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Assessing the dietary intake among pregnant women attending layeni primary health care in Ajegunle Apapa Lagos state in their second and third trimester

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Abstract

Background: Pregnancy is a physiological condition in which a woman carries and nurture a developing embryo or fetus as the case may be according to the age in her uterus.

Objective: This Study Assessed. The Dietary Intake of Pregnant Women Attending, Layeni Primary Health Care in Ajegunle Apapa Lagos State in their Second and Third Trimester

Method: A cross sectional study design was adopted to address the research problems. The study was designed to determine the nutritional knowledge of pregnant women in the study area. A well-structured questionnaire was used to collect data from 195 respondents. Data were analyzed using the SPSS version 20 to determine the mean with their standard deviation, frequencies, and percentages as well as drew chart.

Results: The analysis showed that most of the respondents (93.3%) were in their third trimester, 54.9% were between the ages of 20-30 years, 57.4% had children between ages 1-3 years. A larger percentage of (91.8%) had gave birth to their child at the clinic and only 9.7% attended antenatal clinic sixteen (16) times and above. The Yoruba's constituted the main population of 74.4%. There were more Christians than Muslims as 55.9% were Christians and 42.6% were Muslims. Results also indicated that 36.9% were artisans, 17.9% were traders, 16.9% were housewife, and 13.3% were students. 39% had secondary school education, showing that majority of the respondents had secondary education Majority of the respondents earned less than 30,000 per month. Mean nutritional knowledge score was 42.8 ± 6.9 and only 29.2% had good knowledge. 10.3% of the respondents had low dietary intake, 46.2% had moderate dietary intake, 43.6% had high dietary intake. The result of hypothesis 1 showed there was a significant relationship between the nutritional knowledge and dietary intake of the pregnant women at $P=0.001$. However, about 68.7% practice food taboo based on family history.

Conclusion: The increased in Low Nutritional knowledge in this study intensify great need for nutrition counselling in antenatal clinics in urban and rural places in Nigeria to help teach pregnant women on the significance of healthy food choice throughout pregnancy which is key in healthy pregnancy and growth of the child.

Keywords: Dietary intake, pregnancy women, nutritional knowledge, Layeni primary health care, Ajegunle Apapa Lagos State, Nigeria

Introduction

Pregnancy, also known as gestation, is the time during which one or more offspring develops inside a woman. A multiple pregnancy involves more than one offspring, such as twins. Pregnancy can occur by sexual intercourse or assisted reproductive technology. Childbirth typically occurs around 40weeks from the last menstrual period (LMP). This is just over nine months, where each mother averages $29\frac{1}{2}$ days when measured from conception it is about 38 weeks (Eunice Kennedy 2015) [4]. More frequently, pregnant women undergoes physiological changes which are entirely normal, including cardiovascular, hematologic, metabolic, renal and respiratory changes that become very important in the event of complications. The body needs to change its physiological and homeostatic mechanics to ensure the development of the fetus. Increase in blood sugar breathing, and cardiac output are all required. Level of progesterone and estrogen rise continually throughout pregnancy, suppressing the hypothalamic axis and subsequently the menstrual cycle.

According to United Nations Children Emergency Funds, more than half a million women die all over the world from causes related to pregnancy and childbirth, and forty thousand women die for the same cause in Nigeria yearly (UNICEF 2009) [8]. Sixteen percent of infants worldwide are born with low birth weight, incidence occurs in developing countries in which Nigeria is not left out. Each year there is ill health as a result of pregnancy by more than 20 million women around the world.

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Furthermore, the lives of eight million women are threatened and more than 500,000 women are estimated to have died in 1995 and of the 9.2 million women and girls in Nigeria each year one out thirteen face a lifetime risk of maternal death as a result of causes related to pregnancy and childbirth (WHO, 2006) [10]. Hence, pregnant women requires much intake of calorie dense food.

Under-nutrition and inadequate weight gain during pregnancy can lead to impaired intrauterine growth and consequent low birth weight of the newborn. In addition to complications at birth, intrauterine growth retardation has been associated with metabolic abnormalities in adult-hood, such as hyperlipidemia, hypertension, cardiovascular disease, glucose intolerance, and type 2 diabetes (Ritchies, Ganapathy, Woodward-Lopez, Gerstein, and Fleming 2003 Carol, Lammi-Keefe, Collins, Couch and Philipson, 2008) [7]. Conversely, Over nutrition and excess weight gain in pregnancy impart risk of gestational diabetes, macrosomia, delivery complications such as shoulder dystocia, cesarean delivery, post-operative problems, difficulty initiating breastfeeding, and risk of subsequent maternal and child obesity (Vause, Martz, Richard and Gramlich, 2016) [9]. High consumption of calorie dense food causes obesity, overweight and Thus, this paper focused on assessing the dietary intake of pregnant women attending layeni primary health care Ajegunle Apapa Lagos who are in their second and third trimester.

Materials and Methods

Study design

The study was a cross sectional survey designed to assess the dietary intake of pregnant women in their (second and third trimester)

Study area

The research was carried out at layeni primary health care in Ajeromi Ifelodun Local Government which is known to be a notorious slum. The inhabitants were mainly artisans and traders. The local government covers an area of 13.9km square and it is bounded to the north by Surulere local government area, to the east by Apapa local government area. And the third most populated area in Nigeria with a population of 946,500 by 2016 population census. The local government comprises of two primary health care and one general hospital there are ten towns and more than 100 streets making up Ajeromi ifelodun.

Sample Population

The study comprised pregnant women attending Layeni Primary health care Ajegunle Apapa Lagos state.

Sample size

The sample was calculated using the Kish-Leslie formula;

$$N = \frac{z^2 pq}{d^2}$$

n = required sample size

z = 1.96 (critical value of the standard normal distribution to error rate $\alpha/2$ at the level of significance $\sigma=0.05(5\%)$)

p=0.15 (Madiforo superstition and nutrition among pregnant women in Nwangele local government area of Imo State J. res Nat Dev 2010, 8:16-20)

q= (1-p), which represents the estimated proportion of the population with adequate dietary intake.

d= maximum acceptable from true proportion, usually set at 0.05.

$$n = \frac{1.96^2 \times 0.15 \times (1-0.15)}{0.05^2}$$

= 195 respondents

Sampling and sample technique

There are two primary health care and one general hospital in Ajeromi Ifelodun Random sampling technique was used to select 195 pregnant women from layeni primary health care on their antenatal clinic days.

Data collection

Pretested, validated questionnaires were administered to consenting pregnant women by trained interviewers during antenatal clinic sessions at layeni primary health care and are translated in Yoruba language for pregnant women who do not understand English. The questionnaire contained questions on socio-demographic and socio-economic characteristics of the pregnant women, nutritional knowledge and dietary habit/dietary intake of pregnant women towards food. Factors that affect their dietary intake were included for the purpose of the research.

Data and statistical analysis

Data collected was analyzed using SPSS version 20. Results were presented as frequencies and percentages using descriptive statistics. The nutritional knowledge was categorized into low, moderate and high by determining the mean and standard deviation of the nutritional knowledge score and a formula mean +SD was used. Where mean +SD is categorized as high knowledge, mean -SD a low knowledge and the scores between high and low was categorized as moderate knowledge. Pearson correlation analysis was used to determine the relationship between the nutritional knowledge of the pregnant women and their dietary intake.

Results

Table 1: Distribution of Respondents by Socio-demographic Characteristics.

Characteristics	Frequency (195)	Percentage
Maternal Age (Years)		
≤ 19	8	4.1
20-30	107	54.9
>30	80	41.0
Mean Age = 29.66± 7.26		
Marital status		
Single	15	7.7
Married	163	83.6
Divorced	5	2.6
Widowed	10	5.1
Separated	2	1.0
Marriage Type		
Monogamy	179	91.8
Polygamy	16	8.2
Household Type		
Nuclear	173	88.7
Extended	22	11.3
Number of children		
None	45	23.1
1-3	112	57.4
4+	38	19.5
Gestational age (months)		
Second Trimester	13	6.7
Third semester	182	93.3
Start of Antenatal		
2-3	80	41.0
4+	115	59.9
Number of Antenatal attended		
6-10	56	28.7
11-15	120	61.5
16+	19	9.7
Place of birth of children		
Clinic	179	91.8
Traditional home	12	6.2
Mission House	4	2.1

Table 1 shows the socio-demographic characteristics of pregnant women. Few (4.1%) of the women were 19 years old, 54.9% were between 20-30 years while 41.0% were 30 years old and above. About 7.7% of the respondents were single. 83.6% were married, 2.6% were divorced, and 5.1% were widowed, while 1.0% were separated. Most of the women (88.7%) practice monogamous marriage while few (8.2%) practice polygamous marriage. A larger percentage of 88.7% were of the nuclear household type and 11.3% were of extended household type. 23.1% of the women do not have a child, while 57.4% had child between the ages of

1-3 years old and 19.5% had child age 4 and above. Majority of the women (93.3%) were in their third trimester while 6.7% were in their second trimester. Furthermore, 41% of the women started their antenatal clinics 4 month ago and above. The data also reveal that 28.7% of the women attended antenatal clinic between 6-10 times, 61.5% attended 11-15 times and 9.7% attended antenatal clinics 16 times and above. The result also showed that most (91.8%) gave birth to their children in clinic, 6.2% gave birth in traditional homes, while 2.1% of the respondents gave birth to their children in mission house.

Table 2: Distribution of Respondents by Socio-economic Characteristics

Characteristics	Frequency (195)	Percentage
Religion		
Christian	109	55.9
Muslim	83	42.6
Others	3	1.5
Tribe		
Yoruba	145	74.4
Igbo	34	17.4
Hausa	9	4.6
Others	7	3.6
Educational Level		
No formal Education	29	14.9
Primary	23	11.8

Secondary	76	39.0
Tertiary	67	34.0
Occupation		
Trader	35	17.9
Civil servant	29	14.9
Housewife	33	16.9
Artisan	72	36.9
Student	26	13.3
Monthly Income (Naira)		
>N18, 000	29	14.9
N19, 000-24,999	51	26.2
N24, 000-30,000	60	30.8
>N30, 000	55	28.2

Table 2 above showed that 55.9% of pregnant women were Christians, 42.6% were Muslims and 1.5% of the respondents practice other religion. More than half of the women (74.4%) were Yoruba, while 17.4% were Igbo, 4.6% were Hausa while 3.6% of the respondents were of other tribe. 14.9% of the respondents has no formal education, 11.8% were primary school leavers, 34.0% attended a tertiary institutions and most of the respondents 39.0% were secondary school leavers. The result revealed

that 36.9% were Artisan, 17.9% were traders, 14.9% were civil servants, 16.9% were housewives, while 13.3% of the respondents were students. The results further revealed that a larger percentage of 30.8% of the respondents earns between N24,000-N30,000 naira monthly, 26.2% earns between N19,000-23,999, 14.9% of the respondents earns N18,000 and above monthly, 28.2% earns N30,000 and above.

Table 3: Distribution of Respondents by Nutritional Knowledge N=195

Statement	Strongly Agree F (%)	Agree F (%)	Undecided F (%)	Disagree F (%)	Strongly Disagree F (%)
Low calorie dense foods result in growth retardation and low birth weight	15(7.7)	71(36.4)	51(26.2)	28(14.4)	30(15.4)
Vitamin C deficiency can result in premature defects	21(10.8)	68(34.9)	69(35.4)	28(14.4)	9(4.6)
Iodine deficiency do not lead to severe birth defects	47(24.1)	26(13.3)	70(35.9)	40(20.5)	12(6.2)
Meat, fish, milk, beans, egg are rich sources of protein	24(13.3)	71(36.4)	58(28.7)	38(19.5)	7(3.6)
Low intake of iron rich foods can lead to increased risk of fetal or infant death	26(13.8)	52(26.7)	71(36.4)	29(14.9)	17(8.7)
Products such as beans, peas helps to prevent anemia	27(13.8)	67(34.4)	56(28.7)	38(19.5)	7(3.6)
Consumption of foods rich in Vitamin D such as egg yolk results in birth defects.	10(5.1)		62(31.8)	65(33.3)	27(13.8)
Calcium rich food such as milk, cheese help in the development of bone in fetus	33(16.9)	69(35.4)	59(30.3)	23(11.8)	13(6.7)
Foods rich in zinc such as legumes, seeds, nut, soy product are essential for good health	24(12.3)	73(37.4)	57(29.2)	28(14.4)	13(6.7)
Colored fruits and vegetables such as carrots, tomato, papaya etc. promote good vision	24(12.3)	73(37.4)	57(29.3)	28(14.4)	13(6.7)
Unpasteurized milk, juices and raw egg is detrimental to the child during pregnancy	35(17.9)	69(35.4)	50(25.6)	32(16.4)	9(4.6)
Overconsumption of foods during pregnancy can result in gestational diabetes	8(4.1)	29(14.9)	47(24.1)	76(39.0)	35(17.9)
Snail has no nutritional benefit	26(13.3)	28(14.4)	49(25.1)	69(35.4)	23(11.8)

Table 3 shows that 36.4% of the respondents had knowledge on low calorie dense foods in growth retardation and low birth weight and only 35.4% have knowledge on the effect of Vitamin C deficiency. Majority of the respondents (35.9%) have knowledge on the foods that are rich sources of protein while 6.4% have little or no knowledge on the risks factor associated with low intake of iron. The results further revealed that 33.3% of the respondents have knowledge on the importance of consuming food rich in

Vitamin D. Also only 35.4% of the respondents have knowledge on calcium rich foods in bone development in fetus and 37.4% have knowledge on foods rich in zinc. 37.4% of the respondents have knowledge on fruits and vegetables during pregnancy, 35.4% have idea on unpasteurized milk, juice and egg, 39.0% of the respondents have wrong knowledge relating to overconsumption of food during pregnancy and 35.4% have wrong knowledge on the nutritional benefit of snail.

Table 4: Nutritional Knowledge Scores of the Respondents

Level of Knowledge	Frequency	Percentage
High	(49-62)	57 29.2
Moderate	(35-48)	63 32.3
Low	(21-34)	75 38.5

Table 4. Shows the nutritional knowledge score of pregnant women. 29.2% had high nutritional knowledge score and a range between 49 and 62 while the mean nutritional score was 42.8 (SD=6.9). 32.3% of pregnant women had

moderate nutritional knowledge score on food with range of 35 and 48, while 38.5% had low level of knowledge relating to nutrition with a range between 21 and 34

Table 5: Distribution of Respondents by Dietary Habit

Dietary Habit	Frequency	Percentage
Skip meal		
Yes	89	45.6
No	106	5.4
Meals always skipped		
Breakfast	19	9.7
Lunch	17	8.7
Dinner	53	27.2
Reasons for skipping meal		
Don't like taking the meal	10	5.1
To maintain my figure	17	8.7
No time to cook or eat	44	22.6
Do not have appetite	17	8.7
Number of times eaten a day		
Twice	9	4.6
Thrice	19	9.7
More than	167	85.6
Composition of fruits and vegetables		
Yes	101	48.2
No	94	-
Frequency of fruits and vegetables		
Not appealing to the sight	14	7.2
Not available in my area	37	19.0
Not fresh enough	43	22.1
It's expensive	7	3.6
Snacking		
Yes	114	58.5
No	81	41.5
Number of times of snacking		
Once	19	9.7
Twice	30	15.4
Thrice	28	14.4
More than	38	19.5
Reasons for not snacking		
Not available in my area	24	12.3
Don't like snacks	15	7.7
It's irritating	22	11.3
Take food supplements		
Yes	89	44.1
No	109	55.9
Take Alcohol		
Yes	44	22.6
No	151	77.4
Reasons for taking Alcohol		
Peer influence	4	2.1
Family background	9	4.6
Depression	16	8.2
It is makes me active	14	7.2
Reasons for not taking Alcohol		
It is dangerous to my health	30	15.4
It can kill my baby	35	17.9
I personally don't like it	46	23.6
It damages major organs in the body	41	21.0
Smoking partner or neighbor		
Yes	143	73.3
No	52	26.7
Food taboo based on family history		
Yes	134	68.7
No	61	31.3

Table 5 showed 45.6% skipped meal, 27.2% of the respondent skipped dinner, while 22.6% skipped dinner because there was no time to cook the meal. The result showed that majority of the respondents (85.6%) eat more than thrice in a day, only 48.2% of the respondents consume fruits and vegetables, while 28.2% consumes fruits and

vegetables occasionally. 22.1% do not consume fruits and vegetables because it is not fresh enough. 58.5% of the respondent snack and 19.5% of the respondent snack more than thrice per day, while 12.3% of the respondents do not snack due to the fact that snacks is not available in their area. The result also revealed that 55.9% do not take food

supplement during pregnancy. 77.4% do not drink alcohol during pregnancy while 15.4% of the respondents drink alcohol due to peer influence, 23.6% don't take it because they don't like it, and 21% of the respondents don't like

taking alcohol because they think it damages major organ in the body while 76.7% of the respondents do not have smoking partners or neighbors. 68.7% of the respondents practiced taboo during pregnancy based on family history.

Table 6: Distribution of Respondents by Dietary intake using food group N=195

Food group	Daily	Thrice/WK	Twice/WK	Rarely	Never
	F e/AL,	F (%)	F (%)	F (%)	F (%)
White tubers and roots,	72(36.9)	97(49.7)	(11(5.6)	13(6.7)	2(1.0)
Legumes nut and seed	80(41.9)	89(45.6)	20(10.3)	4(2.1)	2(1.0)
Fats and oil	034.4)	101(51.8)	22(11.3)	4(2.1)	1(0.5)
Cereals	93(47.7)	53(27.2)	41(21.0)	8(4.1)	-
Dark green leafy vegetable	43(22.1)	102(52.3)	32(16.4)	18(9.2)	-
Vitamin A rich vegetable	44(22.6)	84(43.1)	42(21.5)	17(8.7)	8(4.1)
Vitamin A rich fruits	40(20.5)	87(44.6)	34(17.4)	26(13.3)	8(4.1)
Other fruits	44(22.6)	90(46.2)	38(19.5)	21(10.8)	2(1.0)
Milk and dairy products	45(23.1)	15(7.7)	41(21.0)	90(45.3)	4(2.1)
Organ meat	40(20.5)	17(8.7)	52(26.7)	82(42.1)	4(2.1)
Fish	48(24.6)	92(47.2)	35(17.9)	20(10.3)	-
Baked products	37(19.0)	15(7.7)	45(23.1)	96(49.2)	2(1.0)

Table 6 shows the food frequency intake of the respondent. The result shows that white tubers and roots were consumed by 49.7% of the respondents thrice in a week, 45.6% consume legumes fats and oil thrice in a week and 47.7% consume cereals daily. The data in the table showed that 52.3% of the respondents consumed dark green leafy vegetables thrice in a week, 43.1% consume Vitamin A rich vegetable thrice in a week, 44.6% consume Vitamin A rich

fruits thrice in a week and 46.2% of the respondents consume other fruits thrice in a week. The data further revealed that 42.1% of the respondents rarely consume organ meat, 45.3% consume milk and dairy products on a rare basis, and 47.2% consume fish at least thrice in a week. Also 49.2% of the respondents rarely consume baked products.

Table 7: Factors Influencing the Dietary intake of Respondents

Factors	Yes (F %)	NO F (%)
Diarrhea, heartburn, nausea and vomiting	157(80.5)	38(19.5)
Diabetes and hypertension	100(51.3)	95(48.7)
Allergy	118(60.5)	77(39.5)
Others	105(53.8)	90(46.4)

Table 7 shows a larger percentage of the respondents of (80.5) agreed that diseases condition such as Diarrhea, heartburn, nausea and vomiting influenced their dietary intake. The result also showed that 51.3% of the respondents agreed that diabetes or hypertension influenced their dietary

intake and 60.5% of the respondent admitted that they are allergic to certain food which influenced their dietary intake.

Hypothesis Testing

Hypothesis 1

Table 8: Pearson chi-square showing relationship between nutritional knowledge and food group frequency intake

Nutritional Knowledge score	Frequency of Food Intake Score				p-value	DF
	Low Intake		Moderate Intake			
	Freq.	(%)	Freq.	(%)	Freq.	(%)
Low	16	21.3	35	46.7	24	32.0
Moderate	3	4.8	31	49.2	29	46.0
High	1	1.8	24	46.2	32	56.

Table 8 above shows the result of the relationship using chi-square df=4, p=0.001, which shows that there is a positive significant relationship between the nutritional knowledge of the respondents and their dietary intake. Hence, the null hypothesis is rejected which states that there is no significant relationship between the two variable

Discussion

The research revealed that majority of the respondents (93.3%) were in their third trimester, Most of the pregnant women were 20years and above. It could be that the study area was made up of mature adults, and this is in line with a study by Mohidul *et al.* (2013) [6] where majority of women

were aged 20-30. It further indicates height of fertility and the age at which women marry. Majority (57.4%) had children between age 1-3 years. A larger percentage of (99.8%) gave birth to their children at the clinic and only 9.7% attended antenatal clinic sixteen (16) times and above. The Yoruba's constituted the main population of 74.4% which was similar to another study done in Ogun state in which 72% were Yoruba (Ademuyiwa and Sanni 2013) [1]. Results also indicated that 36.9% were artisans, 17.9% were traders were housewife, and. 39% had secondary school education, showing that majority of the respondents had secondary education as their highest education. This shows that most of the respondents had some level of formal

education Majority of the respondents earned less than 30,000 per month. This study is in line with the findings Aloysius N. Maduforo (2010) ^[2]. Most of the pregnant women eat moderately about 49.2% while 38.5% of women had low nutritional knowledge score. This result did not support the 75% reported by Mathew, Akintayo and Ogunwale (2016) ^[5] in Ile-Ife Osun State. Low nutritional knowledge is considered one of the main causes of inadequate dietary behavior. Studies have reported that most pregnant women have misconceptions about nutrition and are poorly informed about dietary guidelines, which may negatively influence their food choices. About 68.7% of the pregnant women practiced food taboo. This result is in contrast with Ugwa Ea 2016 ^[6] on nutritional practices and taboos among pregnant women attending antenatal care at General hospital in Kano, northwest Nigeria which showed that all the pregnant women do not practice food taboo. Taboos relating to foods prevents pregnant women from accessing a well-balanced diet, resulting in high prevalence of low birth weight and harm to mother and baby. 80% of the pregnant women experienced diseases condition such as Diarrhea, heartburn, nausea and vomiting. This study concurred with 50-90% of pregnant women affected by these diseases during first semester and sometimes extending into later months of pregnancy reported by Clark *et al.* (2012) ^[3] constipation reduces consumption of food by suppressing the appetite and food intake which ultimately have effect on the nutritional status of women. Adequate nutrition during pregnancy is essential to ensure the growth, health, and development of fetus. Therefore, the result of Pearson chi-square correlation analysis showed that there was a significant relationship between the nutritional knowledge of the respondents and their dietary intake.

Conclusion

The increased in Low Nutritional knowledge of foods in this study intensify great need for nutrition counselling in antenatal clinics in urban and rural places in Nigeria to help teach pregnant women on the significance of healthy food choice throughout pregnancy which is key to healthy pregnancy and growth of the child. The assessment of the dietary habit showed that many pregnant women eat to fill their stomach with low nutritional knowledge of what they consume this may be as a result of restriction of some healthy food during pregnancy such as food taboo and diseases condition experienced by pregnant women which influence their dietary intake. There is need for nutrition counselling focused in the early stage of pregnancy on the importance of nutritional knowledge of dietary, followed by adequate consumption of nutritious food.

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