

# A Study on Nutritional Status of Venkata reddy palem and kaja Pre-school Children (Guntur District, India)

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## Abstract:

The objective of the present study is to assess the nutritional and health status on 200 (100 Venkata reddy palem and 100 kaja Pre-school) ranging in age from 1 to 5 years preschool children of Guntur (Dt), India. Nutrition and health assessment was done through diet survey, nutritional deficiency signs were also taken for the study. Venkata reddy palem preschool children were suffered more by malnutrition compared to kaja preschool children. Whereas present study of Venkata reddy palem and kaja Pre-school Children were suffered more. The study reveals that there were lower consumption in several macro and micro nutrients intake compared to Recommended Dietary Allowances (RDA) of India, which may be reflected through high prevalence of nutritional deficiency signs among them.

**Keyword:** Clinical symptom, Nutritional status and Malnutrition.

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## Introduction:

There are innumerable studies on the growth and nutrition monitoring of Under Five children but the studies on the children of school going age group are not many in literature. Many of the social characteristics bearing effect on nutrition of Under Four and Under Three years children have been studied in large sample studies like National Family Health Survey of India.

Nutrition is the study of food at work in our body (Healing well, 2009). The essence of nutritional assessment is to identify nutritional disorders and determine which individuals need nutritional instruction and or nutritional support. Different age groups can be affected by nutritional disorders, especially children between 1-5 years old (Malnutrition, 2009). Children between these ages are mostly vulnerable to inadequate food intake due to increased physical growth (Aliyu, 1997). In developing countries, especially Nigeria, protein-energy malnutrition (PEM) and micro-nutrient deficiency disorders (MNDDS) are the commonest types of

Nutritional disorders (Son, 1987). Malnutrition is defined by World Health Organization (WHO) as the cellular imbalance between supply of nutrients and energy, and the body's demand for them to ensure growth, maintenance, and specific function (Leo and Muhammad, 2011).

Nutrition and health were the most important contributory factors for human resource development in the country (Amirthaveni and Barikor, 2001). But still, undernourishment continued to be a major public health issue and caused of a substantial proportion of all child deaths in every years specifically in developing countries like India (Black et al., 2003). The large sections of Indian population were suffered from varying degrees of protein energy deficiency (Gopalan, 2002).

The most vulnerable group regarding health and nutritional status was preschool children living in rural as well as in urban slum areas, within which the tribal preschool children were the main victims of undernourishment (Mitra and Tiwari,1997; Mitra, 2001; Agrahar- Murugkar, 2005; Rao *et al.*, 2006).

**Materials and Methods:**

**Data:** The sample of the present study was collected from two villages (Venkata Reddy palem and Kaja) of Guntur (Dt), India. preschool children (100boys and 100girls) aged 1 to 5 years were taken.

**Data Collection:** Diet survey was carried out by weighing method (Rao *et al.*, 1986). Quantitative dietary assessment was done through actual weighing of raw food item. Clinical signs of nutritional deficiency survey were conducted on each child as recommended by Jelliffe (1966) as well as World Health Organization (WHO, 1995).

**Methodology:** The average dietary intake of food per item was calculated and was compared with the RDA (Recommended Dietary Allowances) of India using the values as per ‘Nutritive Value of Indian Food’ (Gopalan *et al.*, 2002).

**Age Estimation:** Assess For analysis of the data, the age grouping was done according to the age at the last birth day (Rao *et al.*, 1961). All the children who had completed 3 years but were less than 4 years were grouped as 4 years and likewise, age group was done.

**Results and Discussion:**

Sex	Number of children	Percentage
Boys	100	52.5
Girls	100	47.5
Total	200	100

**Table1: Gender wise distribution of children studied**

A total of 200 children were studied belonging to the age group 1 to 5 years (Table 1). Out of the 500 children, 100 (52.5%) were boys and 100 (47.5%) were girls. Gender wise study is very important and it also gives clear picture of the results obtained.

It is believed that Gender is ascribed by biology and is related to anatomy, hormones, and physiology of an individual (West & Zimmerman, 1987). The term gender has been used to in fields related to biology and medicine in context with males or females (Kessler 1998).

Another important agent of gender-role socialization for children is school. As discussed earlier, gender role socialization begins at a very early age and thus the context of preschool plays a very important role in gender-role development of young children.

Deficiency Signs	Boys	Girls	Boys	Girls
Lack of lusture	27.46	22.81	31.22	15.19
Sparse hair	16.31	30.19	12.87	22.09
Dispigmentation hair	14.21	12.42	7.45	19.25
Flag signs	11.47	6.34	10.22	9.69
Easy pluckability	30.44	42.81	31.15	28.34
Moon face	5.23	2.12	6.24	4.53
Paleness of eye	40.61	33.52	37.15	29.43
Angularstomatities	22.34	30.23	22.81	22.36
Chilosis	12.63	7.25	9.24	10.47
Oedema	14.21	28.45	15.83	9.22
Atropic papillae	14.38	22.47	13.98	8.24
Mottled enamel	20.43	31.22	25.61	35.24
Dental carries	22.51	32.13	33.25	24.52
Spongy gum	11.45	24.15	17.54	16.43
Bleeding gums	34.21	22.47	32.44	29.72
Xerosis	25.81	30.24	20.49	22.54
Thyroid enlargement	7.24	16.33	5.21	14.25

**Table 2:Percentage of prevalence of nutritional deficiency signs in Venkata reddy palem and kaja Children**

Table 2 shows the high prevalence of nutritional deficiency signs among both the Venkata reddy palem and kaja preschool children. Children from both villages were shown clinical symptoms. Clinical signs such as paleness of eyea, Odema, angular stomatites, easily pluckability of hair and spars hair, bleeding gums. Xerosis, dental caries etc. Children under 5 years suffered from these clinical symptoms due to deficiency of Micronutrient like iron, Vitamin-A, Vitamin-C, Riboflavin, Vitamin B<sub>6</sub>, Niacin, and folic acid. In the present study clinical symptoms were observed in boys and girls from both villages, venkatareddy palem girls have

more clinical symptoms than boys, whereas kaja boys have shown more symptoms than girls. Even thyroid enlargement is also observed among children, comparatively majority of the thyroid enlargement observed among girls due to gender discrimination, poverty and lack of attention in food distribution. The insufficient intake of macro and micro nutrients as well as high prevalence of malnutrition among preschool children may also be reflected through high prevalence of nutritional deficiency signs among them.

Nutrient intake	1-3 years		3-5 years			
	Venkata reddy palem	Kaja	RDA	Venkata reddy palem	Kaja	RDA
Calories (kcal)	1084.6±164.1	1112.5 ±197.4	1220.0	987.5±182.5	1010.0±217.6	1220.0
Protein (gm)	31.7±11.2	30.2 ± 9.7	22.0	29.4±8.1	28.7±10.5	22.0
Fat (gm)	7.0 ±2.7	7.5 ± 2.5	25.0	6.2±2.0	8.4±3.1	25.0
Calcium(mg)	230.7±22.4	140.6± 33.2	400.0	180.2±20.1	176.9±22.3	400.0
Iron (mg)	8.4±1.5	7.5 ± 3.4	12.0	9.2±4.6	8.0±2.4	12.0
Carotene(ug)	401.3 ±15.8	415.4± 26.2	1600.0	460.1±32.1	440±24.2	1600.0
Thiamine(mg)	0.66 ±0.5	0.68±0.7	0.60	0.78±0.1	0.78±0.2	0.60
Riboflavin (mg)	0.23 ±0.11	0.33±0.5	0.70	0.23±0.8	0.23±0.6	0.70
Niacin (mg)	10.2 ±2.3	10.1±1.9	8.0	8.9±1.5	8.9±2.9	8.0
Vitamin "C"	23.2 ±17.9	26.5±20.1	40.0	20.3±18.4	20.3±16.7	40.0

RDA= Recommended Dietary Allowances (Gopalan *et al.*, 2002).

**Table 3: Mean nutrient intake per consumption unit per day among Venkata reddy palem and kaja children with RDA**

Nutrient Intake Table 3 shows the mean nutrient (macro and micro) intake per consumption unit per day among Venkata reddy palem and Kaja preschool children of Central India. The mean calories intake among venkata reddy palem (1084.6±164.1kcal) and Kaja (1112.5±197.4kcal) preschool children was lower Compared to RDA (1220.0 kcal) of India in 1-3years age group. Whereas in 3-5 years age group, similar trend was observed among them, which signified a deficiency of calories intake compared to Recommended Dietary Allowances (RDA) of India. There was also a deficiency in fat, calcium, iron, carotene and vitamin C intake among Venkata reddy palem and Kaja preschool children. But deficiencies have not been noticed in respect of protein, thiamine and niacin intake. Kaja preschool children consumed higher amount of macro and micro nutrients than Venkata Reddy palem preschool children specifically in 1-3 years age group.

### Discussion:

Several studies have been done in different parts of India on health and nutritional status of Preschool children (NNMB, 1978; FNB, 1981 and Rao *et al.*, 2005 and Sengupta, 1980). Along with those studies, it was observed from the present study that the intake of nutrients was very much lower among Venkata reddy palem and kaja preschool children along with other children. (Rao *et al.*, 1994) from Central India compared to Recommended Dietary Allowances (RDA), Specially consumption of calories and fat. Intake of micronutrients especially calcium and iron consumption were also very low among them. Apart from Central India, intake of calories (2211kcal), protein (76 gm), fat (26 gm), calcium (407mg) and other macro and micro nutrients per consumption unit per day of the Saharia primitive tribal preschool children of Rajasthan were higher than present children (Rao *et al.*, 2006). Comparatively, the Venkata Reddy palem children were more malnourished than the Kaja children on the basis of weight for age index. Which may be due to the influence of gender bias regarding insufficient breastfeeding practices as well as early childhood diseases among girls than boys. However, they were far better than Brahmin (Mitra and Tiwari, 1997), Abujmaria (Mitra, 2001).

The prevalence of angular stomatitis (0.6%) and dental caries (3.0%) among Kodaku preschool children of Central India were much lower than present children (Dolla *et al.*, 2005). Whereas the prevalence of depigmentation of hair, easy pluckability of hair and xerosis were less than 15 percent among Pahariya tribal preschool children of Rajmahal hills of Bihar (Choudhary, 2001). Future studies will necessary to extract the determinants of chronic malnourishment of Venkata Reddy palem and Kaja preschool children.

The present study reveals that the nutritional status of preschool children including clinical symptoms and low nutrient intake of the children from both the villages (Venkata Reddy palem and Kaja). Therefore, the reason for the poor health and nutritional status of the study populations may be due to low purchasing power, illiteracy, ignorance, anti-nutritional factors of the plant origin food due to lack of appropriate nutrition knowledge. Thus it is necessary to make them aware and educate the population to adopt the easy methods to improve their Nutritional status.

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