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

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ABSTRACT:

Rresearch Problem: What is the prevalence of PCM amongst under six children in slum area of Kanpur?

Objectives:
1. To study the prevalence of PCM.
2. To apply health educational interventions.

Study Design: Cross - sectional study.

Setting: All the households in the study area having under six children.

Participants: Under - six children showing signs of PCM.

Sample Size: 1260 children in the age group of 0 - 6 years.

Study Variables: Age - group, sex, education of mother, occupation of father, social class, type of family.

Outcome Variables: Children with signs of PCM.

Statistical Analysis: By chi - square test.

Result: The occurrence of PCM was the highest in the 0 - 1 year age group. Boys suffered from overall PCM and grade I PCM more than the girls in whom grade III PCM was more common. Overall as well as grade I and II PCM was seen more in children of illiterate mothers and unemployed fathers. Majority of the children belonged to social class IV and were from unitary families.

Conclusion: Mother's education plays an important role in the health and nutrition of children.

Key words: Protein Calorie Malnutrition, Mother's education.

INTRODUCTION:

Kanpur is one of the biggest industrial, metropolitan cities of north India having a population of about 30 lakhs. The industry, commerce, trade, education, tourism and the socio-cultural background of Kanpur city has aroused a lot of aspirations and hope among lakhs of people, who have come from different places and settled down here indiscriminately, resulting in unorganised and unplanned human inhabitations known as slums. The majority of industrial labour lives in more than 160 slums, scattered all over the Kanpur city and having a population of about 10 lakhs. The sub - standard living conditions in the slums predispose the slum dwellers to a large number of health problems, particularly, communicable and nutritional diseases, which are largely preventable with even simple health educational inteventions.

The present study was carried out in one of the Kanpur slums to assess the nutritional profile amongst under six children and to make suggestions for its improvement and implementation of interventions.

MATERIAL AND METHOD:

The study was conducted in Katari slum area of Kalyanpur Block, Kanpur, considered as one of the biggest slums of Kanpur, having a population of 9000, which was residing in 1600 houses. Each household in this area, having an under six child formed the unit of study. A door to door survey was done and general information like name of the child, father's name, age and sex of the child, religion, type of family, parent's occupation and educational status and 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[1].

The grading of PCM was done as per the recommendations of the Nutrition Sub-Comittee of Paediatrics (I.C.M.R., 1972)[2].

OBSERVATIONS AND DISCUSSION:

The occurrence of PCM in under six children was observed to be the highest (16.2%) in the age group of 0-1 year as compared to other age groups but this difference was not found to be statistically significant (Table - I). However, Sen, et al reported a higher prevalence in the age group of 1-3 years[3].

It was found that boys had an overall higher

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prevalence of PCM (9.77%) as also Grade I PCM (6.82%) in comparison to females (7.52% and 5.2% respectively) (Table - II). However, Grade - III PCM was found to be higher (1.3%) among the girls than in boys (0.8%). This difference was not statistically significant. Similar findings were reported by Srivastava[4].

The overall as well as Grade - I and Grade - III PCM prevalence was seen to be higher among the children of illiterate mothers, and Grade - II PCM was higher amongst children of mothers having primary education (Table - III). The mothers education was found to be a statistically significant influence on the nutritional status of children ($X^2 = 14.36, p > 0.05$). Similar observations were made by other workers.[4,5]

Maximum prevalence of PCM was found among those children whose fathers were unemployed (16.7%) (Table - IV) while minimum prevalence was seen among those whose fathers were engaged in service (2.98%) and business (2.17%). A higher prevalence of Grade - I PCM was seen in children of labourers (9.96%) while the prevalence of Grade - II PCM (8.33%) and Grade - III PCM (4.17%) was the highest in children of unemployed fathers. Srivastava also reported a higher prevalence of Grade - I PCM amongst children belonging to the labour class[4].

Majorityof childen (53.5%) in this study belonged to social class IV (Table - V). The overall PCM (13.65%) and Grade - I PCM (9.94%) was also observed to be maximum among the children of social class IV. However, Grrade - II (4.26%) and Grade - III PCM (2.13%) were higher among the children of social class V. This difference was found to be highly significant statistically. ($X^2 = 17.16$, d.f. = 4, $p < 0.001$). Many workers have also strongly opined about the close relationship of socio-economc status and the prevalence of PCM.[4,6,7]

Majority of children (73.97%) belonged to unitary families (Table - VI). The overall PCM prevalence (10.20%) as well as Grade - I PCM (7.19%) was found maximum amongst the children belonging to unitary families while Grade - II (5.5%) and Grade - III PCM (2.8%) was seen mostly in joint and extended families. This diffence was found to be statistically significant ($X^2 = 9.74$, d.f. = 4, $p < 0.05$).

Similar findings were reported by Srivastava[4].The higher prevalence of PCM in unitary families might be because of the fact that if any of the parent is ill, or if both the parents go out of home for their jobs, then, there is nobody to look after the children, and, thus their nutrition suffers.

CONCLUSION:

This study confirms the well known fact that the mother is the key person in the maintenance of good health and nutrition of children. Hence, a lot of emphasis has to be laid on the literacy of girls, so that in future, during their state of motherhood, they are fully aware of the importance of their children's health and nutrition. They, then, adopt good sanitary practices and start the weaning timely and adequately. Health services already existing in the slum areas should be strengthened and health educational interventions should be implemented effectively.

TABLE - I

AGEWISE DISTRIBUTION OF PCM AMONGST UNDER SIX CHILDREN

Age group (years)	Total under six - children	Nutritional status				
		Normal	Malnourished (PCM)			
			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)
Total	**1260**	**1151**	**109** (8.6)	**72** (5.7)	**24** (1.9)	**13** (1.0)

($X^2 = 6.79$, d.f. = 4, $p > 0.05$) Figurres in parenthesis indicate percentage

TABLE-II SEX WISE DISTRIBUTION OF PCM AMONGST UNDER SIX CHILDREN

Sex	Total under six children	Nutritional Status				
		Normal	Malnourished (PCM)			
			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)
Total	**1260**	**1151**	**109**	**72**	**24**	**13**

(X^2 =2.22, d.f. = 2, p>0.05) (Figures in parenthesis indicate %)

TABLE-III PREVALENCE OF PCM IN RELATION TO EDUCATIONAL STATUS OF MOTHERS

Educational status of mother	Total under six children	Nutritional status				
		Normal	Malnourished (PCM)			
			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 school	253	237 (93.68)	16 (6.3)	07 (2.8)	09 (3.6)	- (0.00)
Middle school & above	189	187 (91.94)	02 (1.1)	02 (1.1)	- (0.00)	- (0.00)
Total	**1260**	**1151**	**109**	**72**	**24**	**13**

(X^2 = 14.49, d.f. = 4, p < 0.05), (Figures in parenthesis indicate %)

TABLE-IV PREVALENCE OF PCM ACCORDING TO OCCUPATIONAL STATUS OF FATHER

Occupation of father	Total under six children		Nutritional Status			
		Normal	Malnourished (PCM)			
			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)
TOTAL	**1260**	**1151**	**109**	**72**	**24**	**13**

(X^2 = 14.36, p>0.05) (Figures in parenthesis indicate %).

TABLE - V

PREVALENCE OF PCM IN RELATION TO SOCIAL CLASS

Social Class	Total under six children	Nutritional Status				
		Normal	Malnourished (PCM)			
			Total	Gr.I	Gr.II	Gr.III
I	63	63	-	-	-	-
	(5.0)	(100.00)	(0.00)	(0.00)	(0.00)	(0.00)
II	88	87	01	01	-	-
	(6.9)	(98.8)	(1.1)	(1.1)	(0.00)	(0.00)
III	247	246	01	01	-	-
	(19.6)	(99.6)	(0.4)	(0.4)	(0.00)	(0.00)
IV	674	582	92	67	16	09
	(53.5)	(86.3)	(13.6)	(9.9)	(2.4)	(1.3)
V	188	173	15	03	08	04
	(14.9)	(92.0)	(7.9)	(1.6)	(4.2)	(2.1)
TOTAL	**1260**	**1151**	**109**	**72**	**24**	**13**

(X^2 = 17.16, d.f. = 4, $p < 0.001$) (Figures in parenthesis indicate %)

TABLE - VI

NUTRITIONAL STATUS AMONGST UNDER - SIX CHILDREN ACCORDING TO TYPE OF FAMILY

Type of family	Total under six children	Nutritional Status				
		Normal	Malnourished (PCM)			
			Total	Gr.I	Gr.II	Gr.III
Unitary	932	837	95	67	19	09
	(73.9)	(89.8)	(10.2)	(7.2)	(2.1)	(0.9)
Joint	292	281	11	05	03	03
	(23.2)	(96.2)	(3.8)	(1.7)	(1.0)	(1.0)
Extended	36	33	03	-	02	01
	(2.8)	(91.7)	(8.3)	(0.00)	(5.5)	(2.8)
TOTAL	**1260**	**1151**	**109**	**72**	**24**	**13**

(X^2 = 9.74, d.f. = 4, $p < 0.05$) (Figures in parenthesis indicate %)

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