

Original Article

Knowledge and Attitudes of Pregnant Mothers towards Maternal Dietary Practices During Pregnancy at the Etoug-Ebe Baptist Hospital Yaounde

Abenwie Suh NchangMugyia¹, Agatha Nguti Kien Tanya², Philip Nana Njotang³, Paul Koki Ndombo⁴

1 Department of public health, Faculty of Medicine and Biomedical Sciences, University of Yaounde 1

2 Faculty of Medicine and Biomedical Sciences, University of Yaounde 1; College of Nutrition Technology, University of Bamenda

3 Department of obstetrics and gynecology, Faculty of Medicine and Biomedical Sciences, University of Yaounde 1

4 Department of pediatrics, Faculty of Medicine and Biomedical Sciences, University of Yaounde 1

Corresponding author : Abenwie Suh NchangMugyia. Email: abigail22880@yahoo.com. Tel: 677805789/696324331

ABSTRACT

BACKGROUND AND PURPOSE. Poor dietary practices have been observed among the pregnant mothers receiving antenatal care services (ANC) at the Etoug-Ebe Baptist Hospital Yaoundé (EBHY), despite routine nutrition education provided to these mothers and their apparent knowledge and approval of the importance of nutrition in pregnancy. We explored the nutritional knowledge and dietary practices of pregnant mothers receiving ANC at the EBHY in order to identify the correlation between their nutrition knowledge and dietary practices.

MATERIALS AND METHODS. A cross sectional descriptive survey was done on 100 randomly selected pregnant mothers. An interviewer-administered structured questionnaire was used to collect data. Statistical analysis was done using the SPSS computer package (Version 19.) Data comparison was done by Chi Square (X^2) test with $P < 0.05$ considered statistically significant and a 95 % confidence level (CI) computed.

RESULTS. Sixty seven percent of mothers were married. Seventy one percent were literate, 51% had no stable jobs and 39% of their husbands were unemployed. Seventy one percent of respondents belonged to families with monthly income of less than 100,000FCFA and 56% of them had 5 or more household members. Ninety two percent of mothers had knowledge on good maternal nutrition before pregnancy. Seventy three percent of mothers cited the correct components of a balanced diet and their food sources (81%); however, 29% had aversion towards foods

rich in protein and other important nutrients. Thirty eight percent of mothers knew that they should eat 3 main meals a day, but only 22% of them practiced it. Sixty five percent of mothers were aware that ‘calaba chalk’ (dry clay) was harmful and prohibited in pregnancy, yet 85% consumed it. Sixty eight percent did not have Knowledge about the risk of overfeeding in pregnancy. Sixty five percent had awareness that some foods items are potentially harmful in pregnancy but did not know what to avoid. Advanced maternal age, education level, parity and monthly family income were apparently positively associated with nutrition knowledge but there was no significant difference ($p > 0.05$). Cultures and taboos exempted mothers from eating meat from wild animals, chicken, sea fish, sweet things, food partly eaten by animals, sugar cane, mud fish and ‘porrished’ cocoyam.

CONCLUSION. Pregnant mothers in Yaounde have satisfactory knowledge on adequate nutrition in pregnancy, but significant gaps and difficulty in translating knowledge into practice. Maternal dietary habits are greatly influenced by hormonal changes in pregnancy, socio- economic status, food taboos and cultural beliefs; thus making it difficult to practice the nutrition advice they receive. Adequate multiple dietary supplementation should accompany nutrition advice as an integral part of ANC. Health policies that address cultural taboos should be instituted in favour of pregnancy nutrition.

KEY WORDS: Nutrition knowledge, Dietary Practices, Pregnant Mothers.

INTRODUCTION

Nutrition during preconception as well as throughout pregnancy has a major impact on the outcome of pregnancy (1). Women who eat well and avoid known risks tend to have fewer complications during pregnancy labour and more likely to deliver live normal healthier babies (2). On the contrary women who are malnourished before and during pregnancy are more likely to experience adverse pregnancy outcomes. Before pregnancy the woman needs nutrients for growth and maintenance of her body. Good nutrition keeps her healthy. During pregnancy additional requirement for all nutrients occurs to enable the foetus to grow normally in the uterus (3). However, nutritionists, prenatal care providers and public policy-makers all accept that it is the quality of the diet, not its quantity that is most important. Thus, it is argued that, pregnant women who eat empty calorie foods may gain adequate (or even excessive) amounts of weight during pregnancy but are nevertheless at nutritional risk for adverse pregnancy outcomes (4, 5).

Adequate maternal nutrition knowledge and dietary practice before and during pregnancy is necessary to ensure positive pregnancy outcomes. According to Nasah and Drouin, Pregnancy and delivery exposes the Cameroonian mother to 2% risk of death during their reproductive life, with 43.3% of maternal death resulting from haemorrhage, 8.3% from pre-eclampsia and 4.2% from placenta abruption(6), all of which are nutrition related. It was shown that, nutrition knowledge was predictive of change in dietary habits and sensitization improved their quality of food intake (7). Poor dietary practices have been observed among the pregnant mothers receiving antenatal care at the EBHY despite routine nutrition education provided to these mothers and their apparent nutrition knowledge and approval of the importance of nutrition in pregnancy. This study explores the nutritional knowledge and dietary practices of pregnant mothers receiving ANC at the EBHY in order to identify the correlation between their knowledge and dietary practices. Our specific objectives were: to describe the socio-demographic characteristics of these pregnant mothers; to evaluate maternal knowledge on adequate nutrition and food practices before and during pregnancy; to determine the actual dietary practices of these mothers; and to identify the risk factors associated with their dietary practices.

MATERIALS AND METHODS

A cross sectional descriptive institutional based survey was carried out from the 17th of September to the 31st October 2013. The study population constituted 100 randomly selected 15-49year old Cameroonian pregnant mothers, with varying gestational ages receiving ANC at the EBHY. These mothers were residing in Biyem-Assi health area and consented to participate in the study.

The sample size was determined by the assumption that 95% of the pregnant mothers were knowledgeable on maternal nutrition during pregnancy with 5% marginal error and 95%CI. A non-response rate of 20% was estimated. Based on this assumption, the actual sample size for the study was determined using the formula for single population proportion. (See appendix 1)

To select study subjects from the study population, all qualified mothers coming for routine obstetric consultations and prenatal care at the EBHY were numbered serially in order of arrival in a client's registration book. It was from these numbers that every 3rd person was included in the sample as they registered until the desired sample size was attained.

A semi structured questionnaire was used for data collection. The questionnaire was pre- tested on 5% of the total sample size to assess for its clarity, length and completeness. The questionnaires were administered by two State Registered Nurse midwives under the supervision of the main researcher. Data was collected on the socio-demographic characteristics of respondents; maternal knowledge on adequate maternal nutrition before and during pregnancy; and their actual dietary practices, including their likes and dislikes, beliefs and cultural values related to pregnancy nutrition. The data were checked, cleared and entered into SPSS data sheet software and Statistical analysis was done using the SPSS computer package (Version 19.) The descriptive analysis such as proportions, percentages, frequency distribution, means and measures of central tendency were used. Data comparison was done by Chi Square (X^2) test with $P < 0.05$ considered statistically significant and a 95 % confidence level (CI) computed. Administrative authorization and the basic ethical principles for human research were respected.

RESULTS

Socio-demographic characteristics of respondents.

The mean age of the respondents was 23.7 (\pm 5.12) years, 66% them had more than two term pregnancies and the current gestational ages ranged from 5-35weeks. Besides 67% of the mothers were married and 11% were engaged and living with their partners. Seventy-seven (77%) of mothers were literate (with at least secondary education), however 44 % of them were unemployed and 51% of them had no stable job/source of income; 39% of respondents' husbands were unemployed, 38% of them were engaged in business, and 23% of them had a stable job/ source of income. Seventy-one (71%) of respondents' families earned less than one hundred thousand Francs CFA per month, and 11% of them had monthly income greater than one hundred and fifty thousand francs CFA. Fifty-six percent of the respondents lived in homes with more than five household members; with mean household membership being 4(\pm 3.12) ranging from 1-10members.

Sixty-nine (69%) of the respondents did not own a farm or garden.

Table 1: Socio-demographic characteristics of respondents

Characteristics	Number (%)
n=100	n=100
Age	
(15-20)	13(13)
(21-25)	43(43)
(26-30)	25(25)
(31-35)	19(19)
(>36)	0
Marital status	
Married	67(67)
single	21(21)
Divorced	01(01)
Widowed	00
Fiancé	11(11)
Educational status	
Primary	23(23)
Secondary	38(38)
High school	17(17)
University/diploma	22(22)
Occupational status	
State Employed	5(5)
Private/self-employed	51(51)
Not employed	35(35)
students	09(09)
Spouses' work status	
Employed	23(23)
Business	38 (38)
Unemployed	19(19)
students	20(20)
Monthly income(Fcfa)	
< 50 000	36(36)
50-100,000	35(35)
101-150	08(08)
>150000	11(11)
Household members	
1-4	44(44)
5-8	47(47)
>8	09(09)
Owens farm/garden	
Yes	31(31)
No	69(69)

Maternal knowledge on nutrition and dietary practices in pregnancy

Ninety-two percent of mothers had knowledge that good maternal nutrition is necessary before pregnancy and 75% of them said they were consuming a balanced diet. Seventy three percent of the mothers cited the correct components

of a balanced diet and their food sources (81%). Confusion and ignorance was shown when respondents' knowledge was evaluated on good maternal nutrition practices during pregnancy. Sixty eight percent of the respondents thought that pregnant mothers should eat for two people, and 52% of them thought that mothers should eat according to their appetite, while 38% of them knew that mothers should eat three main meals a day. Sixty five percent of mothers were aware that certain foods were potentially harmful and should be avoided in pregnancy but did not know what to avoid; 18% of them cited alcohol and pepper, 65% of them cited lime stone chalk' while 21% of mothers cited corn fufu, butter, fatty foods, sugary foods, fruits, groundnuts, bread and raised donuts' as foods to be avoided in pregnancy. On the other hand 35% of mothers thought that everything should be eaten during pregnancy. Fifty-three percent of respondents were not aware that it is risky to gain weight rapidly in pregnancy, while 50% of them agreed that it is good to control diet in pregnancy to maintain a good shape. Older mothers (≥20 years) provided more adequate responses regarding maternal nutrition in pregnancy, compared to those below this age (p>0.05). Mothers with parity of two and above were slightly more knowledgeable than those who were carrying their first and second pregnancies (p>0.05); Also mothers with at least secondary education were more knowledgeable than those with primary education (p>0.05). Just as more mothers with monthly family income of one hundred thousand francs and above provided more adequate responses to the nutrition knowledge assessment questions compared to those with lower financial power(p>0.05).

Table 2. Nutrition knowledge on maternal nutrition before and during pregnancy

Maternal knowledge indicators n-100	Good respondents (%)
Knowledge about the importance of maternal nutrition before conception	92(92)
Consumption of balanced diet	75(75)
Main foods nutrients that a pregnant woman should consume daily (balanced diet); i.e. Proteins , carbohydrates, fats ,minerals, vitamins	73(73)
Knowledge about the sources of main food groups or balance diet	81(81)
knowledge that a pregnant woman should eat 3 main meals a day	38(83)
Knowledge about the risk of overfeeding in pregnancy	32(32)
Knowledge about potentially harmful foods during pregnancy	65(65)
Knowledge about the risk of overweight in pregnancy	47(47)
Importance of food for growth and development of foetus	50(50)
Mothers whose source of nutrition information was the hospital.	44(40)
Knowledge that the best source of information for pregnancy nutrition is in the hospital.	80(80)

Maternal dietary practices

Fifty-three percent, 41% and 4% of respondents had good, fair and poor appetites respectively. Twenty two percent of them ate three main meals a day. Some discordance was noted between participants’ knowledge on adequate maternal nutrition and their actual dietary practices, whereby 38% of respondents knew that pregnant mothers should eat 3 main meals a day, but only 22% of them ate three main meals a day while 58% of them ate according to their appetites, and others (5%) ate depending on food availability. Sixty five percent of mothers were aware that clay (‘calaba chalk’) was harmful and prohibited in pregnancy yet 85% of them preferred and consumed it. Others consumed cold drinks (31%) beer (23%), bitter cola (19%), ice blocks (16%), coffee (5%), dry ground (4%) and pepper soup(16%). Foods hated and avoided were eggs (29%), fried fish(18%) , sweetish food (28%), meat (6%) and 15% of mothers hated foods like groundnut soup, pap, beans, spiced foods and tomato sauce. Cultural values and food taboos exempted mothers from eating meat from wild animals(35%), chicken(5%), sea fish(3%), and 27% others, from consuming sweetish foods , food partly eaten by animals, sugar cane, mud fish and ‘porrished’ cocoyams.

Table 3: Maternal dietary habits/ nutritional practices

Maternal practice	Frequency (%)
Indicators n=100	
<i>Mothers appetite</i>	
Good	53(53)
Fair	41(41)
Poor	4(4)
<i>Number of meal times a day</i>	
One	1(1)
Two	11(11)
Three	22(22)
Based on appetite	58(58)
Based on food availability	8(8)
<i>Food craving and pica</i>	
Calaba chalk	85(85)
Dry ground	4(4)
Cold drinks	31(31)
Ice blocks	16(16)
Bitter cola Raw sweet potatoes	19(19)
pepper soup	4(4)
Beer	15(15)
Coffee	16(16)
	5(5)
<i>Foods disliked and avoided in pregnancy</i>	
Fried fish	18(18)
Eggs	29(29)
Sweet things	28(28)
Meat	(6)
others	15(15)
<i>Foods forbidden by culture</i>	
Chicken	05(05)
Wild animals(game)	35(35)
Sea fish	03(03)
Others	27(27)
none	29(29)
Vitamin and mineral supplementation	31

DISCUSSION

The results of this survey show a satisfactory level of nutritional knowledge of pregnant mothers in Yaoundé, but with some significant gaps and difficulty in translating knowledge into practice. A majority of the mothers have good knowledge of the importance of good maternal nutrition before and during pregnancy; the components of a balance diet and their food sources. Some confusion and ignorance existed with regards to maternal knowledge of adequate nutrition practices during pregnancy and the identification of potential harmful food items in pregnancy. Some discordance exists between maternal nutrition knowledge and their dietary practices. Maternal dietary habits are greatly influenced by hormonal changes in pregnancy, socio- economic status, food taboos and cultural values; thus making it difficult to act on the nutrition advice they receive.

Our finding that a majority of the mothers had great awareness of the importance of good maternal nutrition before and during pregnancy and balanced diet is contrary to that revealed in a study by Daba *et al* in Ethiopia (8) where most (74.0%) of the respondents did not know the main food groups of the balance diet and more than half (57.8%) of them did not even know the meaning of food. Also, the results of another study reported from America at El-Menshawy Hospital showed that about half of the women did not have enough knowledge regarding the meaning, the importance, and the constituents of a well balanced diet (9). The high level of nutrition knowledge demonstrated in our study maybe due to high educational level of the respondents as more than three quarters (77%) of them had at least secondary education; contrary to the Ethiopian study where 65.4% of the mothers were non scholarised and 25.1% of them had primary education.

Despite the high literacy level of respondents, some confusion and ignorance existed as regards maternal knowledge of adequate nutrition practices during pregnancy and identification of potential harmful food items in pregnancy. This finding is in consonant with that of Yassin *et al* in Alexandria, Egypt (10) where 61.7% of the respondents were found to have poor knowledge of dietary practices in pregnancy. However a contrary finding was reported by Zeng (11) on the knowledge of nutrition and related dietary behaviours among pregnant women, where 74.9% of the respondents showed good knowledge of dietary practices during pregnancy. In a similar way, Kever *et al* (12) in the study of knowledge and attitude of pregnant women towards dietary practices in Yerwa clinic, Maiduguri metropolitan council; Borno state of Nigeria, discovered that 65.31% of the respondents showed a high knowledge about dietary practices during pregnancy despite high level of illiteracy among the respondents. The probable reason for the discrepancy may be differences in socio-cultural values of the study populations with respect

to food and exposure to nutrition information during pregnancy.

In agreement with the findings of Daba *et al* in Ethiopia (8), educational level, monthly income and nutrition information during pregnancy were identified as important predictors of maternal nutrition knowledge during pregnancy among the study participants in multivariate analysis. Similar studies conducted in Malaysia demonstrated that individuals with better nutritional knowledge levels are significantly higher in educational level, nutritional attitude and occupational status (18). In the present study, mothers who had higher financial power were also more educated; they might also have been exposed to other nutrition information at work or through other media (internet, books and magazines as source of information in work area) thereby explaining the reason for their better nutrition knowledge.

The discordance between maternal nutritional knowledge and dietary practices as well as craving, pica and aversion revealed in our study is similar to that of Mahmood *et al* (13) which showed that 84% of the pregnant/lactating mothers had the knowledge that women need to better their nutrition during pregnancy and lactation but they avoided foods like beef, eggs, brinjal, fish and citrus fruits; as these are considered 'hot' (culturally) and could have ill effects on their babies (13). A study on Maternal dietary intake during pregnancy in Riyadh, Saudi Arabia revealed that the percentage of pregnant women with specific cravings for certain foods, pica and aversion was 28.1%, 13.2% and 47.4%, respectively (14). In Sudan, 93% of pregnant women had various cravings (15). Differences in gravity of food cravings and aversions were possibly in response to beliefs about what should be consumed alongside

physiologic changes in pregnancy; thus requiring dietary counseling and support to be started early in pregnancy. In line with our finding that maternal dietary practices were greatly influenced by physiologic changes in pregnancy, socio-economic status, food taboos and cultural values; Guitierrez during his study on cultural factors affecting diet and pregnancy outcome of Mexican American Adolescents discovered that 61.22% of the respondents avoided some food during pregnancy because of their tradition (16). Also Gina *et al* in Canada(17) and Yassin *et al* in Alexandria (10) asserted that, respondents were not able to take adequate diet in pregnancy because of ethno cultural believe and low-socio economic status of the respondents and their families.

CONCLUSION

In low-income settings where household food security may be compromised, nutrition education and counselling alone may not be sufficient for pregnant women to improve their diets. Therefore, adequate multiple dietary supplementation should accompany nutrition advice as an integral part of ANC. Health policies that address cultural values should be instituted in favour of pregnancy nutrition.

Additional large randomized studies are needed to clarify the benefit and sustainability of providing nutrition education together with nutrition support and supplementation; especially in resource-limited settings where food insecurity and gender bias may limit women's capacity to act upon nutrition advice.

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Appendix 1: Sample Size.

To calculate the sample size, an estimative proportion of the population presenting the characteristics to be studied was used. it was assumed that 95% of the pregnant mothers were knowledgeable on maternal nutrition during pregnancy with 5% marginal error and 95% CI . A non-response rate of 20% was also considered. Based on this assumption, the actual sample size for the study was calculated using the formula for single population proportion as follows.

Formula:

$$n = \frac{t^2 \times p(1 - p)}{e^2}$$

Where;

n= sample size

t= standard value of normal distribution for alpha, 1.96

p= expected proportion of knowledge, attitude and practice of mothers on nutrition during pregnancy=95%=0.95

e= Level of precision or sampling error (5% for confidence interval of 95% and p value of 0.05).

None response rate=20%

Therefore, from the above, sample size is:

$$\frac{(1.96)(1.96)(0.95)(1 - 0.95)}{(0.05)(0.05)}$$

n=73+20=93

This number was made up to 100 to increase the statistical power.