

Diet and nutritional status of lactating mothers with special emphasis on maternal risk factors

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ABSTRACT

The objectives of the present research was to assess the diet and nutritional status of mothers with special emphasis on maternal risk factors. The study was carried out in three rural villages of Khurda district of Odisha. One hundred lactating mothers were selected by random purposive sampling method. Data on socio demographic profile of mothers was collected with the help of questionnaire cum interview method. Diet survey was done by twenty four hour recall method. The height and weight of the respondents was measured with the help of the required tools and BMI was computed. The result of the study revealed that none of the mothers were illiterate and twenty four per cent of them belonged to underweight and low weight BMI. Most important maternal risk factors related to low and underweight BMI were anemia, less birth interval, premature birth, frequent infection etc. Their diet was found to be starch based i.e. excess intake of cereals, roots and tubers and other vegetables. However a positive trend towards intake of pulses, milk and meat products was found in this study which may be due to urbanization, education and economic condition but total mean actual intake was found to be less than RDA. Some food restrictions for mothers such as intake of bitter gourd, malayu, salted fish, cheese and curd was found in this study. Thus regular health monitoring of the mothers along with nutrition and health education may be helpful in improving the nutritional status of the mothers

Key Words : Lactating mothers, Nutritional status, BMI, RDA, Maternal risk factors.

INTRODUCTION

Since women are the primary care givers of the children within the family structure, their role is essential in producing well adjusted adults who grow up to become positive contributors to society. "The hand that rocks the cried is the hand that rules the world is a poem by William Ross Wallace, the priers mother hood as the pre-eminent force for change in the world. The changing status and position of the woman in different periods and different civilizations have very greatly influenced by her upbringing, education and health care. Diet and nutritional status of women especially during pregnancy and lactation is of much importance as they do not live for themselves but for the one-the future generation of the society. As maternal nutrition is highly co-related with maternal health status as well as secretion of breast milk - the food for infant, much emphasis is given in this direction by Women and Child Development Department of Govt. of India and Govt. of Odisha, still than it is a matter of concern. Even after adoption of several health programmes conducted by

CSSM (Child Survival and Safe Mother hood) and RCH (Rural Child Health) targeting health status of mothers and children, several studies showed that diets consumed by many lactating mothers in our country are poor and lack of many nutrients. Therefore the present research is designed to study the diet and nutritional status of lactating mothers with special reference on material risk factors in rural Odisha. The objectives of the present study were

- To Study the demographic profile of the mothers.
- To know the maternal risk factors
- To study the food consumption pattern of the respondents.
- To asses the nutritional status of the lactating mothers

METHODOLOGY

The study was carried out in three villages namely Bhingarpur, Ramachandrapur and Sasan of Khurda District of Odisha situated at about 8 Kilometers far from Bhubaneswar. 100 lactating mothers belonged to 19-35 years of age group were selected for the present study by random purposive sampling method having at least one infant (0-12) months. Information on demographic profile and maternal risk factors of the respondents was obtained by interviewing the mothers with the help of questionnaire schedule. The information on dietary intake of mothers was collected by 24 hours recall method. Types of food consumed were assessed and quantity of cooked food was converted to raw foods in grams and was noted down. Per cent adequacy of food and nutrient intake was assessed by comparing with RDA. Height and weight of the respondents was measured with the help of measuring tape and weighing machine and BMI was calculated with the help of BMI formula *i.e.* weight in kg / height in m².

Values of various indices for different grades of malnutrition are as follows.

Indices	Values	Grades of malnutrition
BMI	< 16	CED grade III (Severely underweight)
Wt. in kg/Ht. in m ²	16 - 17	CED grade-II (Moderately underweight)
	17 - 18.5	CED grade - I (Mildly Under weight)
	18.5-20	Low weight
	20-25	Normal
	25-30	Obese - I (over weight)
	>30	Obese – II

The collected data were statistically analyzed and discussed below.

RESULTS AND DISCUSSION

The results of the present study are as follows :

Socio demographic profile of the respondents :

Information on demographic profile of the respondents showed that majority of the mothers belonged to 26 - 30 years. It was interesting to note that none of the mothers were illiterate and most of them educated up to class 10th. 88% mothers were found to be home makers. Joint family system was found to be prevalent in that area having 4 to 6 members. Majority of the respondents belonged to middle income family *i.e.* 60%. Bairwakavita *et al.* (2017) found in their studies majority

of the households surveyed were nuclear family.

Table 1 : Socio demographic profile of the respondents

Sr. No.	Socio-economic variables	Characteristics	Frequency (N = 100)	Percentage
1.	Age in years	19 - 25	38	38
		25 - 30	43	43
		31 - 35	19	19
2.	Education of Mothers	Illiterate	-	-
		Up to 7th	14	14
		Up to 10th	42	42
		Graduation and above	44	44
3.	Occupation	Working	12	12
		Home Maker	88	88
4.	Types of Family	Joint	78	78
		Nuclear	22	22
5.	Size of family	Less than 4	08	08
		4 - 6	46	46
		6 and above	36	36
6.	Income of Family	Low income (Less than 1 Lakh)	34	34
		Middle income (1 Lakh to 3 Lakh)	60	60
		High income (More than 3 Lakh)	06	06

Nutritional status of mothers according to BMI:

The height and weight of the mothers was measured and BMI was calculated.

Results of Table 2 revealed that 6% respondents were underweight and 18% respondents were low weight. Majority of the respondents i.e. 58% were found to be normal. Only 16% and 2% respondents were found to be overweight (obese-I) and obese-II, respectively.

Table 2 : Nutritional status of the mothers according to BMI

BMI classification	Frequency (N = 100)	Per cent
Under weight (< 18.5kg/m ²)	6	6
Low weight (18.5kg/m ²)	18	18
Normal (20 - 25kg/m ²)	58	58
Overweight - Obese-I (25 - 30.0 kg/m ²)	16	16
Obese - II (>30 kg/m ²)	02	02
Total	100	100

Maternal risk factors with regard to BMI :

Table 3 depicts results of maternal risk factors with regard to BMI. It was observed that mothers belong to underweight and low weight BMI category are more vulnerable to maternal risk factors such as birth interval, premature birth, low weight gain during pregnancy, infection, prevalence of anemia, stress and chronic illness in comparison to normal, overweight and obese mothers. However stress / depression was found more among overweight and obese mothers in comparison to others. Weight gain during pregnancy and infection was found to be associated with their food intake and life style and maintenance of hygiene. Hemorrhagic condition of the mothers was related to their work atmosphere, housing condition as well as health status. Similar findings was also

found by Agarwal *et al.* (2006) and Fall (2009).

Food habits and dietary pattern of the mother :

It was observed that 86% mothers were non-vegetarian having 4 meals per day. It was also interesting to note that majority of the respondents were consuming Anganwadi supplied food along with foods prepared at home. Sago, bottle gourd, protein powder, horlicks, drumstick, papaya, vadi, milk, fruits, eggs, other vegetables etc. were also consumed by 69% mothers for better milk secretion. However some food fads was also found during the study such as restriction of cheese and curd for cold and bleeding and bitter gourd, malayu, salted fish for indigestion or diarrhea of the baby. None of the respondents were consuming alcohol, cigarette, biddi or desi daru but betel leaf, panparag and betel nut was found to take by 22% respondents.

Table 3 : Maternal risk factors with regard to B.M.I.

BMI Risk factors	Under weight (06)	Low weight (18)	Normal (58)	Over weight (16)	Obese II (2)	Total (100)
Birth interval						
< 36 month	06	18	15	05	00	44
> 36 month	00	00	43	11	02	56
Previous prematurity						
Yes	05	11	13	02	01	22
No	01	07	45	14	01	68
Weight gain in pregnancy						
<10 kg.	02	09	05	00	00	16
10-12 kg	04	09	41	10	00	64
> 12 kg	00	00	12	06	02	20
Infection						
Yes	05	04	23	09	01	42
No	01	14	35	07	01	58
Hemorrhage						
Yes	01	03	09	03	-	16
No	05	15	49	13	02	84
Anaemia:						
Yes - Mild	01	05	06	05	01	18
Moderate	03	10	08	01	-	22
Severe	02	01	02	01	-	06
No	00	02	42	09	01	54
Stress / Depression						
Yes	04	06	17	11	02	40
No	02	12	41	05	00	60
Chronic illness						
Yes	05	07	18	01	-	31
No	01	11	40	15	02	69

Food intake of the mothers in comparison to RDA :

Table 4 revealed the information on actual food intake of lactating mothers in comparison to RDA. It was observed that cereal consumption of respondents was 21.16% more than RDA which includes mostly parboiled rice, wheat and sago. Although pulse consumption of the mothers

was less than RDA *i.e.* 24.9% but a positive trend of dal intake was found in that locality which may be due to education and income of the family. However other vegetables which include papaya, brinjal, bottle guard, drumstick, plantain etc. and roots and tubers such as potato, carrot, beet root and yam were consumed by them in excess amount than the RDA *i.e.* 154% and 89%, respectively. Green leafy vegetable intake was found to be restricted to the nursing mothers because of indigestion and green diarrhea in infants. Milk and milk products, sugar and jaggery, fats and oils and fruit consumption was found to be less than ICMR recommended diet which is 29.5%, 38.3%, 54.6% and 48.5%, respectively. However Anganwadi supplied food *i.e.* two egg per week as well as chatua were also consumed by the mothers but most of the times it was found to be shared by other members of the family. Thus the diet of the mothers was found to be starch based which include mostly cereals, roots and tubers and other vegetable followed by pulses. Eihinger Ferro-Luzzi (1997) found similar trends in their study. Ogechi (2014) in his study found that cereals/cereal based dishes (1430) and leafy /non leafy vegetable (1079) were consumed more frequently while legumes were less frequently consumed on a daily basis.

Table 4 : Actual food intake of the respondents (Moderate worker)

Sr. No.	Food stuffs	Actual mean food intake	RDA (ICMR) moderate worker in g	Percentage of deficit (-) or excess (+)
1.	Cereals	605.8	500	21.16 (+)
2.	Pulses	56.3	75	24.9 (-)
3.	Other vegetables	101.6	40	154 (+)
4.	Green leafy vegetables	46.3	100	53.7 (-)
5.	Roots and tubers	75.6	40	89 (+)
6.	Milk and milk products	176.2	150+100 = 250 g	29.52 (-)
7.	Sugar and jaggery	18.5	30	38.3 (-)
8.	Fats and oils	15.9	35	54.6 (-)
9.	Fruits	20.6	40	48.5 (-)

Conclusion:

Conclusively this research showed a positive trend of nutritional status as well as food intake in rural area. Majority of the mothers belonged to 26-30 age group and none of them were illiterate having moderate family income. Only 6% and 18% respondents had under weight and low weight BMI, respectively which may be due to low education, income awareness of the respondents. The most important maternal risk factors related to low and underweight BMI were prevalence of anemia, less birth interval, premature birth, frequent infection etc. Food intake of mothers in comparison to RDA showed excess intake of cereals, other vegetables and roots and tubers. However a positive trend towards pulse, milk and meat product consumption was found among the respondents. Green leafy vegetables, fats and oil consumption was found to be less than 50% in their diet. Thus the result of the study recommended that health and nutrition education should be imparted to the women for motherhood and to improve their dietary intake. Health monitoring of the lactating mothers should be done on the periodical basis to protect health of mother and to reduce stunting among children.

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