

Research Paper :

## A study on food consumption pattern of pre-school children of Khagaria district of Bihar

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### ABSTRACT

To assess the food consumption pattern of pre-school children, the present study was planned and conducted. Looking to this fact, the study was undertaken on a random sample of 100 pre-school children of Pansalwa village of Beldour block of Khagaria district of Bihar. An interview schedule was used for data collection. Daily dietary intake of the children was obtained with the help of 24-hour dietary recall method of diet survey which was undertaken for 3 consecutive days. The study revealed a significant deficit of approximately 50 per cent in all other food stuffs except cereal in the daily dietaries of pre-school children. Consumption of fruits, the protective food was very negligible so that more than 90 per cent of deficit was observed in the habitual diet of children when compared with low cost balanced diet recommended by ICMR.

**Key words :** Dietary recall, Food consumption pattern, Low cost balance diet

India has the highest child population in the world and children in the 0-6 year age group number around 158 million (Census of India, 2001). In the country, the highest percentage of child population was found in Bihar (40.8) and Uttar Pradesh (40.1) which are densely populated, while the lowest was found in Kerala (27.3) where the population is low. For a healthy working population, it is essential that children receive adequate nutrition to ensure proper physical and mental growth. Incidence of PEM and vitamin A deficiency are high among pre-schoolers. Nutrition plays a vital role as inadequate nutrition during childhood may lead to malnutrition, growth retardation, reduced work capacity and poor mental and social development (Awasthi and Kumar, 1999).

Nutritional status during the most vulnerable and growing period of childhood lays foundation for good health in later years. Nutrition is increasingly being recognized as a basic factor determining the human resource potential of the nation. Today's child is the nation's future economic asset. The quality of our future human resource is going to be determined largely by the investment made now for the sound development of our child population (Gopalan, 1993). The diets of children were found to contain inadequate amounts of pulses, green leafy vegetables, sugar, fats and oils and milk, as a result the diet exhibited deficits in energy and B-Carotene contents. The present study was conducted with keeping in view the following objectives : to find out daily dietary intake of pre-school children of Khagaria district and to assess the adequacy of habitual diets of pre-schoolers.

### METHODOLOGY

To fulfill the objectives of the present study, it was planned and conducted on a random sample of 100 pre-school children of Pansalwa village of Beldour block of Khagaria district of Bihar. An interview schedule was used for data collection. Daily dietary intake of the children was obtained with the help of 24-hour dietary recall method of dietary survey which was undertaken for 3 consecutive days. A set of standard utensils was used to facilitate estimation of the amounts consumed.

### FINDINGS AND DISCUSSION

The child's mean daily intake of food was estimated and compared with low cost balanced diet (ICMR). The data regarding daily dietary intake of children are presented in Table 1, separately for the two age-groups *i.e.*, 1 to 3 years and 4 to 6 years children, respectively. Per cent adequacy of habitual diets of pre-schoolers has been presented in Table 2 and illustrated through Fig. 1-8.

### Cereals :

Children were given cereals/ millets mostly wheat, in the form of a piece of chapattis, maize roti, rice, khichadi etc.

As per the recommended allowances for balanced diets for Indian children (ICMR, 1985), a child should consume 150g of cereals. Using this as a yardstick, the mean intake of cereals for 1-3 years aged children was found to be comparable of what is recommended (Table

**Table 1 : Mean daily dietary intake of pre-school children**

Foods stuffs (g)	Pre-school children (n=100)		Low cost balanced diet	
	1-3 Yrs	4-6 Yrs	1-3 yrs	4-6 yrs
	n=29	n=21		
Cereals	150.14 ±24.32	220.90±24.55	150	200
Pulses	8.39±3.93	16.15± 5.08	50	60
Green leafy vegetables	8.15± 8.88	29.11±13.79	50	75
Other vegetables	12.04± 7.85	21.45± 13.10	30	50
Fruits	2.01±2.62	4.66± 4.48	50	50
Milk	105.62± 73.05	37.54± 49.28	300	250
Fats and oils	4.62± 1.99	13.06± 5.81	20	25
Sugar and jaggery	11.07± 5.15	10.17± 6.02	30	40

±SD

1). Though, the same was higher than that of recommended level for 4-6 years children, it being approx. 291 g . Mean daily cereal intake of children as per cent of RDA has been illustrated in Table 2 and Fig. 1.

**Pulses :**

Inclusion of pulses and legumes in the dietaries of children was almost negligible. The amount consumed was ranging between 0 to 20 g. Mean intake of pulses as per cent of RDA has been depicted in Table 2 and Fig. 2. As is evident from Table 1, the mean intake of pulses was approximately 8 and 17 g for 1-3 and 4-6 years children. Comparison with RDA indicated that the amount consumed was only approximately 17 and 27 per cent of RDA for 1 to 3 year children and their elder counter parts, respectively.

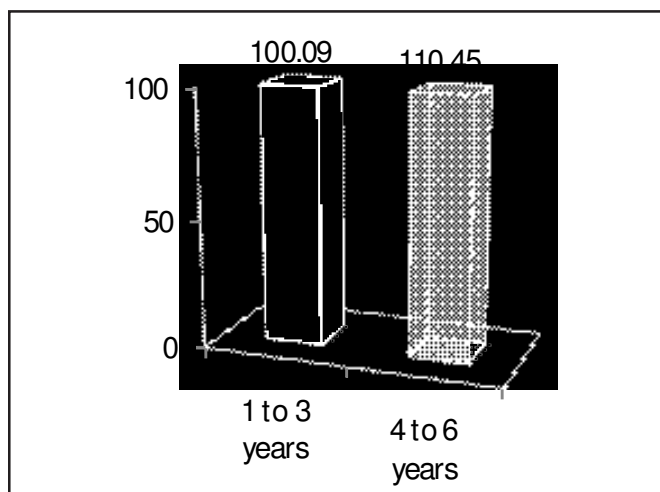
**Vegetables :**

Vegetables, whether leafy, roots and tubers or other vegetables did not form an important item of the dietaries of these rural children. It is evident from Table 1 that

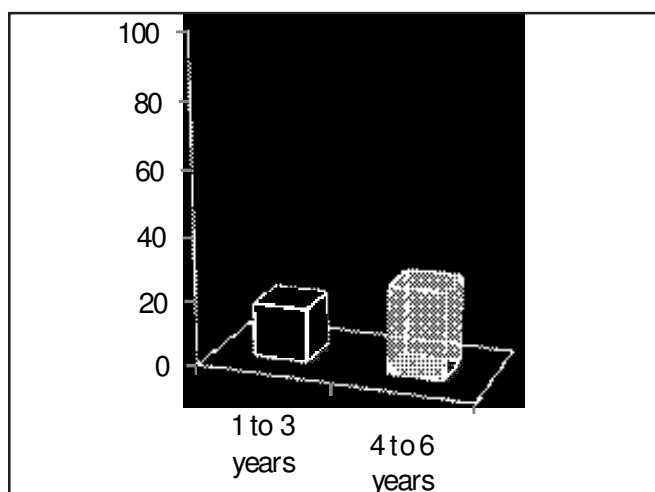
mean daily consumption of green leafy vegetables was 8.15 and 29.11 g for 1 to 3 and 4 to 6 years children, respectively. Comparison with RDA revealed that only about 16 and 39 per cent of recommended level of green leafy vegetables were consumed by 1 to 3 and 4 to 6

**Table 2 : Per cent adequacy of habitual diets of preschool children**

Foods stuffs	Pre-school children (n = 100)	
	1-3 years	4-6 years
	Per cent of RDA	
Cereals	100.09	110.45
Pulses	16.78	26.91
Green leafy vegetables	16.30	38.81
Other vegetables	40.13	42.90
Fruits	4.02	9.32
Milk	35.20	15.10
Fats and oils	23.10	52.24
Sugar and jaggery	36.90	25.42



**Fig. 1 : Mean daily cereal intake of children as per cent of RDA**



**Fig. 2 : Mean daily pulses intake of children as per cent of RDA**

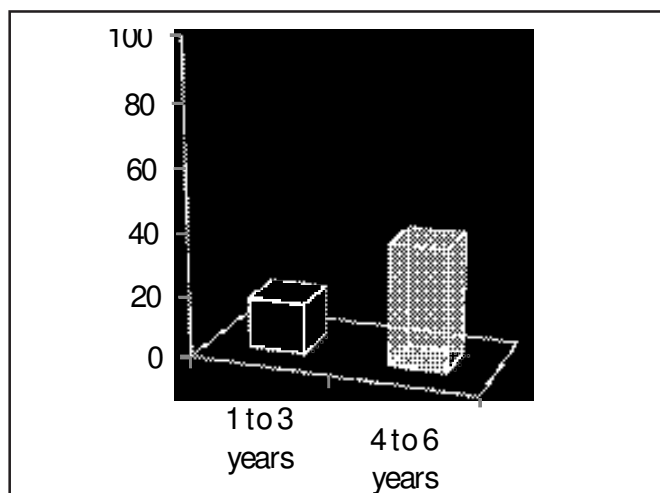


Fig. 3 : Mean daily green leafy vegetables intake of children as per cent of RDA

year children, respectively (Table 2 and Fig. 3).

Consumption of roots and tubers, mostly potatoes was also negligible; the mean amount consumed was ranging between 5 to 50g. Mean intake of vegetables was about 12 and 21.45 g exhibited by 1 to 3 and 4 to 6 years aged children, respectively (Table 1). In comparison with RDA, only up to 40 and about 43 per cent other vegetables were consumed by younger children (1 to 3 year) and their elder counter parts, respectively (Table 2 and Fig. 4).

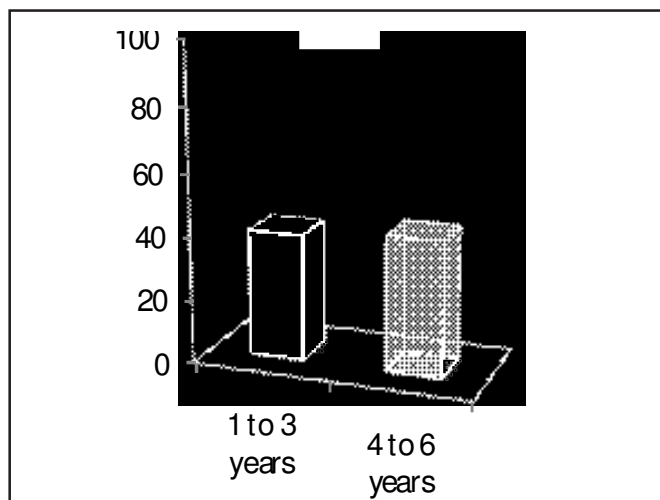


Fig. 4 : Mean daily other vegetables intake of children as per cent of RDA

#### Fruits :

Fruits were seldom included in the dietaries of the children, their inclusion has not been possible because of the cost factor. Guava was the single fruit grown in their house premises. The mean intake of fruits, mainly guava

was ranging between 0 to 20g. Fig. 5 clearly illustrates that dietaries of pre-school children exhibited more than 90 per cent of deficit with regards to fruit consumption when compared with RDA.

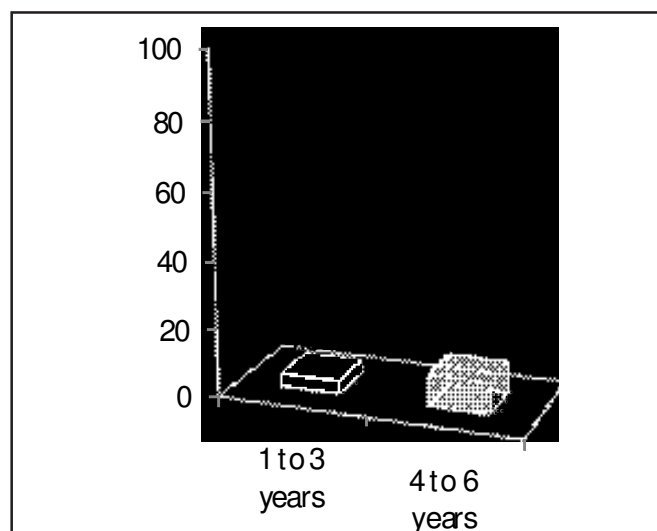


Fig. 5 : Mean daily fruits intake of children as per cent of RDA

#### Meat and flesh foods :

Intake of meat, egg, poultry and fish was not reported by any of the mothers. The same could be because of economic constraints, their poor availability in the region and religious taboo.

#### Milk and milk products :

In addition to breast milk, children were given cow's or buffalo's milk in the form of milk, kheer and curd. The data revealed that there was considerable variation in the intake of milk and milk products.

Children between the age-range of 4 to 6 years were consuming negligible amounts of milk, which was ranged from 0 to 100 ml. However, the mean daily intake of milk was 105.62 and 37.54 g for 1 to 3 and 4 to 6 years children, respectively as is evident from Table 1.

Comparison with the RDA revealed that, the mean intake of milk and milk products of the children of both age-groups was far less than the recommended level as it is depicted through Fig. 6.

#### Fats and oils :

Addition of fats and oils in the diets of children up to 1<sup>st</sup> year of age was negligible, a probable feature of their dependence on a more or less milk diet.

As the child starts eating the family diet, his/her intake of fat, too, increased to a certain extent. The mean

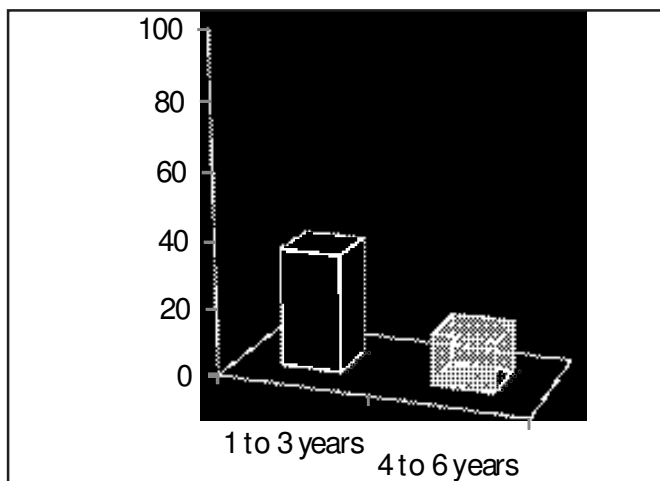


Fig. 6 : Mean daily milk intake of children as per cent of RDA

intake of fat for 1 to 3 years children was 4.62 g where as it was increased to 13.06 g for their elder counterparts (Table 1). Comparison with the RDA revealed that consumption of fat was relatively inadequate for children of both age-groups (Fig. 7).

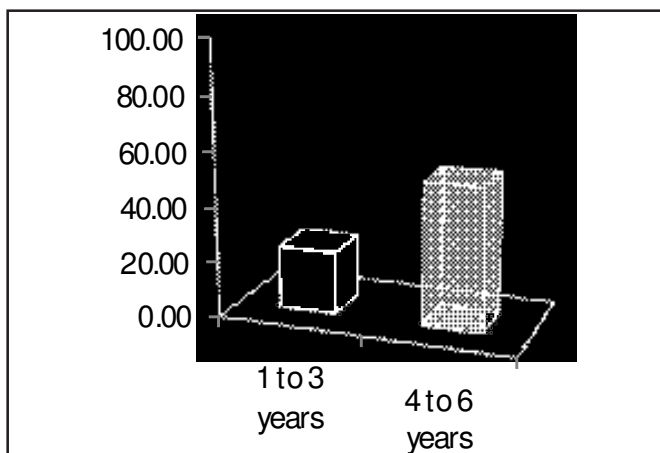


Fig. 7 : Mean daily fats and oils intake of children as per cent of RDA

**Sugar and jaggery :**

Sugar or jaggery was used to prepare halwa (a gruel made from wheat flour/ suji, fat and sugar), kheer or to sweeten milk. It is evident from Table 1 that the mean intake of sugar and jaggery was 11.07g and 10.17g for 1 to 3 and 4 to 6 years old children, respectively.

Comparison with RDA revealed that intake of sugar and jaggery for the subjects in the present investigations was inadequate and it being 36.90 and 25.42 per cent for 1 to 3 and 4 to 6 years children, respectively (Fig. 8).

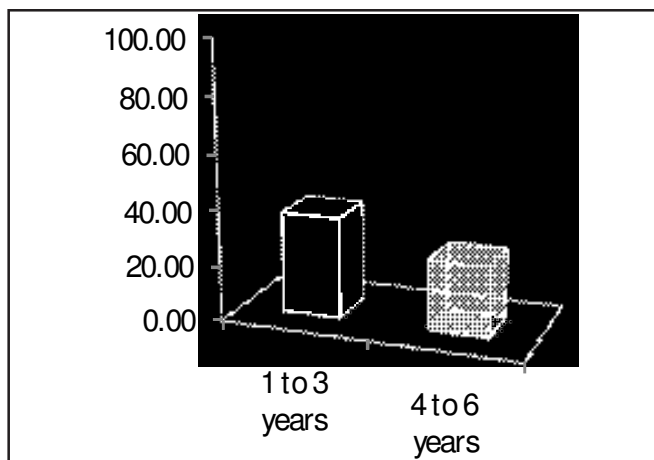


Fig. 8 : Mean daily sugar and jaggery intake of children as per cent of RDA

Findings of the study led to conclude that daily dietaries of pre-school children were significantly deficient in all the food stuffs except cereals, the deficit observed was approximately more than 50 per cent of the RDA. The negligible consumption of green leafy vegetables cannot be attributed to seasonal variability, as the data were spread through summer, pre-monsoon and winter months (April to December), and the period during which they are available. Consumption of fruits, the protective food was very negligible so that more than 90 per cent of deficit was observed in the habitual diet of children when compared with low cost balanced diet recommended by ICMR.

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