

Food consumption pattern of tribal children suffering from severely acute malnutrition - A study in Odisha

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Abstract

The objectives of the present research was to study the food consumption pattern of tribal children suffering from severely acute Malnutrition. Ninety two (92) children belonged to 0-3 years of age group attending NRHM centre of Malkanagiri were selected by random purposive sampling method for the present study and the data was collected by using required tools. The results of the study revealed that majority (89%) of the respondents were belonged to the age group of 7 months to 2 years of age group and no significant sex difference was found in the prevalence of Severely Acute Malnutrition. Most of the respondents were non-vegetarian. Rawrice and Mandia jaw (ragi) was their staple food. Different types of locally grown pulses, nuts and oil seeds, vegetables, fruits etc. was found to be consumed by them according to availability. Even though mothers were ignorant about the benefits of breast milk, still than 92% of them breast fed their babies after one hour of delivery. Cows milk, buffalo milk etc. was not consumed by the children at all. None of the respondents consume sugar and jaggery daily. "Salafa" one type of beverage was consumed by all children which is the juice of a "Salafa tree". The mean food intake of the respondents (1-3 years) was found to be deficient in comparison to RDA irrespective of all food items. Even though various types of food stuffs available in the households and supplied by the Government to improve the health status of the children, still than the crisis of Malnutrition is not under control due to improper utilization of the resources.

Keywords: Severely Acute Malnutrition (SAM), Food Consumption Pattern, Salafa, Food Intake, RDA

1. Introduction

Severe Acute Malnutrition (SAM) is a major public health problem throughout the world and afflicts about 2.2 million under five children and causing nearly 0.6 million deaths in India (Black *et al.* 2008). As per the United Nations more than 200 million people in India are malnourished and according to NFHS-III 49 percent of the children in India were malnourished Childhood malnutrition is a serious condition of the body which results due to insufficient intake of calorie and protein in the diet and leads to poor physical, social and intellectual development which is impossible to reverse afterwards. The country grows sufficient food and had a functional democratic system with effective feedback mechanisms. World's largest public distribution system for food delivery is working to reach every citizen of the country and enough policy attention has also been paid to health and nutrition issues in recent years still than malnutrition rates remain high in India. As prevalence of malnutrition and intake of food is closely associated, the present research is designed to study the food consumption pattern of tribal children suffering from Severely Acute Malnutrition in Malkanagiri District, Odisha. The objectives of the study were

- To know the demographic profile of the respondents.
- To study the dietary habits and food consumption pattern of the respondents.
- To assess the food intake of the Children in comparison to RDA

Methodology

The present research was carried out in Malkanagiri District of Odisha in the year 2013. 92 Children (0 - 3 Years) suffering from Severely Acute Malnutrition attending NRHM centre of Malkanagiri District of Odisha were selected by random purposive sampling method for the collection of data. The information on demographic profile of the respondents, dietary habits and food consumption pattern of the respondents was collected by using predesigned and pretested questionnaire. The parents were interviewed for data collection. The diet survey was done by using 24 hour's recall method. The food intake of the respondents was calculated after converting cooked amount in terms of its raw weight for each of the subject and was compared with the RDA. The severely Acute Malnourished children were selected on the basis of weight for height measurement of 70% or more below the median or three SD or more, below the mean NCHS reference values of a mid-upper arm circumference of less than 110mm in children of of age 1-5 years.

Results and Discussion

The results of the present investigation were tabulated, statistically analyzed and were discussed below.

1. Age and Sex of the Respondents

Table 1: Age and sex distribution of the respondents according to 'Z' Score.

SI No.	Age in Months	< - 1 S D		< - 2 S D		< - 3 S D		< - 4 S D		Total	
		Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
1	0 - 6	-	-	-	-	1	1	-	-	1	1
2	7 - 12	-	-	-	-	10	12	8	9	18	21
3	13 - 24	-	-	-	-	18	16	5	4	23	20
4	25 - 36	-	-	-	-	2	3	2	1	4	4
	Total					31	32	15	14	46	46

Equal number of boys and girls suffering from severely Acute Malnutrition were chosen for the present study. It was interesting to note that majority of the respondents i.e. 89% were belonged to the age group of 7 months to 2 years. No significant sex differences was found in the prevalence of Severely Acute Malnutrition. However more girls were found to be malnourished in the age group of 7-12 months whereas more boys were found to be malnourished in the age group of 13 to 24 months which may be due to prolonged breast feeding and late introduction supplementary foods.

2. Demographic Profile of the respondents

Information on demographic profile of the respondents revealed that out of 92 respondents 41 boys and 41 girls i.e. 82 respondents were belonged to 7 to 24 months of age group. Nuclear family (69%) system was found to be prevalent in that area. Most of the parents (66%) were found to be illiterate or had low education. Agriculture was the primary occupation of the parents. Age at marriage was found to be 16 to 18 years in most of the parents. Family income was found to be less than Rs. 30,000/- per annum among 43% respondents. 63% of the parents found to prefer indigenous medicines instead of allopathic medicines. Only 12% respondents were found to use latrine for defecation and only 08% respondents were found to wash hands before eating.

3. Breast feeding practices & weaning

Breast feeding is best for the baby. Even though 100% mothers were ignorant about the nutritive value of the colostrum still than 92% of them breast-fed their babies after one hours of delivery and rest of the mother's breast fed their babies within 2-3 hours of delivery. Cent percent mother's breast fed their babies according sign for wanting. Frequency of number of breast feeding decreases with advancement of age of the baby. It was interesting to note that 48% of the respondents breast-fed up to 3 years of age, 36% breast-fed until next pregnancy starts and rest of them continues to take breast milk till milk dries up. They observe "Varsa Purani Parab" when the child is of 1 year age and fed them 'rice' with 'Salafa'. Till 1 year of age they fed their children Mandia jaw after 6 months of age along with breast milk. Similar findings was also observed by Jayanti et.al. (2008) [10], Yadavannavar *et al.* (2011) [14], Madhu et.al (2009) [15].

4. Food habit and dietary pattern

It was interesting to observe that 95.6% respondents were non-vegetarian 97.8% of the respondents were taking four meals per day. Their diet was dominated by Raw Rice, Mandia Jaw (Ragi), Green Chilli, Leafy Vegetables etc. Though 95.6% respondents were non vegetarian but non-vegetarian food consumption was found to be occasional or seasonal (fish during rainy season). Cooking was done twice a day i.e. morning and evening 4 'O'

Clock. All the meals of the day include Mandia Peja. By 6 'O' Clock evening they took their dinner and sleep by 7 'O' Clock evening. The diet of the children was also include the food supplied by the Anganwadi's.

Table 2: Food habits and dietary pattern of the respondents. Food Habits

SI No.	Characteristics	No	%
1	Vegetarian	04	4.34
2	Non-Vegetarian	88	95.65

Dietary Pattern

SI No.	Characteristics	No	%
1	Lunch + Dinner	-	-
2	Breakfast + Lunch + Dinner	02	2.17
3	Breakfast + Lunch + Snacks + Dinner	90	97.83

A days Sample Menu

Morning - Raw Rice + Green Chilli + Salt /Anganwadi food

Mid Morning - Mandia Jaw / Ragi gruel.

Lunch - Rice + Vegetable / Food Supplied by Anganwadi

Snacks - Mandia Jaw+Seasonal fruits (according to availability)

Dinner - Raw Rice/Mandia+Leafy Veg/Dry Fish/Vegetables

5. Food Consumption Pattern

The information on different types of foods consumed by the respondents is summarized below.

5.1 Cereals & Millets

Raw rice was their staple food (100%). Ragi (Mandia) in the form of gruel was also consumed by them at least twice daily. Arrowroot and maize was also taken by them according to availability.

5.2 Pulses

Kesardhal, Kandula dal (Arhar), Black gram, green gram, Janha seed, Jhata seeds (winter season) were different types of pulses cultivated in that area. But none of the respondents took pulses regularly, Only 26% of the respondents consumed pulses rarely which may be due to poverty.

5.3 Nuts & Oil Seeds

Different types of nuts & oil seeds like ground nuts and cashew nut were available locally but none of them consumed it rather their parents sell those in the market at a cheaper rate.

5.4 Leafy Vegetables

28% of the respondents were found to consume different types of leafy vegetables daily or weekly. "Kaliary" one type of leafy vegetable mostly consumed by them i.e. sour in taste. Other leafy vegetables available in that area were Khada Sag, Bhaji Sag, Kumuda Sag, Poi, Neam leaves & flowers, Tarmarind leaves, Rajbees etc. Disliking towards leafy vegetable was seen among the respondents.

5.6 Other Vegetables

Brinjal and Pumpkin were commonly taken by the respondents but in small amount. Other seasonal vegetables were also consumed by them according to availability.

5.7 Roots & Tubers

Potato, Kiukanda, Karadi (root of the palm tree), Sakara Kanda, Sweet Potato and raddish were consumed by them according to availability. Only 21% respondents were found to eat roots & tubers.

5.8 Fruits

Different types of fruits were consumed by 100% respondents according to availability. Different types of seasonal fruits like Mahula, Kendu, Lanka Amba (Fruits of Cashew Nut), different types berries like Kantai Koli, Narakoli, Amla, Sitaphal, Ramphal, Guava etc. were available in that area.

5.9 Milk

91% respondents took breast milk regularly. No other milk was consumed by them as parents did not milch their cows by saying that cow's milk is only for their calves.

5.10 Meat and Fish

Country chicken was consumed by them frequently mostly during festivals. Bear meat and Rabbit meat was also consumed by them according to availability. Dry fish was mostly consumed by them daily. Other fishes are also consumed by them according to availability.

5.11 Fats & Oil

Tola oil (Fruit of Mahula tree) and mustard oil, Ground nut oil were commonly used by them for the preparation of Sabji.

5.12 Sugar and Jaggery

It was interesting to note that none of the respondents consume sugar and Jaggery daily.

5.13 Beverages

It was very surprising to observe that "Salafa" one type of beverage consumed by all i.e. from younger one to older, Salafa is juice of Salafa tree.

6. Average Food Intake of the respondents.

Table 4: Mean food intake of the respondents (1-3 yrs, N-51) in comparison to RDA.

Sl No	Food stuff	Actual Mean food Intake (gm.)	RDA (ICMR) in (gm.)	% of deficiency or Excess
1	Cereals	128.46	175	26.59 (-)
2	Pulses	22.27	35	36.37 (-)
3	Other Vegetables	14.81	30	50.63 (-)
4	Green Leafy Vegetable	16.32	40	59.2 (-)
5	Roots and Tubers	7.8	10	22 (-)
6	Milk	Breast Milk (No Other Milk)	300	-
7	Fats and Oil	7.3	15	51.3 (-)
8	Sugar and Jaggery	12.34	30	58.86 (-)
9	Fruits	9.8	30	67.33 (-)
10	Fish/Egg/Meat	12.67	30	57.77 (-)

The mean food intake of the respondents was found to be deficient in comparison to RDA irrespective of all food items which varies from 22% to 67.33%. Other milk consumption was found to be nil in the diet of the children. Children took mother's milk up to 3 years of age. Occasional or seasonal fruit consumption was found among the respondents. Even if rice, dal, sabjee, egg and sattu was supplied through anganwadi's, the children could not consume it because of their illness. Dislike for consumption of vegetables, egg/meat/fish was found among 80% of the respondents. However their diet was found to be dominated by cereals i.e. rawrice/ragi gruel & its deficiency in comparison to RDA was only 26.59%. Mukhopadhyay et.al (2011) [18] found in their studies among tribal children in West Bengal that household food security was significantly associated with stunting, wasting & under weight children. Handling of food was also found to be improper.

7. Conclusion

Finding of the present study strengthen the facts that prevalence of severely acute malnutrition is closely associated with low food consumption of the children. Even though various types of foods stuffs available in the households and supplied by the Government to improve the health status of the children still than the crisis of malnutrition is not under control due to improper utilization of the resources. Thus emphasis should be given to train the parents regarding nutritive value of the local food stuffs and how to prepare cheap low cost healthy food stuffs for

children in their houses. They should be also be made aware about the importance of supplied food by the Government at anganwadi centers. More research work should be conducted on uncommon food stuffs consumed by the tribals to develop food security of the respondents at the grass root level.

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