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## Original Research Article

## Socio-demographic determinants of undernutrition of preschool children attending anganwadis in rural ICDS block, North Kerala

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## ABSTRACT

**Background:** Child growth and health is recognized as an important public health indicator for monitoring nutritional status and health in a population.

**Objectives:** 1. To study the socio demographic profile of the preschool children (3-6years) attending anganwadis in Kunnamangalam. 2. To study the association between socioeconomic status and undernutrition.

**Materials and Methods:** A cross sectional study was done among 30 anganwadis from June 2014 to June 2015 by cluster sampling method. Data regarding socio demographic factors, prevalence of undernutrition were collected by using a pre tested semi structured questionnaire. Socio economic status of the study population was classified according to Modified Kuppu Swamy's Scale. Education, Occupation and total monthly family income of the highest earning member was used for the stratification into various classes. Data analysed using SPSS version 16 software.

**Results:** Out of 300 children, 204 (68%) belonged to Upper lower strata, 74 (24.7%) were lower middle, 19 (6.3%) were upper middle and 3(1%) belonged to upper class. Prevalence of underweight children was significantly higher in children among those belonging to lower socioeconomic status.

**Conclusion:** The study suggests to focus on preschool children for growth monitoring especially in low socioeconomic families, approaching them through the help of anganwadis, and educating mothers of low socioeconomic status on health on promoting program for underfives.

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## 1. Introduction

Nutrition is a fundamental pillar of human life, health and development across the entire life span.<sup>1</sup> Globally child undernutrition is still prevailing as a serious public health problem. Preschool children (3-6 years) usually identified by the health workers are considered to be a vulnerable group within any community and are most affected group of undernutrition problem.<sup>2</sup> Undernutrition causes stunted physical growth and cognitive development and morbidity. The present study was undertaken to find out the prevalence of undernutrition among 3-6 years age group and identifying

the socio economic determinants.

## 2. Materials and Methods

The study was conducted among ananganwadi preschool children (3-6 year) in 30 anganwadis in rural ICDS block of Kunnamangalam Panchayath in Kozhikode district Kerala. A two-stage cluster random sampling technique was used for selection of anganwadis. An optimum sample size of 300 was obtained by an estimated underweight prevalence of 29% (NFHS 3:2005 -06, Kerala)<sup>3</sup> in children 3-6 years old with 20% relative precision, the sample size calculated out was 300 children. A total of 300 children (3-6 years) were covered was collected using a pretested

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oral questionnaire and supplemented by physical and anthropometric examination of child by anganwadi visits. Undernutrition prevalence was calculated by WHO growth standards (2006) classification. The data compilation and analysis was done by using SPSS, epi Info and WHO Anthroplus software.<sup>4</sup>

### 3. Results

Among the 300 children 77(25.6%) were underweight while 78(26%) were stunted and 48(16%) had wasting. There were no children with severe undernutrition. Majority of study group belonged to Muslim religion (66%) followed by Hindus (33.7%) and Christian (0.3%). 58% belonged to nuclear families followed by 29.7% to joint family and three generation family (12.3%) (Table 1). In the study group majority 74.6% were in the age group of 3-4 years and majority were female children. The Socio economic status was assessed through Kuppuswamy socioeconomic status scale<sup>5</sup> taking into account of education, occupation and income of head of family. The prevalence of undernutrition was higher in 3-4 age group and no gender difference in prevalence of undernutrition. (Table 2)

**Table 1:** Socio demographic profile of the study group

Variables	n (%)
<b>Age</b>	
3 -4 yrs	224(74.6)
4-5 yrs	74(24.6)
5-6 yrs	2(0.6)
<b>Gender</b>	
Male	145(48.3)
Female	155(51.6)
<b>Religion</b>	
Hindu	101(33.7)
Muslim	198(66)
Christian	1(0.3)
<b>Type of Family</b>	
Nuclear	174(58)
Three generation	89(29.7)
Joint	37(12.3)
<b>Socioeconomic Status</b>	
Upper lower	204(68)
Lower middle	74(24.7)
Upper middle	19(6.3)
Upper	3(1)
Joint	37(12.3)

### 4. Discussion

The prevalence of undernutrition was assessed by calculating Z scores (WHO Growth standards)<sup>6</sup> based on weight for age, height for age and weight for height. The age of the children was recorded from anganwadi registers and immunization card available with mother. The difference in prevalence of underweight, stunting and

**Table 2:** Age and gender wise distribution of prevalence of undernutrition

Study group(N=300)	Underweight n (%)	Stunting n (%)	Wasting n (%)
3 to <4 yrs	54(24.1)	55(24.5)	39(17.4)
4 to 6 yrs	23(30.2)	23(30.2)	9(11.8)
Male	37(25.5)	38(26.2)	23(15.8)
Female	40(25.8)	40(25.8)	25(16)

wasting found to be statistically significant (0.03,0.02 & 0.01) in relation to lower socioeconomic status. The children who had completed 3 years but less than 4 years were grouped as 3-4 yrs and likewise age group were arranged. The mean age were 3 years 10 months SD =  $\pm 7.32$ . In Binu Arikal et al<sup>7</sup> (2014) in Kottayam Kerala found that majority of children were found in the 3-4 years followed by 5-6 years category. Males constituted 145 (48.3%) and females constituted 155 (51.6%) of the study population. Consistent findings with the present study were also observed in Bhavsar S et al<sup>8</sup> (2013) study in Mumbai where males (47.8%) and females (52%). Among the 300 children studied Muslims 198 (66%) constituted the majority followed by Hindus 101 (33.7%) and Christians 1(0.3%). In Bhavsar S et al study (2013) in Mumbai found that majority of them belonged to Muslim religion (82%), Hindu (12.8%) and others 5.2%. A larger proportion of children 174 (58%) belonged to nuclear families, as compared to 89 (29.7%) from three generation and the rest from joint family 37 (12.3%).

NFHS -3 Kerala rural data too yielded closely similar figures of 56.4% from nuclear families and 45.2% from non-nuclear families. Majority 204(68%) of the families belonged to upper lower socioeconomic class. 120(40%) of the families were APL (Above Poverty Line) ration card holders and 173(57.7%) were BPL (Below Poverty Line) card holders and 7 (2.3%) didn't possess ration cards. There was no significant difference between age and gender with undernutrition.

The prevalence of underweight decreased with increase in the socio economic status. Prevalence of under nutrition among lower socioeconomic class children was 204(29.4%) while only 17 (17.7%) out of 96 other class children had under nutrition.

A significant association was noted between socioeconomic status and under nutrition. The difference noted here may be due to the difference in caring of their children as their living status varies. Bhawana Pant et al<sup>9</sup> (2011) in Meerut city among under five children found that undernutrition was significantly ( $p < 0.05$ ) higher among children with lower social class(Lower class-27.8% Higher class- 23.21%) than higher class. Jyothilakshmi et al<sup>10</sup> in Mysore also showed in her study that the prevalence of under nutrition was significantly ( $p < 0.05$ ) higher in the low socioeconomic status children [(underweight 52% in

**Table 3:** Association of undernutrition and age

Factor	Underweight			Stunting			Wasting		
	Yes	No	P value	Yes	No	P value	Yes	No	P value
Age	54	170	0.288	55	169	0.32	39	185	0.25
3-4 yrs (224)	(24.1%)	(75.8%)		(24.5%)	(75.4%)		(17.4%)	(82.5%)	
4-6 yrs (76)	23 (30.2%)	53 (69.7%)		23 (30.2%)	53 (69.7%)		9 (11.8%)	67 (88.1%)	

**Table 4:** Association of undernutrition and gender

Factor Gender N =300	Underweight			Stunting			Wasting		
	Yes	No	P value	Yes	No	P value	Yes	No	P value
Male (145)	37 (25.5%)	108 (74.4%)	0.95	38 (26.2%)	107 (73.7%)	0.93	23 (15.8%)	122 (84.1%)	0.94
Female (155)	40 (25.8%)	115 (74.1%)		40 (25.8%)	115 (74.1%)		25 (16.1%)	130 (83.8%)	

**Table 5:** Association of undernutrition and socioeconomic status

Factor	Underweight			Stunting			Wasting		
	Yes	No	P value	Yes	No	P value	Yes	No	P value
Socioeconomic status 1.Upper lower	60	144	0.03	61	143	0.02	40	164	0.01
2.Others *	17	79		17	79		8	88	

\*Lower middle, Upper middle & Upper

low and 24% in high socioeconomic status) (stunting 47% in low and 28% in high socioeconomic status children)] A similar finding of under nutrition being more prevalent in children belonging to lower socioeconomic groups was also found by, Rao et al. (1990) and Sharma<sup>11</sup> (2003) commented that the reason for under nutrition being more prevalent among lower socioeconomic groups may be due to their lower purchasable capacity for food and unavailability of hygienic and healthy living environment among them.

## 5. Conclusion

The study has shown that moderate underweight, stunting and wasting is prevalent among preschool children attending anganwadis of Kunnangalam block of Kozhikode district in spite of the food supplementation programme run by the Government. Severe undernourishment was conspicuously absent in the study population. There was no gender variation in the prevalence of undernutrition. The present study shows that the prevalence of underweight was significantly higher in children of 3-6 years of age, low socioeconomic status significant relation with it. The study suggests intensification of ICDS<sup>12</sup> with multi sectorial strengthening, that can be achieved by help of ASHA, AWW, ANM and local village self help groups.Improvement of socio economic status through poverty alleviation programs.

## 6. Source of Funding

None.

## 7. Conflict of Interest

The author declares no conflict of interest.

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