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RESEARCH ARTICLE

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Nutritional adequacy of habitual diets of preschool children of Khagaria district of Bihar

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ABSTRACT

The present study aimed to assess the nutrients adequacy of home diets of preschoolers (1-6 years). The study was undertaken on a random sample of 100 preschool children of Pansalwa village of Beldour block of Khagaria district. The sample was categorized under two age groups *viz.*, 1-3 and 4-6 years for convenience. An interview schedule was designed for collection of data. 24-hours dietary recall method of diet survey was used to obtain complete dietary information about the children. "Nutritive value of Indian Foods" (ICMR) was used for computation of nutrients available in habitual diets of preschoolers. A contradictory finding observed that in spite of adequate cereal consumption, children had been in deficient state of calorie intake. An excess of protein intake was indicated by younger (1-3 years) children and their elder counterparts, despite of negligible consumption of pulses. Calorie intake was observed to be as 58 and approx. 62 per cent of recommended dietary allowances for 1 to 3 and 4 to 6 years children, respectively. Except protein intake (110% of the RDA), fat, calcium and iron too, were found to be lower than RDA for both age groups.

Key words : Nutritional adequacy, Preschool children and Recommended dietary allowances (RDA)

INTRODUCTION

Nutritional adequacy of diets reflects the prospects of nutritional status of preschool children. A child without adequate nourishment is highly vulnerable to viral, bacterial and parasitic infections such as measles and whooping cough.

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 *et al.*, 1993).

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 is high among preschoolers. 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).

In a study, Devi *et al.* (1980) assessed dietary pattern of children of Marathwada and revealed that the calories are main bottleneck in the diet of Indian pre-school children. In the study, the severe P.E.M. children (Grade-IV) in both the age groups consumed calories and protein approximately 38 and 53 per cent of recommended dietary allowances, respectively. Similarly, the grade III P.E.M. children consumed 60 to 64 per cent protein and 45 per cent calories of recommended dietary allowances. Since the percentage consumption of protein is comparatively higher than that of calories by malnourished children in almost all grades, it can be predicted that the P.E.M. among rural Marathawada children is arising from marked calories deficiency.

The study conducted by Rana and Hussain (2001) revealed that mean energy intake through home diet of pre-school children was 1114.55 K cal while RDA was

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1240 K cal, consequently 100/150 children were having deficient energy intake and 98 of them were underweight. The mean protein intake was found up to RDA as the mean intake was 20 to 69 g and RDA is also 22g per day.

Preschool children (1-6 years), undoubtedly are the most crucial segment of our population, due to not only to their sheer numbers, but also because during these formative years, the foundations are laid for adult life. Therefore, it is very essential to know the nutrients adequacy of their habitual diets for taking steps for correcting dietary deficiencies. The present study was conducted with keeping in view the following objectives to find out daily nutrients intake of pre-school children of Khagaria district and to assess the nutritional adequacy of habitual diets of pre-schoolers as per cent of RDA.

MATERIALS AND METHODS

The study was planned and conducted on a random sample of 100 pre-school children of Pansalwa village of Beldour block of Khagaria district of Bihar. The sample was divided into two age groups *viz.*, 1-3 and 4-6 years. An interview schedule was designed 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. Nutritive value of Indian foods (Gopalan *et al.*, 1991) was used for computation of nutrients available in the habitual diet of pre-schoolers and compared with Recommended Dietary Allowances (ICMR).

RESULTS AND DISCUSSION

Mean daily nutrients intake of the children has been presented in Table 1, separately for the two age groups *i.e.*, 1 to 3 years and 4 to 6 years children, respectively.

Energy :

The daily mean energy intake of 1 -3 years and 4- 6 years aged children was approx. 719 and 1042 Kcal, respectively, while RDA is 1240 and 1690 Kcal for younger and elder children, respectively.

Protein:

The present set of data clearly highlight that among 1 to 3 years old children, an average intake of protein was approx. 24 g which was greater than RDA for their age. Similarly, 4 to 6 years aged children exceeded daily protein intake (approx. 33 g) when compared with RDA (30 g).

Fat :

As is evident from Table 1, mean daily fat intake was about 11 and 16 g for younger children and their elder counterparts, respectively, which was much lower than RDA (25 g for each age group).

Calcium (Ca):

The mean daily calcium intake of 1 to 3 years old children was abysmally low, which was approx. 104 mg and it was approx. 161 mg for 4-6 years old children. When compared with RDA (400 mg for each age group), the dietaries were found in severe deficient state of calcium.

Iron (Fe):

The dietary data clearly highlight that average daily intake of iron for 1 to 3 years old children was approx. 8 mg and it was approx. 13 mg for their elder counterparts, which was lower than RDA for their age.

Naturitiohnal adequacy of diets consumed:

It is obviously important to have detailed knowledge regarding the diets actually consumed by the children both for assessing their nutritional adequacy and for taking steps for correcting dietary deficiencies.

Table 2 : Mean daily nutrient intake of children as per cent of RDA

Nutrients	1 to 3 years	4 to 6 years
Energy (Kcal)	58.00	61.64
Protein (g)	110.00	110.00
Fat (g)	45.76	65.40
Calcium (mg)	26.00	40.30
Iron (mg)	68.50	71.22

Table 1 : Mean daily nutrients intake of the children

Nutrients	1-3 years (N= 62)		4-6 Years (N = 38)	
	Actual	RDA (ICMR)	Actual	RDA (ICMR)
Energy (Kcal)	719.52 ± 74.83	1240	1041.76±167.12	1690
Protein (g)	24.23±2.17	22	33.02± 3.68	30
Fat (g)	11.45±4.38	25	16.35±7.37	25
Calcium (mg)	104.33±18.40	400	161.19±23.71	400
Iron (mg)	8.22± 1.35	12	12.82 ±1.26	18

±SD

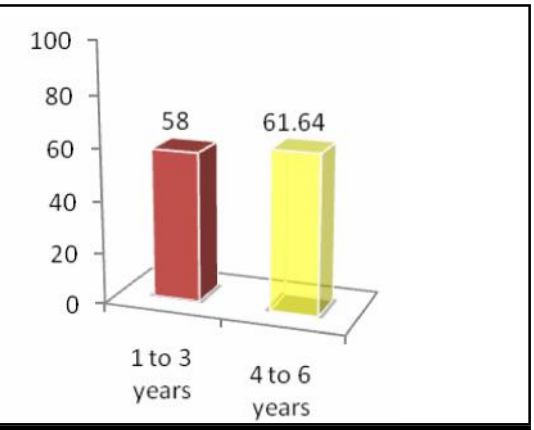

Fig. 1 : Mean daily intake of energy as per cent of RDA

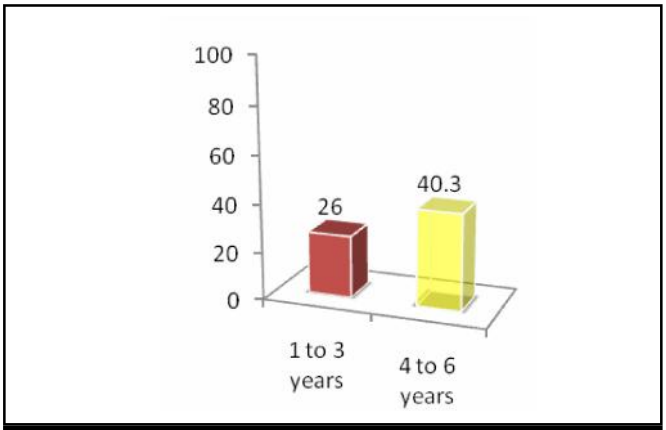

Fig. 4 : Mean daily intake of calcium as per cent of RDA

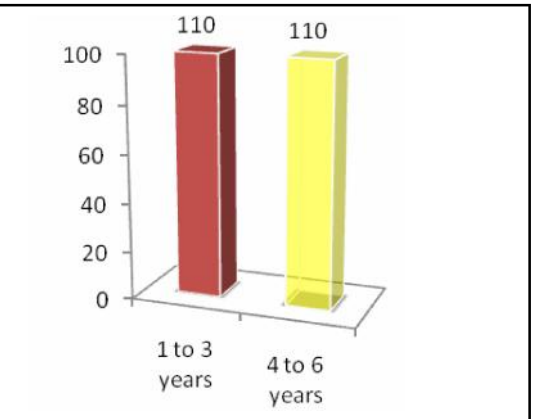

Fig. 2 : Mean daily intake of protein as per cent of RDA

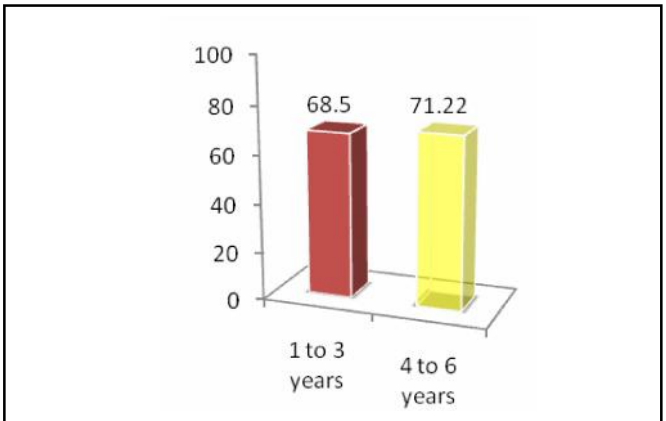

Fig. 5 : Mean daily intake of iron as per cent of RDA

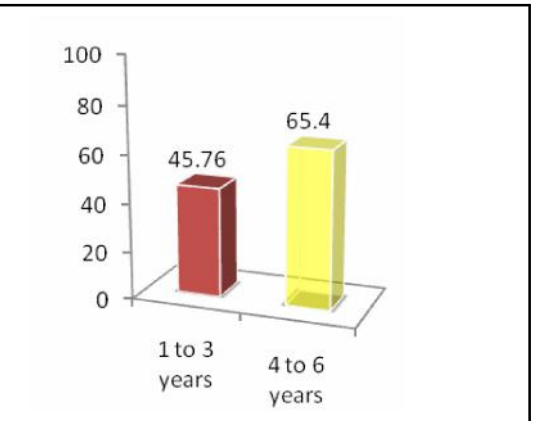

Fig. 3 : Mean daily intake of fat as per cent of RDA

Findings of the Table 2 clearly reveal an excess of protein intake and severe deficiency of calcium in the dietaries of pre-school children.

In the present context, an attempt has been made to highlight the per cent adequacy of diets through diagrammatic illustration of 'Mean daily nutrient intake of children as per cent of RDA' (Fig. 1, 2, 3, 4 and 5)

Conclusion:

The critical analyses of the present findings provide the basis for conclusion. The study findings clearly indicate that despite of adequate cereal consumption, diet of children was not providing energy comparable to RDA, which might be attributed to very low inclusion of high energy yielding food like fat and sugar in the dietaries. Though, the consumption of pulses were negligible, but diet of the children exhibited an excess of protein intake, which led us to conclude that a maximum percentage of protein was provided by cereals, too beside of pulses, milk and milk products. Calcium intake was much lower than RDA, which might be due to low consumption of milk and milk products and green vegetables by the children.

Recommendations:

There is a great need of nutrition education to the mothers of children so that they could be able to prevent their children to be malnourished as well as to overcome

their children from severe to mild degree of malnutrition, if malnutrition be prevailing.

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