

Impact of Habitation on Underweight among Shabar Preschool Children in Orissa

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ABSTRACT This cross-sectional study was undertaken to explore habitation-wise (urban, rural and forest) difference of underweight prevalence in Shabar preschool children and its associated factors. Data comprised of 167 children aged 0 to 5 years. Highest prevalence of underweight was found in the rural (60.0%) and least among the forest children. Higher birth order, illiteracy, mother's undernutrition, poor economy, larger family size and inadequate breast-feeding may have associated with underweight, but highest magnitude was observed among the rural group who are in transition. Study reveals urgent need of nutritional intervention among the rural Shabar children for getting nutritionally advantageous community.

INTRODUCTION

In India, it is generally evident that the prevalence of child underweight is higher in the rural than in the urban areas (Smith et al. 2006) and the poorest condition is observed among the scheduled tribes (NFHS II 1998-99). Traditionally, the scheduled tribes inhabit the forest and rural areas but rapid urbanization and migration have altered their habitation. As a result, they live in all types of the habitats like urban, rural and forest areas as shown in the other social groups (Planning Commission of India 2002). This situation is explicitly observed in the state of Orissa with the highest number of scheduled tribes (62) in India (de Haan and Dubey 2005). It is, therefore important to understand habitation-wise situation of nutritional status and specially, when a single ethnic group inhabits different habitations in order to focus the direction of community specific tribal plan and its habitation specific associates. It is due to the fact that though nutritional status of pre-school children was significantly determined by breast-feeding patterns (Chirmulay and Nisal 1993), mother's education (Barrera 1990), mother's employment (Bisgrove and

Popkin 1996) etc. but the magnitudes of variation are differed habitation-wise (Ompad et al. 2007).

There is hardly any study on the above issues among the pre-school children of a single tribe, who inhabit urban, rural and forest areas. Therefore, the present study aims to investigate the differences in prevalence of underweight and its association with some selected socio-economic and nutritional factors among Shabar tribe, one of the largest tribal communities of Orissa, living in the urban, rural and forest areas.

MATERIALS AND METHODS

The present study was based on cross-sectional samples of 167 Shabar preschool children (boys and girls), aged 0 to 5 years from nine settlements in Khurda and Cuttack districts of Orissa state in India due to the largest concentration of Shabar tribes, where the hamlets and villages were selected on the basis of the geographical location, like three urban hamlets of Bhubaneswar City, three rural villages of Jatani block area and three forest villages inside the Asian Elephant Research Center. Complete enumeration was done to collect all the eligible children from those areas. The ages were taken from *Anganbadi* admission register book, horoscope and the date of birth was cross-checked from their mothers.

The anthropometric measurements such as weight (kg) of the children and height and weight of the mothers were measured according to the standard techniques (Weiner and Lourie 1981). Socio-economic and breast-feeding practices

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data were collected using proper pre-structured schedule. The study was approved by the ethical committee of the Indian Statistical Institute, Kolkata.

In case of children, weight was converted into nutritional indices as weight for age using WHO standards (WHO 2006) and classified as underweight (<-2.00 SD of weight for age) (WHO 1995). Height and weight of the respective mother was converted in to body mass index (BMI) (kg/m^2) and classified according to thinness of mother (WHO 1995). Poverty Level was calculated based on per capita income (Rs.) as suggested by Dev and Ravi (2007) in urban (Rs. 525.48) and rural (Rs. 325.46) households of Orissa state in the year 2005-06. Contingency χ^2 test was used to understand association between underweight and socio-economic variables.

RESULTS

The highest prevalence of underweight (60.00%) was observed in the rural preschool children compared to urban (44.26%) and forest (40.98%) counterparts (Table 1). The habitation-wise prevalence of underweight and its associated factors (Table 2) shows the highest magnitudes of underweight among the rural pre-school children in higher (≥ 3) birth order (69.2%), among the illiterate (62.9%) and undernourished mothers (64.5%), in below poverty level households (68.8%), in households with family size of greater than 6 member (70.6%), among children with whose breast-feeding were initiated after 24 hours of birth (71.4%), those who were exclusively breastfed for 6 months (73.7%) and among those whose duration of breastfeeding stopped within 24 months (63.2%) compared to other two habitats. Within these factors, family size was significantly ($p < 0.05$) associated with rural underweight children. Underweight was significantly ($p < 0.05$) higher among children of literate mother (58.6%) in urban area and those children who

stopped breast-feeding within 24 months. Similar but insignificant trend was observed among the forest pre-school children.

DISCUSSION

The findings of the present study indicate that rural preschool children were found to be poorest in nutritional status and the forest pre-school children was the most privileged counterpart. Higher prevalence of underweight was observed among rural pre-school children than in their forest and urban counterparts in the 3rd and above birth order children, illiterate and undernourished mother (<18.5 kg/m^2 BMI), in below poverty level households, family member ≥ 6 , initiation of breast-feeding after 24 hours, exclusive breast-feeding within 6 months and duration of breast-feeding stopped within 24 months. Economic constraints due to large family size may have forced the rural mothers in taking active part in working activities for their subsistence, which may have resulted in less childhood care during pre-school stage (Jain and Choudhry 1993). In contrast, traditional forest environments and rigid cultural practices in terms of giving food may cause the lowest prevalence of underweight among forest pre-school children than other two habitats. It is interesting to note that dry elephant (*Elephas maximus indicus*) meat pest and some herbs was given to the forest infant during 21st days after birth at name giving ceremony, which may help to develop their early immunity. The urban children were comparatively healthy, which may be due to better healthcare facilities along with better economic and social condition (Smith et al. 2006). Insufficient exclusive breast-feeding may be one of the major causes for high prevalence of underweight pre-school children (Chirmulay and Nisal 1993). Surprisingly, prevalence of underweight was higher among literate mother in urban and forest areas. In this context, Agarwal (1972) reported that education might play an

Table 1: Weight for age (z-score) among pre-school children (0 to 5 years)

Weight for age (z-score) [†]	Urban		Rural		Forest		Total	
	n	%	n	%	n	%	n	%
Underweight (<-2 SD)	27	44.26	27	60.00	25	40.98	79	47.31
Normal and above (≥ -2 SD)	34	55.74	18	40.00	36	59.02	88	52.69
Total	61	100.00	45	100.00	61	100.00	167	100.00
Chi-square value	4.114							

[†] Reference standard (WHO, 2006)

Table 2: Underweight of preschool children and its associated factors

Variables	Underweight (<-2 SD weight for age)		
	Urban (n = 61)	Rural (n = 45)	Forest (n = 61)
<i>Birth Order</i>			
1-2	13 (44.8)	10 (52.2)	6 (37.5)
3 and above	14 (13.8)	16 (69.2)	19 (42.2)
<i>Mother Literacy</i>			
Illiterate	10 (31.3)*	20 (62.9)	11 (33.3)
Literate	17 (58.6)	6 (57.1)	14 (51.9)
<i>Mother Nutritional Status</i>			
Undernutrition (BMI <18.5 kg/m ²)	18 (54.5)	18 (64.5)	19 (45.2)
Normal (BMI ≥18.5 kg/m ²)	9 (32.2)	8 (55.6)	6 (31.6)
<i>Poverty</i>			
Above	10 (58.8)	6 (47.1)	9 (56.3)
Below	17 (38.6)	20 (68.8)	16 (35.6)
Family member			
≤5	11 (45.8)	4 (40.0)*	6 (50.0)
≥6	16 (43.2)	22 (70.6)	19 (38.8)
<i>Breast-feeding Pattern[‡]</i>	n = 34	n = 36	n = 27
Initiation of breast feeding			
Within 24 hours	5 (33.3)	8 (53.3)	4 (50.0)
After 24 hours	10 (52.6)	15 (71.4)	8 (42.2)
<i>Exclusive Breast-feeding Duration</i>			
6 months and above	6 (33.3)	9 (52.9)	4 (30.8)
Within 6 months	9 (56.3)	14 (73.7)	8 (57.1)
<i>Duration of Breast-feeding</i>			
With in 24 months	13 (59.1)*	11 (64.7)	9 (50.0)
After 24 months	2 (16.7)	12 (63.2)	3 (33.3)

Figures in parenthesis are showing percentages; * Significant at 5% level; ‡ Mother's with their last child aged less than 5 years.

important role, when mother is educated above matriculation. In general, mother undernutrition and inadequate breast-feeding patterns may be associated with underweight, where rural group showed highest magnitude.

CONCLUSION

Therefore, study suggests urgent need of nutritional intervention among the rural Shabar children, because Indian tribes are undergoing rapid change in their livelihood due to impact of urbanization and migration.

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