Bayero Journal of Nursing and Health Care
bjnhc.nur@buk.edu.ng
Volume 3 Issue 2, November, 2021
Pages 870-877 ISSN: 2756-6501

Factors Associated with Nutritional Practices of Pregnant Women Attending Antenatal Clinic of Selected Hospitals in Benin-City, Nigeria

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Abstract
The health of a pregnant mother and her nutritional status can influence the health and survival of the growing foetus because of the biological link between her and her child. This study assessed the knowledge and practice of healthy nutrition among pregnant women attending antenatal clinics in two selected hospitals in Benin City. A descriptive cross-sectional research design was used in this study. A sample size of 284 was sampled for the target population of 972 pregnant women attending antenatal clinics in tertiary and Mission hospitals using a self-structured questionnaire with a split-half reliability test of Cronbachs alpha value of 0.886, 0.768, and 0.851. Data were analyzed using descriptive statistics (frequency and percentages). The result revealed that 157(55.3%) had good knowledge, 79(27.8%) had average knowledge while 48(16.9%) had poor knowledge. 81(28.5%) had poor practice while the majority 203(71.5%) had good practice of healthy nutrition. Ignorance (2.86±0.423), Religion (2.73±0.430), Cultural belief (2.88±0.422), were reported to be factors affecting the practice of healthy nutrition. **Conclusion:** Although knowledge and practices of healthy nutrition were high, the cultural belief still affects pregnant women's practice of healthy nutrition and health talk should be encouraged on each antenatal day with an emphasis on healthy nutrition.

Keywords: *Knowledge, Practices, Associated factors, Healthy nutrition*
DOI: https://dx.doi.org/10.4314/bjnhc.v3i2.6

Introduction

Nutrition is a fundamental pillar of human life, health, and development throughout the entire life span. Pregnancy is a phase in a woman's life with hormonal and physical changes that will require adequate nutrients of high quality to support the developing fetus (Zelalem, et al., 2017). According to Ajantha, et al., (2015), in females, energy requirements during pregnancy increase by 330 Kcal daily and protein by 15 grams daily.

Studies have revealed that Nigerian pregnant women especially those from the south-south and southeast of Nigeria consume variety of species of leafy green vegetables, while Amaranthus species such as okra, garden egg, and lettuce are consumed by Berom pregnant women of northern Nigeria (Badi et al, 2012). Studies have also shown that the mineral and vitamin contents of the commonly consumed vegetables in Nigeria are usually adequate for pregnancy; however, food taboos and food preparation practices in Nigeria compromise the nutritive values of foods (Sholeye et al. 2014). Cultural beliefs and taboos affect the nutritional practices of typical pregnant Bini women as they are forbidden from consuming food rich in iron, animal protein such as snail. It is believed that snail consumption during pregnancy causes delayed labour and excessive salivation of the baby at birth.

Daba, et al.. (2013) reported that inadequate nutrition during pregnancy increased the risk of infant and maternal morbidity and death. Socioeconomic status, food insufficiency, and ignorance have been identified associate with consumption of poor and monotonous diets and the risk of a variety of micronutrient

deficiencies during pregnancy (Ekesa, et al. 2011; Bookari, et al. 2017). Similarly, in Nigeria, Fashola et al. (2018) reported that inadequate micronutrients in diets during reproductive age and pregnancy are due to ignorance and traditional food habits.
A study in India reported that 59.9% had adequate knowledge regarding the requirement of food for the proper functioning of the body and as well as for fighting infections (Nagi, et al. 2016). In Ethiopia, poor knowledge, attitude and practice were reported among pregnant women on healthy nutrition (Tenaw, et al. 2018). Studies from Nigeria had also shown moderate knowledge, attitude and practice among pregnant women (Olajide et al. 2018).

Promoting maternal and child nutritional health is an essential public health concern for all healthcare providers. An adequate supply of nutrients at all stages of pregnancy is important for the maintenance of balance between the mother and foetus needs. If food is available in the household, factors that determine what is being consumed by pregnant women may prohibit them from the nutritious foods available. According to Daba, *et al.,* (2013) most of these deaths occurring in developing countries like Nigeria result from ongoing nutritional deficiencies such as anemia in pregnancy, small for gestational age, and prematurity, Therefore, the present study focused on the knowledge and practices of healthy nutrition among pregnant women in selected hospitals Benin City, Edo State.

Objectives of the study was to:

- ✧ Assess the nutritional knowledge of pregnant women attending antenatal clinics in a selected hospitals in Benin City
- ✧ Determine the food consumption practices of healthy nutrition among pregnant women attending antenatal clinic in a selected hospital in Benin City
- ✧ Identify perceived factors affecting practices of healthy nutrition among the pregnant women attending antenatal clinic in a selected hospital in Benin City

Research questions

1. What is the level of knowledge on healthy nutrition among pregnant women attending antenatal clinics in a selected hospitals in Benin City?
2. How well do pregnant women attending antenatal clinics in a selected hospitals in Benin City practice healthy nutrition?
3. What are the factors that influence healthy nutrition among these pregnant women?

Materials and Methods

Research design: A descriptive cross-sectional research design was used in this study.

Research setting: The study was carried out University of Benin Teaching Hospital and Central Hospital both located in the Benin metropolis of Edo state. Benin City, the capital of Edo State, is known as the home of one of the oldest sustained monarchies and traditions in the world. The people belong to approximately twelve different ethnic groups most of which have their own distinct language. Each of these groups have different food taboo affecting most pregnant women, children, and mothers, though, western culture and migration from other parts of the country may have affected some beliefs.

Target population: The target population was pregnant women attending antenatal clinics in the two hospitals. The average monthly attendance to an antenatal clinics in both hospitals was nine hundred and seventy-two (972). This was gotten by taking the monthly antenatal attendance records for six months and dividing them by six to get the average monthly attendance of 972.

Sample: Taro Yamane (1967) formula was used to calculate the size

$$n = \frac{N}{1 + N(d)^2}$$

When n = sample size; N= population size; d = level of precision (assumed to be 0.05 at 95% confidence interval); N = 972. Thus:

n = 972/1 + 972 (0.05)2
n = 972/1 + 972 (0.0025)
n = 972/1 + 3.43
n = 284.2
n = 284

Sampling technique: In this study, a convenient sampling technique was adopted because collecting data from available and interested pregnant women can be difficult. Convenience sampling is a non-probability strategy in which the population is defined as a subset from which the sample was selected with members conveniently selected.

An instrument for data collection: The instrument used for this study was a self-structured questionnaire. The questionnaire consisted of 4 sections. **Section A** contained the demographic data of the individual; **Section B** has 13 questions on gathering the knowledge the individual has on maternal nutrition. Each correct response carried 1 mark. With 13 items level of knowledge was classified as poor (score range of 1-4), average (5-9), and good (10-13). **Section C** consisted of 12 questions on the practice of healthy nutrition using a 4 point scale with an average mean of 2.5. An average mean of 2.5 and above was regarded as good practice, while below 2.5 poor practice. **Section D** contained items on perceived factors affecting healthy nutrition among pregnant women using a 4 point scale with an average mean of 2.5. An average mean of 2.5 and above was regarded as factors, while below 2.5 were not factors

Validity and Reliability of instrument: The validity of the instrument was done using face and content validation. The questionnaire was given reviewed by the supervisor and two nurse nutrition specialists. The reliability was done by administering the questionnaire to 20% of the research sample size in a similar hospital which was not part of the study. Using a split-half reliability test the data generated were be analyzed and the Cronbachs alpha value of 0.886 was obtained which showed that the instrument is reliable to be used for the study.

Method of data collection: The researcher and the research assistants collected the data on each of the antenatal days in the hospitals for 4 weeks. The nurse manager was informed and ethical approval was presented. Clients who were interested in the study filled out a consent form after the purpose of the study was explained to them. They were assured of the confidentiality of the information provided.

Method of data analysis: The researcher analyzed the data using descriptive statistics (frequency and percentages). Data gathering was organized, analyzed and described to give meaning to the research findings with histogram and tables and pie chart for an easier understanding. All analyses were done using a statistical package for scientific solution (SPSS) version 21.0.

Ethical consideration
The researcher obtained ethical approval from the ethical and research committee of both hospitals. The researcher ensured that the code of ethics aimed at protecting the rights of individuals used as subjects of the research was maintained during the course of the research.

Results
Results of this study are presented in tables, frequencies, and percentages

✧ **Demographic data of respondents**

Table 1: *Demographic data of respondents N=284*

Variables	Attributes	Frequency	Percentage
Age (Years)	18 - 24	74	26.0%
	25 - 29	96	33.9%
	30 - 35	97	34.0%
	35 and above	17	6.0%
Religion	Christian	241	85.0%
	Muslim	43	15.0%
	Others	0	0.0%
Tribe	Bini	105	37.2%
	Esan	38	13.5%
	Igbo	45	16.0%
	Yoruba	31	11.%
	Etsako	19	6.8%
	Delta	40	14.0%
Educational Level	Illiterate	34	12.0%
	Primary	34	13.0%
	Secondary	83	29.2%
	Tertiary	133	46.5%
Marital Status	Married	256	90.0%
	Single	28	10.0%
	5 - 6	62	22.0%
	7 - 10	12	4.0%

Table 3 showed the demographic data of respondents. The majority 97 (34.0%) of the respondents were in the age range of 25-30 years, while the minority 17(6.0%) of the respondents were in the age range of 15-19 years. The majority 241(85.0%) of the respondents were Christians while the remaining 43(15.0%) were Muslims. 105(37.2%) of the respondents were Binis, also a vast majority 176(61.8%) of the respondents are indigenes of Edo State, 40(14.0%) of the respondents are indigenes of Delta State. On the educational level of respondents, the majority 133 (46.5%) had tertiary education, followed by 83(28.2%) who had secondary education. The marital status of respondents showed that the majority 256 (90.0%) of the respondents were married while the remaining 28(10.0%) of the respondents are single.

✧ **Knowledge of healthy nutrition in pregnancy**

Table 2: *Respondents' responses to Knowledge of healthy nutrition in pregnancy n=284*

	Knowledge Items	Correct N (%)	Wrong N (%)
1.	Meaning of nutrient/diet: (a)eating good food [ ] (b) adequate consumption of all classes of food[ ] (c) eating plenty food [ ]	201(70.8)	83(29.2)
2.	The food groups are (a) carbohydrate [ ] (b) palm oil [ ] (c) vitamins [ ] (d) mineral [ ] (e) water [ ] (f) protein [ ] (g) vegetables [ ] (h) fat and oil [ ]	180(63.4)	104(36.6)
3.	The following food items eg crayfish, beans belong to which class of food (a) protein [ ] b fat and oil [ ] c vitamin [ ] d carbohydrate[ ]	220(77.5)	64(22.5)
4.	Does food pattern change during pregnancy: Yyes [ ] No [ ]	210(73.9)	74(26.1)
5.	Do you know about healthy diet during pregnancy: yes [ ] (b) no [	200(70.4)	84(29.6)
6.	Which of these food items contains a lot of iron (a) rice [ ] (b) eba [ ] (c) ripe plantain [ ] (d) unripe plantain [ ]	190(66.9)	94(33.1)

Knowledge Items	Correct N (%)	Wrong N (%)
7. How did you get to know about it (a) friends/relatives [ ] (b) medical personals [ ] (b) media [ ] (d) billboards/posters [ ] (d) in church [ ]	169(59.5)	115(40.5)
8. Do you need to improve diet during pregnancy : Yes [ ] No [ ]	206(72.5)	78(27.5)
9. During pregnancy, you need to feed well to look good and healthy Yes [ ] No [ ]	150(52.8)	134(47.2)
10. Can maternal nutrition cause low birth weight and still birth: Yes[ ] No[ ]	210(73.9)	74(26.1)
11. Which of these foods are most important during pregnancy (a) protein [ ] (b) garri [ ] (c) carbohydrate [ ] (d) vitamins [ ] (e) pounded yam with soup [ ]	205(72.2)	79(27.8)
12. Food is important for growth and development of the baby yes [ ], no[ ],	196(69.0)	88(40.0)
13. Do food intake affect pregnancy outcomes; yes [ ] no [ ]	230(81.0)	54(19.0)
Total	**197.5 (69.5)**	**86.5 (30.5)**

Respondents' level of knowledge on healthy nutrition

	Score range	Frequency (f)	Percentage (%)
Poor	1-4 (0-39%)	48	16.9
Average	5-9 (40-69%)	79	27.8
Good	10-13 (70-100%)	157	55.3
Total		**284**	**100.0**

The table above showed the responses of the respondents on the knowledge of healthy nutrition. It showed that majority 197.5(69.5%) responded correctly to the question while 86.5(30.5%) were wrong in their responses. Generally, 157(55.3%) had good knowledge, 79(27.8%) had average knowledge while 48(16.9%) had poor knowledge.

✧ Practices of Healthy Nutrition in Pregnancy

Table 3: *Respondents' responses to the practice of healthy nutrition in pregnancy n=284*

Practice items	A=4	S=3	R=2	C=1	Mean(SD)	Remark
Consumption of Energy foods: Cassava, Rice, Fats and oils and Garri	180(63.4)	54(19.0)	50(17.6)	0(0.0)	3.45± 0.041	Good practice
Protein foods Meat, Milk and milk products, Egg, Beans	100(35.2)	65(22.9)	74(26.1)	45(15.8)	1.75 ± 0.489	Poor practice
Food rich in vitamins How often do you consume vitamins rich food carrot, orange, or water melon. Take green leafy vegetables as a source of fibre	110(38.7)	50(17.6)	68(23.9)	56(19.7)	2.72 ± 0.431	Good practice
Iron	70(24.6)	50(17.6)	114(40.1)	50(17.6)	2.47 ± 0.446	Poor practice
Calcium such as milk	50(17.6)	60(21.1)	100(35.2)	74(26.1)	2.29 ± 0457	Poor practice
Reduce salt intake in my meal	120(42.3)	60(21.1)	80(28.2)	24(8.4)	2.96 ± 0.174	Good practice
The ratio of good to poor practice						**3:3**

Classification of level of practice

	Frequency (f)	**Percentage (%)**
Poor practice (<2.5)	81	28.5
Good practice (>2.5)	203	71.5

Key: Always (A), Sometimes (S), Rarely (R) Cannot (C) Average mean of 2.5 and above is regarded as good practice, while 2.5 is poor practice

The table above shows the respondents' practice of healthy nutrition. It showed that out of the 6 items good practices was reported in 3 with an average mean of (>2.5), while poor practice was reported in 4 items with an average mean of (>2.5). Converting this to frequency and percentage of the respondents showed that 81(28.5%) had poor practice while majority 203(71.5%) had good practice of healthy nutrition.

✧ *Factors Affecting Practice of Healthy Nutrition In Pregnancy*

Table 4: *Respondents' responses to factors affecting the practice of healthy nutrition in pregnancy n=284*

Factors hindering the practice of healthy nutrition	Strongly Agree =4	Agree =3	Disagree =2	Strongly Disagree =1	Mean(SD)	Remark
Social economic status(lack of finance)	200(70.4)	45(15.8)	20(7.0)	20(7.0)	3.37± 0.392	Factor
Illiteracy	160(56.3)	80(28.2)	40(14.1)	4(1.4)	3.39±0.391	Factor
Husband's attitude	120(42.3)	80(28.2)	55(19.4)	29(10.2)	2.91±0.420	Factor
Forgetfulness	70(24.6)	24(8.5)	80((28.2)	110(38.7)	2.19±0.463	Not factor
Ignorance	100(35.2)	90(31.7)	50(17.6)	44(15.5)	2.86±0.423	Factor
Religion	80(28.1)	90(31.7)	74(26.1)	40(14.1)	2.73±0.430	Factor
Cultural belief	130(45.8)	50(17.6)	45(15.8)	59(20.8)	2.88±0.422	Factor

NB: *Average mean of 2.5 and above is regarded as a factor while less than 2.5 is regarded as not a factor*

The table above shows the respondents' factors affecting the practice of healthy nutrition. It showed that out of the 8 items, 7 of them with an average mean of (>2.5); Social economic status (3.37± 0.392), Illiteracy (3.39±0.391), Husband's attitude (2.91±0.420), Ignorance (2.86±0.423), Religion (2.73±0.430), Cultural belief (2.88±0.422), were reported to be factors affecting the practice of healthy nutrition, while Forgetfulness (2.19±0.463) was reported not to be a factor.

Discussion of Findings

This study assessed the knowledge and practice of healthy nutrition among pregnant women attending antenatal in two hospitals in Benin-City, Edo State. Two hundred and eighty-four (284) pregnant women attending the clinic were conveniently selected. Findings from the study showed that the majority of the respondents were in the age range of 25-30, the majority were Christians; the majority of the respondents had tertiary education.

Finding from the study showed that the majority of the respondents had good knowledge of healthy nutrition in pregnancy. This result is similar to the findings of Omer, et al. (2018) in Indonesia and Olajide et al. (2018) in Nigeria who reported good nutritional knowledge among pregnant women respectively. However, the finding of Tenaw, et al., (2018) in Addis Ababa, Ethiopia did not agree our result as their finding in a similar study revealed 12.5% and 27% good knowledge of healthy nutrition among pregnant women respectively. Good knowledge of healthy nutrition reported in the present study as against other studies could be associated with the high-level of literacy exhibited by the respondent as seen in the educational qualification. Also apart from the information they got from the antenatal clinic, there is the possibility of getting information from the media and other modern technology. as Benin City is an urban area

This study revealed good nutritional practices among the respondents. This result agrees with that of Omer, et al. (2018) in a similar study in Indonesia where the majority (90%) had good nutritional practices and only (10.0%) had poor practice. Furthermore, Fasola, et al;, (2018) in Somolu Local Government (LG), Lagos state, showed that

greater than 80% have good practice of healthy nutrition during pregnancy. Nevertheless, the finding of the present study is in contrast with that of Iradukunda, and Ngomi (2020), in the Kigeme refugee camp-Rwanda and were 71.8% of the respondents had poor nutrition practice and only 28.2% had good nutrition practice. The reason for the good practice in the present study can be attributed to the high level of knowledge reported as well as the urban setting in which the study was conducted as against those that was conducted in the rural areas that reported poor practice.

Despite the high level of knowledge and practice of healthy nutrition reported by the respondent in the present study, the study revealed some factors that affect the practice of healthy nutrition. These factors include; social-economic status, Illiteracy, Husband's attitude, Ignorance, Religion, Cultural belief, Unavailability in the environment. Supporting this finding is Olajide, et al., (2018) in Ibadan, Oyo State, who reported that monthly income influences dietary practice. One important and essential factor is the economic status and attitude of the husband. If the husband cannot provide for the home dietary pattern of the pregnant woman will be a problem. Similarly, if the attitude of the husband toward a healthy diet is negative even if he has what it takes to provide for the woman, the same problem will still be encountered. Therefore healthy nutritional practices and knowledge focused on the husband is very important. Cultural belief and religion is other necessary evil that portends danger for a pregnant women with regard to their nutritional practices during pregnancy.

Conclusion

Pregnancy is a time of tremendous physiological changes that demand healthy dietary and lifestyle choices. The findings showed that most of the women attending antenatal clinic at a selected hospitals, Benin City have good knowledge and practice of healthy nutrition. It was also discovered that many factors affect the practice of healthy nutrition. Therefore it is important to continue educating pregnant women and their family on healthy nutrition.

Suggestion for further research

A study of this nature may be carried out on compare knowledge, attitude, and practice of pregnant women in rural and urban settings

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