

# Prevalence of Protein Energy Malnutrition Among Children at Slums of North Chennai



## Nursing

**KEYWORDS :** Nutritional status, Preschool children, PEM, Grade

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### ABSTRACT

*In new millennium India faces burden of diseases, like Protein Energy Malnutrition (PEM). UNICEF (2008) estimated that 146 million children were under weight in the developing world. India accounts for 57 million of them. The objectives were to assess the prevalence of PEM among preschool children and to associate the selected socio demographic variables with prevalence of PEM. Cross sectional descriptive design with simple random sampling was used to select two zones from north Chennai. Totally 1501 children aged between 3-5 years were assessed. The prevalence of underweight was significantly higher in children at 3 years than 4 & 5 years of age. Totally 50% of them were underweight, 32% stunted, 37% wasted and 23% with impaired mid arm circumference. There was significant association between age and sex of the children with PEM at the level of P<0.001. Hence special attention is needed towards nutritional need of children.*

### INTRODUCTION

Nation's wealth depends on its healthy citizens. A healthy adult emerges from a healthy child. As we have entered the new millennium India faces the burden of diseases, especially nutritional deficiency diseases like Protein Energy Malnutrition (PEM). UNICEF (2008) estimated that 146 million under-five children were under weight in the developing world. India accounts for 57 million of them. It is also attributed that 50 % of childhood deaths in India is due to malnutrition. According to National Family Health Survey (NFHS-3) (2005-06) 45% of under-five children were stunted, 40% were underweight and 23% were wasted in India. In Tamil Nadu 30 % of children were malnourished. According to Indian Academy of Pediatrics (IAP) Association, PEM can be classified as underweight, stunted and wasted by using anthropometric measurements of children. PEM affects many children in slum areas. If not adequately treated, some children may progress towards severe acute malnutrition which is life threatening conditions. Therefore, the management of PEM should be a public health priority.

WHO global database of child growth, which covers 87% of the under five years from total population in developing countries, describe the world wide distribution of PEM, based on nationally representative cross-sectional data gathered between 1980 & 1992 in 79 developing countries in Africa, Asia, Latin America and Oceania. A total 80% of the children were affected in Asia mainly in Southern Asia. According to many review of literature the prevalence of PEM among children especially in urban slum region is more. Countrywide data for the prevalence of malnutrition in urban slums is lacking. In the NFHS-2 report, the figures for underweight, stunting and wasting in urban areas were 38%, 36% and 13% respectively. The objectives were to assess the prevalence of PEM among preschool children and associate the selected socio demographic variables with that.

Cross sectional descriptive study with random sampling technique 1501 pre-school children aged between 3-5 years at the slums from two selected zones, were assessed for prevalence of PEM. Sample size was estimated with 50% prevalence of Protein Energy Malnutrition (PEM) in the target population of pre-school children in the age group of 3 – 5 years in the slums among the four zones of north Chennai with an absolute precision of 2.5% on either side, with 5% level of significance.

**Table-1**  
Frequency and percentage distribution of demographic variables among children

Age	Boys		Girls		Total	
	No.	%	No.	%	No.	%
3 years	284	19	383	26	667	44
4 years	285	19	239	16	524	35
5 years	239	16	71	05	310	21

Table.1 reveals the frequency and percentage distribution of demographic variables among children. Among 1501 children 667(44.4%) were in age group of 3 years, 24(34.9%) in 4 years and 310(20.7%) in 5 years old. Totally 808(53.8%) were boys and 693(46.2%) were girls.

In 3 years old children, 284(18.9%) were boys and 383(25.5%) were girls. Among 4 years old children, 285(19%) were boys and 239(15.9%) were girls. In 5 years children, 239(15.9%) were boys and 71(4.7%) were girls.

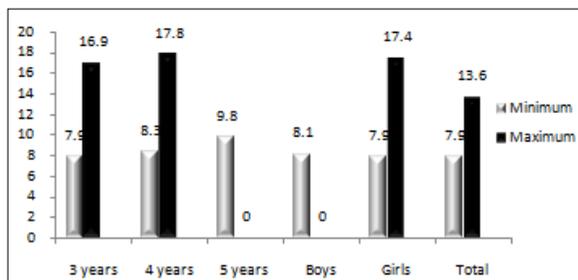
Table.2 reveals the frequency and percentage distribution of prevalence of PEM among children. Among 1501 children totally, 717(47.8%) were under weight, 473(31.5%) stunted, 554(36.9%) stunted and 338(22.5%) with MAC impairment.

The prevalence of underweight was significantly higher in children at 3 years than 4 years & 5 years of age. Totally around 50% of the preschool children were malnourished that too grade I underweight was high.

**Table- 2**  
Frequency and percentage distribution of prevalence of PEM among children

PEM	Category	Frequency	%
Under Weight	Normal	784	52.2
	Grade I	569	37.9
	Grade II	126	8.4
	Grade III	22	1.5
	Total Under weight	717	47.8
Stunted	Normal	1028	68.5
	Total Stunted	473	31.5
Wasted	Normal	947	63.1
	Grade I	420	28
	Grade II	124	8.3
	Grade III	10	0.7
	Total Wasted	554	36.9
MAC Impairment	Normal	1163	77.5
	Grade I	325	21.7
	Grade II	13	0.8
	Total Impairment	338	22.5

Figure-1 shows the maximum and minimum weight of the children at 3,4 & 5 years of age and also among boys and girls.



**Figure.1 Minimum and Maximum value of weight of children**

There was highly significant association between age group and sex of the children with grading of underweight percentage,

stunted and wasted and also mid arm circumference impairment at the level of  $P < 0.001$ .

## CONCLUSIONS

Protein energy malnutrition is an important public health problem in India. The occurrence of PEM is more in children of 3-6 years of age group and also it has linear trends which mean as the age increases the prevalence rate is decreasing. So the mothers or care givers of the children should pay special attention towards nutrient need of them at the earliest. The PEM is higher in mothers with primary education because of lack of awareness among them. The extent of malnutrition can be countered by educating the parents with respect to basic nutritional requirements of their children and encouraging them to consume locally available low cost foods. If child's health improved, the country status will improve definitely.

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