

Assessment of Daily Food Intake of Urban Pre-School Children

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Abstract:

The first five years of life are very critical and play a key role in development of a child. As children grow through the first five to seven years of life, development takes place at a rapid rate. Babies begin to learn about the world around them from a very early age including during the prenatal, perinatal and postnatal period. Child's initial experiences- the bonds they form with their parents and their first learning experiences- deeply affect their future physical, cognitive, emotional and social development. These areas are physical-motor, communication and language, cognitive, social and emotional. These developments influence a child's self-confidence, empathy, the ability to develop meaningful and lasting friendships and partnerships, and a sense of importance and value to those around him/her. Children's social and emotional development also influences all other areas of development. The present study was conducted to assess nutritional status of preschool children (3- 6 years). For this study, a total of one hundred urban preschool children in the age group of 3- 6 years i.e. 35 pre-schoolers in age group 3-4 years and 65 pre-schoolers in age group 4+ -6 years were selected randomly from four preschools of Hisar district. Nutritional status of children was assessed using methods of dietary survey and anthropometric measurements (height, weight). Results of mean daily food intake of all the food stuffs showed that pulses, milk and milk products, roots and tubers, green leafy vegetables, other vegetables, fruits, sugar and jaggery, and fats and oils were lower than RDI. Consumption of all the food stuffs except pulses, green leafy vegetables, other vegetables and fat & oils were significantly ($P \leq 0.05$) higher in boys than girls.

Keywords: Nutritional status, daily food intake, food consumption pattern etc.

Introduction

Adequate amount of nutrients in the form of daily diet is crucial for the maintenance of good health and nutrition. Thus food and nutrient intake are closely related to nutritional status and health of an individual. According to National Nutrition Monitoring Bureau (2005) and National Family Health Survey (2005-2006) in various states of country, it was found that the majority of school children consumed inadequate amount of cereals, pulses, green leafy vegetables, other vegetables, fruits and milk and milk products. The insufficiency in food intakes particularly due to low intake of protective foods resulted in micronutrient deficiencies. School children are commonly occupied with academic work, games and are under emotional stress coupled with unbalanced diets resulting in poor health and

nutrition. Hence, the importance of good nutrition is realized in the maintenance of health of human being especially of children (Malhotra and Passi, 2007; Amuta et al., 2009).

Methodology

The present study was conducted to assess nutritional status of preschool children (3- 6 years). For this study, a total of one hundred urban preschool children in the age group of 3- 6 years i.e. 35 pre-schoolers in age group 3-4 years and 65 pre-schoolers in age group 4+ -6 years were selected randomly from four preschools of Hisar district. Mean Daily food intake of urban pre-school children was assessed using methods of dietary survey and anthropometric measurements (height, weight). A questionnaire-cum-interview schedule was developed to collect information on personal and socio-economic profile of child and dietary habits. Dietary survey was conducted to gather information on food and nutrient intake, adequacy of food and anthropometric measurements. The information regarding dietary intake was assessed using 24 hour dietary recall method for three consecutive days. Data were analyzed using Z test, ANOVA, Chi square and Correlation.

Results

Mean daily food intake of urban pre-school children

Cereals are the cheapest and widely available source of energy and several other nutrients. The mean daily cereal intake of the urban preschool children was 52.68 g which was 87.80 percent of RDI for 3-4 years and 109.84 g which was 91.53 percent of RDI for 4⁺-6 years. The results of present study corroborated with that of Soni and Katoch (2014) who also reported low intake of cereals by preschool children. The intake of girls was slightly lower than the boys. Similarly, other workers Laxmaiah *et al.*, 2002; Kulsum *et al.*, 2008; Chhabra and Boora, 2006; Kaur, 2006; Subjwari *et al.*, 2009; Rajbala, 2010) also revealed that the dietary intake of cereals was lower in children than RDI. In contrast, Neha (2011) reported adequate intake of cereals by children.

The mean daily intake of pulses by the urban preschool children was 23.16 g and 24.02 g for the age group 3-4 and 4⁺-6 years respectively, which was significantly lower than the recommended dietary intake. Results are in accordance (77.20% and 80.07% of RDI) to those as previously reported by Subhadra (2000). Consumption of pulses was lower than RDI in urban preschool children and has also been noticed by Shahnaz *et al.* (1998) and Mishra and Tiwari (2007). According to Manu and Khertarpaul (2006) ; Dudi and Punia (2008), lower intake of pulses was found in preschool children of Haryana. Sati and Dahiya (2012) also reported that children of Hisar district were taking significantly ($p \leq 0.01$) less amount of pulses (60.98% of RDI). Lower intake of pulses than RDI by preschool children has also been reported by Neha (2011) and Rajbala (2010). Lower consumption of pulses may be due to lower agricultural production, higher price and low purchasing power of poor households.

Table 1: Mean daily food intake of urban pre-school children (3-4 yrs)

(n=35)

Food Stuffs (gm)	RDI (gm)	n daily foodintake	Overall intake % age of RDI	Z value
Cereals	60	52.68±1.94	87.80	26.68*
Pulses	30	23.16±1.40	77.20	34.55*

Fats & Oils	25	20.96±1.51	83.84	18.92*
Sugars & Jaggery	15	13.14±0.78	87.60	16.86*
Green Leafy Vegetables	50	28.26±4.30	56.52	35.75*
Roots & Tubers	50	31.22±3.18	62.44	41.76*
Other Vegetables	50	29.30±3.35	58.60	43.69*
Fruits	100	54.44±5.21	54.44	61.83*
Milk & Milk Products	500	375.34±20.29	75.07	43.44*

Values are mean ± SD RDI- Recommended Dietary Intake (ICMR 2010) Z value shows comparison of food intake with RDI

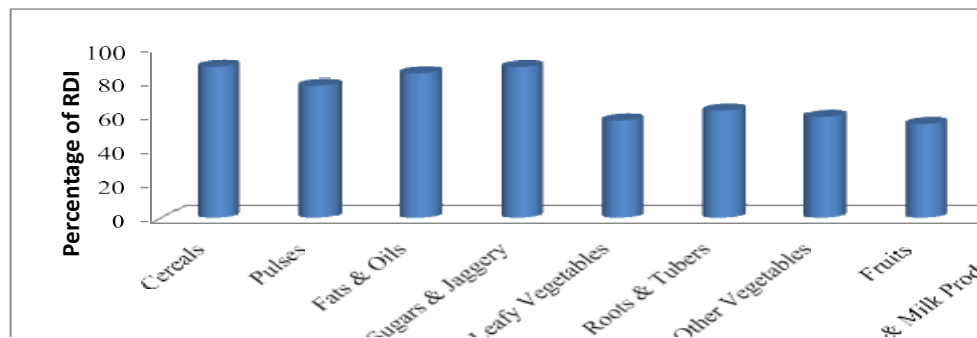


Fig. 1: Daily food intake (% of RDI) of urban pre-school children (3-4 yrs)

Table 2: Mean daily food intake of urban pre-school children (4⁺-6 yrs)

(n=65)

Food Stuffs (gm)	RDI (gm)	Mean daily food intake	Overall intake %age of RDI	Z value
Cereals	120	109.84±12.21	91.53	5.88*
Pulses	30	24.02±1.47	80.07	28.77*
Fats & Oils	25	21.00±1.30	84.00	21.61*
Sugars & Jaggery	20	16.08±1.06	80.40	26.15*
Green Leafy Vegetables	50	32.12±3.08	64.24	41.05*
Roots & Tubers	100	61.04±3.73	61.04	73.86*
Other Vegetables	100	60.02±3.54	60.02	79.86*
Fruits	100	65.28±6.49	65.28	37.83*
Milk & Milk Products	500	396.10±22.20	79.22	33.09*

Values are mean ± SD

RDI- Recommended Dietary Intake (ICMR 2010) Z value shows comparison of food intake with RDI

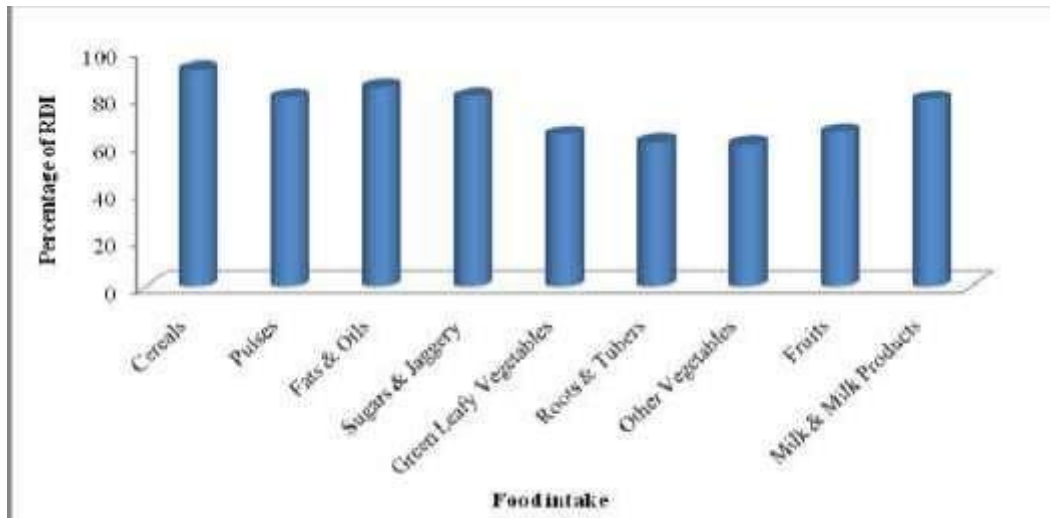


Fig. 2: Daily food intake (% of RDI) of urban pre-school children (4⁺-6 yrs)

Results further indicated less consumption of green leafy vegetables (28.26g and 32.12g) by preschool children 3-4 years and 4⁺-6 years respectively which was significantly lower than RDI. Less consumption of green leafy vegetables might be due to the reason that children did not like the taste of green leafy vegetables and moreover, their mothers were also not aware about the importance of green leafy vegetable in their diet. Kumari and Singh (2001) in their study on nutritional status of preschool children reported similar pattern of low intake of green leafy vegetables by preschool children. Also, Kulsum *et al.* (2008) in their study on urban slum children of Mysore also reported extremely low intake of green leafy vegetables by the respondents. Similar results were found in the studies by Rajbala (2010) and Neha (2011). Similarly, other investigators; Kaur, (2006); Manu and Khetarpaul, (2006); Prekshi *et al.*, (2008) and Kalpana and Lakshmi, (2009) reported less consumption of green leafy vegetables in diet of pre-school children.

The consumption of roots and tubers by urban preschool children was 62.44 percent and 61.04 percent in age group 3-4 years and 4⁺-6 years respectively which was significantly lower than RDI. Root and tubers are the richest sources of energy among vegetables. Besides energy, they also provide β -carotene, vitamins and calcium etc. Similarly, other workers like Manu and Khetarpaul, 2006; Singh and Raghuvanshi (2003) and Grammatikopoulous *et al.* (2009) also reported low intake of vegetables by preschool children.

The consumption of other vegetables by urban preschool children was 58.60 percent and 60.02 percent in age group 3-4 years and 4⁺-6 years respectively which was significantly lower than RDI. Similar results were found in the studies by Rajbala 2010; Kulsum *et al.* 2008 also reported low intake of vegetables by school children.

Consumption of fruits was 54.44 per cent and 65.28 percent of RDI in the age group 3-4 years and 4⁺-6 years respectively which was significantly lower than RDI. Lower intake of fruits might be due to the fact that they could not afford these due to high cost and unavailability, less awareness and lower trend of kitchen gardening. Fruits are very good sources of vitamin C and β -carotene along with it they are also good sources of fiber. Fruits were not a part of daily diet but they were eaten mostly when available locally and at the time of glut when cost was very low. These findings are in consistent with those reported by Handa *et al.* (2008), Rajbala (2010) and Neha (2011). Similarly, other investigators; Golder *et al.*, 2001; Manu and Khetarpaul, 2006; Dudi and Punia, (2008) also reported low intake of

fruits in the diet of children (4-5 years).

Data indicated that milk was consumed as such or in other forms like butter, milk & curd. Overall milk intake was 75.05 percent and 79.22 percent in the age group 3-4 years and 4⁺-6 years respectively which was significantly lower than RDI. The lower consumption might be due to lower family income and higher cost of milk and milk products and may not be liked by children. Less consumption of milk and milk products by urban preschool children has also been supported by previous workers i.e. Khosla *et al.*, 2000; Lakshmi *et al.*, 2001; Kaur, 2006; Sati and Dahiya, 2012; Ghate and Kotwal, 2014; Dudi and Punia, 2008 and Devaki *et al.*, 2009.

Daily mean intake of fats and oils was 87.60 per cent and 84.00 percent in the age group 3-4 years and 4⁺-6 years respectively which was significantly lower than RDI. Fats and oils are the concentrated source of energy and they reduce bulk in diet. Present finding corroborates to that of other finding reported earlier (Shahnaz *et al.*, 1998; Subhadra, 2000). They also reported that daily intake of fats and oil of school children was significantly lower than recommended level. Kulsum *et al.* (2008) also noticed the lower consumption of fats and oils by school children. No significant difference was observed in daily intake of fats and oil by the male and female respondents and their intake was significantly lower than RDI which is also in agreement with that of Susheela (1992). Other workers like Jood *et al.*, (2002) and Grammatikopoulou, *et al.*, (2009) also reported 77-87% of RDA intake of fats and oils in the diet of children.

Mean daily intake of sugar and jaggery by the preschool children in age group 3-4 years was 87.60 percent and 80.40 percent in age group 4⁺-6 years which was significantly lower than the RDI. Prekshi *et al.* (2008) reported that diets of children were deficient in sugar and jaggery. In contrast, George *et al.*, (2003), Rajbala (2010) and Neha (2011) reported higher intake of sugar than RDI among children.

Conclusion

Results conclude that mean daily food intake of all the food stuffs showed that pulses, milk and milk products, roots and tubers, green leafy vegetables, other vegetables, fruits, sugar and jaggery, and fats and oils were lower than RDI. Consumption of all the food stuffs except pulses, green leafy vegetables, other vegetables and fat & oils were significantly ($P \leq 0.05$) higher in boys than girls.

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