

Dietary intake of pregnant women attending a rural primary health centre in Dakshina Kannada district in Karnataka state in India

Majra JP*, Gur Arpita, Akshaya KM, Anjali Pal

Received: 01 May 2013 / Received in revised form: 18 August 2013, Accepted: 18 August 2013, Published online: 04 November 2013
© The Indian Association for Parenteral and Enteral Nutrition 2013

Abstract

Nutrition and health status of pregnant women is important both for quality of their lives and for survival and healthy development of their children. 40 pregnant women with gestational age of 12 weeks or more attending an ante-natal clinic in a rural Primary Health Centre in Dakshina Kannada District in Karnataka state in India participated in this cross-sectional study. Dietary intake was assessed using 24 hours recall method. Haemoglobin level was estimated by acid haematin method and WHO Criteria for anaemia was applied. Among the 40 antenatal women assessed 23(58%) consumed diets deficient in calories by more than 10% of RDA. 14(60.9%) of these 23 respondents who consumed inadequate diet lived in nuclear families, 21(91.3%) had education below intermediate level and 9(39.1%) were unskilled workers and 10(43.4%) were house wives. 36(90%) of the respondents were anaemic. 30(75%) of the respondents had awareness about the Anganwadi Nutrition Programme for pregnant women.

Keywords: Dietary intake, Pregnant Women, rural, primary health centre

Introduction

Malnutrition is like an iceberg; most people in the developing countries live under the burden of malnutrition. Pregnant women,

JP Majra*

Dept. of Community Medicine, BPS Govt. Medical College for Women, Khanpur Kalan, Haryana, India. 131305

Fax: 01263- 283064;
*Email: jpmajra@hotmail.com

Gur Arpita

CIIDSRC, Poinachi, India

Akshaya KM

Yenepoya Medical College, Mangalore, India

Anjali Pal

New AIIMS, Raipur, India

nursing mothers and children are particularly vulnerable to the effect of malnutrition. On average, a normal healthy woman gains about 12kg of weight during pregnancy but it is documented that the weight gain of Indian women averaged 6.5kg during pregnancy (Park K 2011). Reproduction costs energy and a pregnancy in total duration consumes about 60,000 kcal, over and above normal metabolic requirements (Park K 2011). Thus pregnancy imposes the need for considerable extra calorie and nutrient requirements. A balanced and adequate diet is therefore, of utmost importance during pregnancy to meet the increased needs of the mother and to prevent nutritional stress. Indian diets are highly cereal based and varied kinds of dietary beliefs and practices are prevalent in the country which is also affected by the religious diversity of India (Bharti & Punia 1998). Some of these dietary beliefs and practices may be good while others may be detrimental to the health of the pregnant women and lead to malnutrition (Sunder Lal et al 2011). There is no published data available from the area under study regarding the dietary intake and related factors among Pregnant Women. Therefore this study was carried to assess the dietary intake and related factors among Pregnant Women attending a Rural Primary Health Centre in Dakshina Kannada District in Karnataka state in India.

Material and methods

This cross-sectional study was carried in an ante-natal clinic of a rural Primary Health Centre located at Natekal in Dakshina Kannada District in Karnataka state in India. The study was conducted during the month December 2010. Ethical clearance was obtained from the institutional ethics committee of Yenepoya Medical College, Mangalore, India. Informed consent was obtained from the respondents. Pregnant women attending the ante-natal clinic with gestational age of 12 weeks or more at the time of study were included. A predesigned semi structured, open-ended questionnaire was used to collect information. Information on socio-demographic factors like religion, type of family, education and occupation of the pregnant women, duration of pregnancy, awareness regarding Anganwadi facility and any taboos regarding food intake during pregnancy was obtained. Dietary intake was assessed

using 24 hours recall method. Recommended Dietary Allowances recommended by Indian Council of Medical Research were used for comparison (ICMR 1992). Haemoglobin level was estimated by acid haematin method and WHO Criteria (WHO 2001) was applied to define anaemia and anaemia was classified using Indian Council of Medical Research classification of anaemia among pregnant women (ICMR 2001). Data thus obtained was analyzed using SPSS software. Percentages and proportions were used as statistical methods to interpret data.

Results

A total of 46 pregnant women visited the Primary Health Centre during the study period and forty among them were having gestational age of equal to or more than 12 weeks. These women were included in the study. Among them 25(62.5%) were in second trimester and 15(37.5%) in the third trimester of pregnancy. Among the 40 pregnant women included in the study 32 (80%) were Hindus, two (5%) Christians, six (15%) were Muslims and none among them belonged to any other religion. Twenty two (55%) were living in joint families and 18(45%) in nuclear families. All were literates, 10(25%) were educated up to primary, 21(53.5%) high school, three (7.5%) Pre University College (PUC) and six (15%) were graduate or above. Majority 19(47.5%) among them were housewives, six (15%) semi skilled workers, seven (17.5%) unskilled workers and eight (20%) were in other occupations.

Twelve (30%) among them were vegetarian and 28 (75%) were non-vegetarians. Rice was the staple diet. Most of the participants 32 (80%) were consuming single cereal diet only and the remaining eight (20%) were consuming wheat also, though occasionally. Diet of all of the participants was deficient in green leafy vegetables and fruits. Sea Fish was the only meat product consumed by the non-vegetarian participants.

Table 1: Dietary intake of the pregnant women according to their religion

Calories intake	Hindu	Christian	Muslim	Others	Total
Adequate or \leq 10% RDA	10 (31.2%)	2 (100%)	5 (83.3%)	0 (0%)	17 (42.5%)
Deficient by $>$ 10%RDA	22 (68.7%)	0 (0%)	1 (16.7%)	0 (0%)	23 (57.5%)
Total	32 (100%)	2 (100%)	6 (100%)	0 (0%)	40 (100%)

Caloric intake was more deficient among the pregnant women living in nuclear families as compared to joint families (Table 2).

Table 2: Dietary intake of the pregnant women according to type of family

Calories intake	Type of family		Total
	Joint	Nuclear	
Adequate or \leq 10% RDA	13(59%)	4(22%)	17(42.5%)
Deficient by $>$ 10%RDA	9(41%)	14(78%)	23(57.5%)
Total	22(100%)	18(100%)	40(100%)

Twenty one (91.3%) of the pregnant women who had under nutrition were having education less than PUC level (Table 3). Dietary deficiency was observed to be more common among unskilled workers (85.7%) and compared to about 50% among all other occupations (Table 4).

Dietary deficiency was observed among 14(56%) pregnant women in second trimester of their pregnancy and nine (60%) of the

Table 3: Dietary intake of the pregnant women according to their educational status

Calories intake	Educational Status				Total
	Primary	High School	PUC	Graduate & above	
Adequate or \leq 10% RDA	2 (20%)	8 (38.1%)	3 (100%)	4 (66.6%)	17 (42.5%)
Deficient by $>$ 10% RDA	8 (80%)	13 (61.9%)	0 (0%)	2 (33.3%)	23 (57.5%)
Total	10 (100%)	21 (100%)	3 (100%)	6 (100%)	40 (100%)

Table 4: Dietary intake of the pregnant women according to their occupation

Calories intake	Occupation				Total
	House wives	Semi-skilled	Unskilled	Others	
Adequate or \leq 10% RDA	9 (47.4%)	3 (50%)	1 (14.3%)	4 (50%)	17 (42.5%)
Deficient by $>$ 10% RDA	10 (52.6%)	3 (50%)	6 (85.7%)	4 (50%)	23 (57.5%)
Total	19 (100%)	6 (100%)	7 (100%)	8 (100%)	40 (100%)

Table 5: Dietary intake of the pregnant women according to duration of their pregnancy

Calories intake	Duration of pregnancy		Total
	Second trimester	Third trimester	
Adequate or \leq 10% RDA	11(44%)	6(40%)	17(42.5%)
Deficient by $>$ 10%RDA	14(56%)	9(60%)	23(57.5%)
Total	25(100%)	15(100%)	40(100%)

participants in third trimester of their pregnancy (Table 5).

Thirty six (90%) of the pregnant women were suffering from some degree of anaemia (Table 6). Twenty four (96%) of the women in second trimester were anaemic and 12(80%) pregnant women in third trimester were anaemic. No difference was observed in the level of anaemia between vegetarians and non-vegetarian or across various levels of education, occupation, type of family and religions.

No food taboo was reported in the study population. Thirty (75%) of the participants were aware about the Anganwadi nutrition programme for pregnant women but only 12(30%) were utilizing these services.

Discussion

A woman's nutritional status has important implications for her health as well as the health of her children. If women are not well-nourished, they are at a higher risk to suffer from anaemia, toxemias of pregnancy, post-partum haemorrhage and are more likely to give birth to low birth weight babies resulting in a high infant mortality rate (Sahoo & Panda 2006).

The present study has shown that the diet of 57.5% of pregnant women (56% in second trimester and 60% in their third trimester) was deficient in energy by $>$ 10% RDA. A study

from Aligarh has reported the average energy consumption of pregnant women was lesser by >10% RDA in the second, and third trimesters (Anisa et al 2011). The study also reported that the dietary deficiency was more common among Hindus, nuclear families, less 12 years of education and unskilled by occupation. Similar observations have been made in study from Hararyana (Bharti & Punia 1998).

Table 6: Prevalence of anaemia among pregnant women

Duration of pregnancy	Level of anaemia among pregnant women				Total
	Severe <7 g%	Moderate 7-9.9 g%	Mild 10-10.9 g%	No anaemia >11g%	
Second trimester	1(4%)	2(8%)	21(84%)	1(4%)	25 (100%)
Third trimester	0(0%)	1(7%)	11(73%)	3(20%)	15 (100%)
Total	1 (2.5%)	3(7.5%)	32(80.0%)	4(10.0%)	40 (100%)

The study reported that 90% of the pregnant women were anaemic which is much higher than the 59% reported in National Family Health Survey-3 (IIPS 2007). Furthermore no difference was observed in the level of anaemia between vegetarians and non-vegetarian or across various levels of education, occupation, type of family and religions. This may be due the fact that most of the participants were consuming single cereal i.e. rice diet, which is poor in iron content and diet of all participants was deficient in green leafy vegetables and fruits. Sea Fish was the only meat product consumed by the non-vegetarian participants which is also poor in iron content.

Though three fourth of the pregnant women in under study were aware regarding the Anganwadi nutrition programme for pregnant women but only 12(30%) were utilizing these services which is similar to NFHS-3 findings for the state of Karnataka (IIPS 2007).

Conclusions and recommendations

The present study clearly reflects that diets of the pregnant women in the study area were deficient. To improve the nutritional status of pregnant women, prenatal programs need to focus on identifying and counseling pregnant women on appropriate nutrition. A judicious combination of various food groups is required to ensure that nutrient demands are fully met. Efforts are needed by the Anganwadi workers to identify undernourished women, educate them regarding the ill effect of malnutrition on the outcome of pregnancy and begin supplementation as early as possible during pregnancy.

Acknowledgement

We are thankful to the medical officer of the primary health centre for his support. We are thankful to a group of medical interns for their help in data collection.

References

- Anisa M Durrani, Anjali Rani (2011) Effect of maternal dietary intake on the weight of the newborn in Aligarh city, India. *Niger Med J*. 52:177-81.
- Bharti Panwar, Punia Darshan (1998) Nutrient intake of rural pregnant women of Haryana State, Northern India: relationship between income and education. *International Journal of Food Sciences and Nutrition* 49:391-95.

ICMR (1992) Nutrient requirements and recommended dietary allowances for Indians. ICMR, New Delhi.

ICMR (2001) Micronutrient deficiency disorders in sixteen districts of India. ICMR, New Delhi.

International Institute for Population Sciences (IIPS) and Macro International (2007) National Family Health Survey (NFHS-3), 2005–06: India: Volume I. IIPS, Mumbai.

Park K. (2011) Preventive Medicine in Obstetrics, Paediatrics and Geriatrics. In: Park's text book of preventive and social medicine. 21st ed. Bhanot Publications; Jabalpur.

Sahoo S, Panda B (2006) A study of nutritional status of pregnant women of some villages in Balasore districts, Orissa. *J Hum Ecol* 20:227–32.

Sunder Lal, Adarsh, Pankaj (2011) Applied Nutrition. In: Text book of Community Medicine. 3rd ed. CBS Publications; New Delhi.

WHO (2001) Iron deficiency anaemia, assessment, prevention and control—A guide for programme managers. UNICEF, United Nations, WHO, Geneva.