietary supplements	**n=890***	
Iron	189	21.2
Calcium	204	22.9
Folic acid	237	26.6
B-complex	203	22.8
Iodine	57	6.4

***Multiple responses**

Table 2 shows the nutrition knowledge of the respondents. A high proportion of the women have ever heard of balance diet (97.6%). The school (54.1%) was the most chosen source of information on balanced diet. There were multiple responses on what constitutes a balanced diet (n=1249). Majority knew that a balanced diet should include fruits and vegetables (97.3%), 96.9% knew about dietary supplements while the more frequently known supplement among the women was folic acid (26.6%).

Table 3: Practice of adequate nutrition during pregnancy

Variables	FREQUENCY (N=255)	PERCENT
Frequency of meals eaten a day		
<3 times	10	3.9
3 times	83	32.5
>3 times	161	63.1
Food preference during pregnancy	**n=457***	
Proteins	85	18.6
Carbohydrates	163	35.7
Vitamins	139	30.4
Fats & oils	43	9.4
Water	27	5.9
Avoids some foods during pregnancy		
Yes	133	52.2
No	122	47.8
Currently taking any food supplements		
Yes	247	96.9
No	8	3.1
Food supplements currently being taken	**n=1118***	
Iodized salt	237	21.2
Calcium	235	21.0
Folic acid	239	21.4
Iron	203	18.2
Vitamins	204	18.2
Inclusion of fruits & vegetables in your diet		
Yes	253	99.2
No	2	0.8
****Glasses of water taken per day**		
<8	15	5.9
8 glasses or more	240	94.1
Practice Score		
Good practice	204	80.0
Poor Practice	51	20.0

***Multiple responses** ****A glass of water= 250mls**

Table 3 above is on practice of adequate nutrition during pregnancy. Majority (63.1%) of the women eat more than 3 times a day. The most preferred food groups during pregnancy are carbohydrates (35.7%) and vitamins (30.4%). Over half of the respondents avoid one food or the other during pregnancy. Nearly all (96.9%) are currently taking food supplements and include fruits and vegetables in their diet (99.2%). A high proportion of the respondents (94.1%) take 8 glasses of water and above daily during pregnancy. Overall, eighty percent of the respondents had good dietary practice while 20% had poor practice.

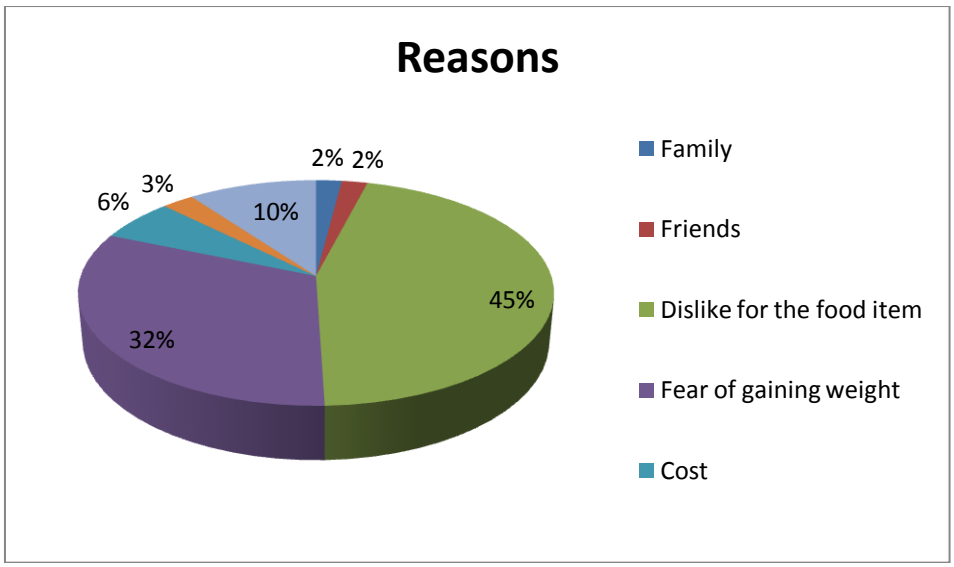

Figure 1: Reasons for avoiding some foods during pregnancy

The figure above shows the reasons for avoiding some foods during pregnancy. Dislike for the food item (45.5%) and fear of gaining weight (31.8%) were the major reasons why the women avoided certain foods during pregnancy.

Table 4: Factors influencing dietary choices and practice during pregnancy

Variables	N (%)		χ^2	P-value
	Poor Practice	Good Practice		
Age group (yrs)				
28 or less	25 (17.4)	119 (82.6)	1.440	0.230
29 & above	26 (23.4)	85 (76.6)		
Current number of children				
<3	37 (19.2)	156 (80.8)	0.341	0.559
≥3	14 (22.6)	48 (77.4)		
Level of education				
Primary or less	3 (37.5)	5 (62.5)	1.581	0.209
Secondary & above	48 (19.4)	199 (80.6)		
Occupation				
Employed	41 (21.9)	146 (78.1)	1.624	0.202
Unemployed	10 (14.7)	58 (85.3)		
Spouse's level of education				
Primary or less	9 (36.0)	16 (64.0)	4.435	0.035*
Secondary & above	42 (18.3)	188 (81.7)		
Family income				
N60,000 or less	38 (24.5)	117 (75.5)	5.038	0.025*
>N60,000	13 (13.0)	87 (87.0)		

***Statistical significance**

Table 4 shows the factors influencing dietary choices and practice during pregnancy. Spouse's level of education as well as family income showed statistically significant association with practice of adequate nutrition during pregnancy (p=0.035 and p=0.025) respectively.

IV. Discussion

The age of the women in this study ranged from 18 to 39years, mean age was 31 ± 4.9 with those between 23 and 27years having the greater proportion (35.7%). This is similar to another study carried out in Northwestern Ethiopia where the mean age of the respondents were 28 ± 5.13 and about 36.4% of respondents were between age ranges of 25-29years.[2] Half of the women in this study and nearly half of their spouse had a secondary level of education (46.3%). Education will positively influence knowledge as lack of nutrition knowledge in everyday life is a very serious threat to adequate nutrition.[12]

A total of 97.6% of respondent in this study were aware of balanced diet. This finding differed from a study in Ethiopia among rural pregnant women which found awareness of balanced diet among 53% of respondents. The difference between their finding and ours maybe due to the fact that the authors assessed both awareness of balanced diet and diversified diets jointly. [13] Majority of respondents in this study knew the various food classes that constitute a balanced diet. The finding in this study is similar to another study at Yaounde where about 92% of the mothers had good nutritional knowledge of the classes of food.[14] The reason for the higher dietary knowledge among our respondents may be due to their level of education as well as the level of education of their spouses.

Majority (63.1%) of the women eat more than 3 times a day, this result is higher than that of the study conducted in Yaounde where 22% of pregnant women ate 3 main meals a day.[15] Another study in Nwangele LGA of Imo State revealed that 71% of the women eat 3 meals per day which is slightly higher than results from this study.[12] In this study, most preferred food groups during pregnancy are carbohydrates (35.7%) and vitamins (30.4%). A study in Addis-Ababa, Ethiopia revealed that 42.4% and 46% preferred proteins (dairy products) and vitamins (vegetables) respectively.[4] A Northwestern Ethiopian study revealed that 41.7%, 38.8% and 77.4% preferred consuming carbohydrate, protein and vitamin rich foods like fresh vegetables respectively[2]while an Ethiopian study reported 50.2% and 46.1% respectively preferring proteins (meat and legumes) and vitamins (vegetables).[16]A study conducted in Yaounde had a different report as 85% of women preferred and consumed Calabar chalk (clay).[14] Hormonal changes in pregnancy may have contributed to the varied food preferences during pregnancy.

Majority (94.1%) takes at least 8 glasses of water and above daily during pregnancy (a glass is equivalent to 250mls of water). General fluid needs increase during pregnancy in order to support fetal circulation, amniotic fluid and a higher blood volume. Their practice is in keeping with the recommendation of intake of 8 to 10 glasses of water each day during pregnancy.[17] In this study, spouse's level of education as well as family income showed statistically significant association with practice of adequate nutrition in pregnancy (p=0.035 and p=0.025 respectively). An Ethiopian study revealed husband income, history of illness and dietary knowledge as a significant factor affecting dietary practices ($p<0.05$).[2]

V. Conclusion

There was a high nutritional knowledge among the pregnant women in this study, with majority having good dietary practice. Spouse's level of education and family income were found to be significant factors affecting dietary choices and practices during pregnancy. Thus, formal and informal education of both genders is advocated. In addition, nutrition education programs should be organized for pregnant mothers and their spouses to improve dietary choices during pregnancy. The Government and Non-Governmental Organizations (NGOs) can create jobs that would help families increase their household income.

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