

## **A STUDY OF PROTEIN CALORIE MALNUTRITION AMONGST UNDER SIX CHILDREN IN SLUM AREA OF KANPUR**

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### **Abstract :**

**Objective :-** To assess the nutritional profile amongst under six children in slum area of Kanpur.

**Study Design :-** Door to door survey by collecting relevant information from head of household on a pretested questionnaire.

**Study Unit :-** Each of household having any child in the age group less than 6 years.

**Study Area :-** The study was conducted in Katari slum area of Kalyanpur, Kanpur.

**Study Variable :-** Grades of PCM as per recommendation of nutrition sub-committee of paediatrics (ICMR-1972)

**Statistical analysis :-** By chi-square test of significance.

**Results :-** The highest percentage of PCM was observed amongst 0-1 year and boys of single families whose parents were illiterate and unemployed or labourers belonging mainly to lower socio-economic class.

**Conclusions :-** To reduce childhood mortality with reference to PCM, the literacy status of parents especially of mothers should be increased and social reform measures to be taken for engaging them in some income generating jobs/business, agriculture etc.

**Key Words :-** Grades of malnutrition, under-six children

### **Introduction :**

Kanpur is one of the biggest industrial metropolian city of north India having population about 40 lacs. The industrial commerce trade, educational, tourism and socio-cultural background of Kanpur city aroused aspiration and a lot of hopes among lacs of people who come from different places and settle down here indiscriminately resulting in unplanned and unpleased human inhabitations known as clums. The majority of industrial labour live in more than 160 slums having around 12 lacs population, scattered all over the Kanpur city. The sub-standard living conditions in these slums predisposed these slum dwellers to large number of ill health problem particularly communicable and nutritional diseases which are largely preventable with even simple health educational interventions.

The present study was carried out in 1996 in one of the Kanpur slum to assess the nutritional

profile amongst under six children and to make suggestions for the implementation and improvement.

### **Material & Method :**

The study was conducted in Katari slum area of Kalyanpur Block, Kanpur having a population of 9000 residing in 1600 houses and is considered one of the biggest slum of Kanpur. Each of household having any of under six child forms the unit of study. A door to door survey was done and the general information like name of the child with his father's name, age and sex of child, religion, type of family, parent's occupation and educational status, per capita income was collected from the head of each household.

The social classification was done according to Prasad's classification (1961) based on per capita income of the family.



The grades of PCM was done as per recommendations of Nutrition sub-committee of paediatrics (ICMR-1972)

# Observation & Discussion :

**TABLE - 1 : AGEWISE DISTRIBUTION OF PCM AMONGST UNDER SIX CHILDREN**

Age group in year	Undersix Children Total	Nutritional status Malnourished (PCM)				
		Normal	Total	Gr.I	Gr. II	Gr.III
0-1	234	196 (83.7)	38 (16.2)	21 (8.9)	11 (4.7)	06 (2.5)
1-3	507	474 (93.4)	33 (6.5)	20 (3.9)	09 (1.7)	04 (0.7)
3-6	519	481 (92.6)	38 (7.3)	31 (5.9)	04 (0.7)	03 (0.6)
<b>Total</b>	<b>1260</b>	<b>1151</b>	<b>109 (8.6)</b>	<b>72 (5.7)</b>	<b>24 (1.9)</b>	<b>13 (1.0)</b>

Data in parenthesis denotes percentage.  $X^2 = 6.79$  d.f.=4  $p>0.05$

The higher percentage of overall PCM was observed in the age group of 0-1 year but this relationship was not found statistically significant.

However, Vandana Sen (1980)<sup>3</sup> reported the higher prevalence in the age group of 1-3 years.

**TABLE- 2 : SEXWISE DISTRIBUTION OF PCM AMONGST UNDER SIX CHILDREN**

Sex	Total Undersix Children	NUTRITIONAL STATUS MALNORISHED (PCM)				
		NORMAL	Total	Gr.I	Gr. II	Gr.III
Male	645	582 (90.2)	63 (9.8)	44 (6.8)	14 (2.2)	05 (0.8)
Female	615	569 (92.5)	46 (7.5)	32 (5.2)	10 (1.6)	08 (1.3)
<b>Total</b>	<b>1260</b>	<b>1151</b>	<b>109</b>	<b>72</b>	<b>24</b>	<b>13</b>

$X^2 = 2.22$  d.f. = 2  $P>0.05$

It was found that the boys had higher prevalence of PCM (9.77 per cent) as well as Grade-I PCM (6.82 per cent) in comparison to females. However, Gr.III PCM was found Higher (1.3 per cent)

among the girls. This difference was not observed statistically significant. The similar findings were reported by Srivastava, V.K. 1983<sup>4</sup>.

TABLE - 3 : PREVALENCE OF PCM IN RELATION TO RELIGION

Religion	Total Undersix Children	NUTRITIONAL STATUS MALNORISHED (PCM)				
		NORMAL	Total	Gr.I	Gr. II	Gr.III
Hindu	1223 (97.1)	1121 (91.6)	102 (8.3)	69 (5.6)	22 (1.8)	11 (0.9)
Muslim	37 (2.9)	30 (81.2)	07 (18.2)	03 (8.1)	02 (5.4)	02 (5.4)
<b>Total</b>	<b>1260</b>	<b>1151</b>	<b>109</b>	<b>72</b>	<b>24</b>	<b>13</b>
$X^2=2.50$		d.f. =2		$P>=0.05$		

The majority of children were Hindus (97.1 per cent) while overall prevalence of PCM including all grades was found higher among Muslims, which

might be because of large family size and lack of education among Muslims. The similar findings were also observed by Deokinandan (1979)<sup>5</sup>.

TABLE - 4 : PREVALENCE OF PCM IN RELATION TO EDUCATIONAL STATUS OF MOTHERS

Educational status	Total Undersix Children	Nutritional status Malnourished (PCM)				
		Normal	Total	Gr.I	Gr. II	Gr.III
Illiterate/ just literate	818	727 (88.88)	91 (11.1)	63 (7.7)	15 (1.8)	13 (1.6)
Primary	253	237 (93.68)	16 (6.3)	07 (2.8)	09 (3.6)	- (0.00)
Middle and above	189	187 (91.94)	02 (1.1)	02 (1.1)	- (0.00)	- (0.00)
<b>Total</b>	<b>1260</b>	<b>1151</b>	<b>109</b>	<b>72</b>	<b>24</b>	<b>13</b>
$X^2=14.49$		d.f. =4		$P=<.05$		

The overall as well as Gr.I and Gr.III PCM prevalence was seen more among the children of illiterate mothers while Gr.II was higher amongst those mothers having primary education. The

mother's education was found statistically significant influence on the nutritional status of children. Similarly Deokinandan (1979)<sup>5</sup> and Srivasta, V.K. (1983) stated higher prevalence of PCM among those children whose mothers were illiterate.



**TABLE - 5 : PREVALENCE OF PCM ACCORDING TO OCCUPATIONAL STATUS OF FATHER**

Occupation	Total Undersix Children	Nutritional status				
		Malnourished (PCM)				
		Normal	Total	Gr.I	Gr. II	Gr.III
Labourer	512	443 (86.5)	69 (13.5)	51 (9.9)	10 (1.9)	08 (1.6)
Farmer	150	130 (86.7)	20 (13.3)	14 (9.3)	04 (2.7)	02 (1.3)
Service	436	423 (97.0)	13 (2.9)	06 (1.4)	07 (1.6)	01 (0.2)
Business	138	135 (97.8)	03 (2.2)	01 (0.7)	01 (0.7)	01 (0.7)
Unemployed	24	20 (83.3)	04 (16.7)	01 (4.2)	02 (8.3)	01 (4.2)
<b>Total</b>	<b>1260</b>	<b>1151</b>	<b>109</b>	<b>72</b>	<b>24</b>	<b>13</b>

$$X^2 = 143649$$

$$P > 0.05$$

The maximum prevalence (16.7 per cent) of PCM found among those children whose fathers were unemployed while minimum among those whose father were engaged in service (2.98 per cent) and Business (2.17 per cent). The higher prevalence of Gr.I was seen in the group of labourers (9.96 per cent)

while that of Gr.II (8.33 per cent) and Gr.III (4.17 per cent) among unemployed fathers. Similarly Srivastava, V.K. (1983)<sup>4</sup> had also reported higher prevalence of Gr.I PCM amongst children belonging to labour class.

**TABLE - 6 : PREVALENCE OF PCM IN RELATION TO SOCIAL CLASS**

Social Class	Total Undersix Children	Nutritional status				
		Malnourished (PCM)				
		NORMAL	TOTAL	Gr.I	Gr. II	Gr.III
I	63	63 (100.00)	- (0.00)	- (0.00)	- (0.00)	- (0.00)
II	88	87 (98.8)	01 (1.1)	01 (1.1)	- (0.00)	- (0.00)
III	247	246 (99.6)	01 (0.4)	01 (0.4)	- (0.00)	- (0.00)
IV	674	582 (86.3)	92 (13.6)	67 (9.9)	16 (2.4)	09 (1.3)
V	188	173 (92.0)	15 (7.9)	03 (1.6)	08 (4.2)	04 (2.1)
<b>Total</b>	<b>1260</b>	<b>1151</b>	<b>109</b>	<b>72</b>	<b>24</b>	<b>13</b>

$$X^2 = 17.16$$

$$d.f. = 4$$

$$P < .001$$

The majority of children in this study belonged to social class IV (53.5 per cent). The overall PCM (13.65 per cent) as well as Gr.I (9.94 per cent) was also observed maximum among the children of social class IV. However, the Gr.II (4.26 per cent) and Gr.III (2.13 per cent) was seen higher among the

children of social class V. This relationship was found highly significant ( $P = < 0.001$  (Table - 6).

Sidhu and Srivastava (1970)<sup>6</sup>, Banik Dutta (1970)<sup>7</sup> and Srivastava (1983)<sup>4</sup> strongly opined about the close relationship of socio economic status and prevalence of PCM.

**TABLE - 7 : NUTRITIONAL STATUS AMONG CHILDREN ACCORDING TO TYPE OF FAMILY**

Type of family	Total Undersix Children	Nutritional status Malnourished (PCM)				
		NORMAL	Total	Gr.I	Gr. II	Gr.III
SINGLE	932 (73.9)	837 (89.80)	95 (10.2)	67 (7.2)	19 (2.1)	09 (0.9)
JOINT	292 (23.2)	281 (96.2)	11 (3.8)	05 (1.7)	03 (1.0)	03 (1.0)
EXTENDED	36 (2.8)	33 (91.7)	03 (8.3)	- (0.00)	02 (5.5)	02 (2.8)
<b>Total</b>	<b>1260</b>	<b>1151</b>	<b>109</b>	<b>72</b>	<b>24</b>	<b>13</b>

$X^2 = 9.74$

d.f. = 4

$P < .05$

The majority of children (73.97 per cent) belonged to single families. The overall (10.20 per cent) as well as Gr.I PCM (7.19 per cent) was found maximum amongst the children belonging to single families while Gr.II and Gr.III PCM was seen mostly in joint and extended families. This relationship was found statistically significant ( $P = < 0.05$ ).

The similar findings were also reported by Srivastava (1983)<sup>4</sup>. The higher PCM in single families might be because of the fact that if any of the parent is diseased, or even if both of them go out of home for their jobs, there is nobody to look after the children and thus their nutrition suffers at the earliest.

### Suggestion :

Mother is the key person in the maintenance of good health and nutrition of the children. Hence a lot of emphasis has to be given on the literacy of girls so that in future during their state of motherhood, they are fully aware of importance of their children's health. Thus they adopt good sanitary practices and start weaning as well as supplementary food timely and adequately. The health services already existing in the slum areas, should be strengthened and health educational interventions should be implemented effectively.



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