



Prevalence of Chronic Energy Deficiency (CED) amongst school children in the age group of 5-18 years in National Capital Territory of Delhi (NCT)

KEYWORDS

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We would like to share findings on prevalence of CED amongst children in high, middle and low income categories in age group of 5-18 years residing in National Capital Territory of Delhi (NCT). This sub-study is a part of larger dataset of a study conducted on prevalence of overweight and obesity amongst school children in NCT of Delhi, India which has been published elsewhere (1). A total of 16,595 school children were selected using the Probability Proportionate to Size (PPS) sampling methodology. All the schools in National Capital Territory (NCT) of Delhi were enlisted. The school catering to Low, Middle and High Income families were identified separately and subsequently, three independent lists of schools catering to each socio-economic group were developed. The Children attending State Government Schools, which had nil monthly tuition fees, were considered as to be catering to low income group families. The Children studying Central Government Schools (Kendriya Vidhyalayas) with tuition fees Rs. 200 per month were considered to be catering to middle income group families and the Children studying in private public schools, in which the tuition fees was Rs. 2000 or more, per month were considered to be catering to high income group families. Thirty clusters were selected by using probability proportionate to size (PPS) sampling methodology, from each Socio Economic Group (SEG) of the schools, (i.e. LIG, MIG and HIG). In each cluster, all the children in the age group of 5-18 year were enlisted and 170 children were selected for inclusion in the study with help of random number table. A total of 16,595 children were assessed for prevalence of CED amongst them (LIG 5087, MIG 5140 and 6368 HIG). Each child was briefed about the objectives of the study. Written consent was obtained from the parents of the subjects. Anthropometric measurements of weight and height were recorded utilizing standard equipments and procedure (2). The Nutritional status Classification recommended by WHO was utilized for assessing the grades of

CED (Grade I BMI: 17.5-18.4 Kg/m²; Grade II: BMI: 16.0-17.4 Kg/m²; Grade III BMI: less than 16.0 Kg/m²) (3). The results are depicted in table 1. It was found that 53.7 per cent of male children and 54.3 percent of female children had Grade III CED in LIG category; similarly in middle income group 47.3 and 45.2 per cent of male and female children had Grade III CED respectively. The prevalence of Grade III CED amongst High Income group was 33.9 percent amongst male children and 33.0 per cent amongst female children (Table 1).

In the present study, CED was significantly higher in age group of 11-18 years as compared to 5-10 years. Similar findings have been reported earlier (3). National Nutrition Monitoring Bureau (NNMB) has also reported increase in prevalence of CED with age (4). It was found that CED was more prevalent in boys than girls. Similar findings have been reported by earlier workers (5). The higher prevalence of CED was observed amongst children from LIG category this is possibly due to the fact that lower family income leads to lower quantity of procurement of food and is an important predictor of underweight.

The present study revealed high prevalence of CED amongst school age children in all the three socio economic groups in NCT of Delhi. CED is a major public health problem. The current situation is alarming, serious and warrants urgent interventions to improve nutritional status of children. The high prevalence of CED amongst children is possibly a cause of non-achievements of RCH (Reproductive and Child Health) program targets, like reduction in proportion of low birth-weight babies and reducing maternal mortality rate and improving other reproductive outcomes. The CED in children especially female children are possibly major obstacle in improving the maternal and child health in the country.

Table 1: Age and Gender Wise Distribution of Children

LIG Category						
Grades of Malnutrition	5-10 years		11-18 years		Total	
	Male	Female	Male	Female	Male	Female
Grade I: Mild CED	16 (2.3)	30 (2.4)	220 (13.0)	214 (14.8)	236 (9.9)	244 (9.0)
Grade II: Moderate CED	65 (9.4)	140 (11.2)	419 (24.7)	335 (23.1)	484 (20.3)	475 (17.6)
Grade III: Severe CED	593 (85.7)	1058 (84.4)	688 (40.6)	408 (28.2)	1281 (53.7)	1466 (54.3)
Normal or over nutrition	18 (2.6)	25 (2.0)	367 (21.7)	419 (33.9)	385 (16.1)	516 (19.1)
Total	692	1253	1694	1376	2386	2701
MIG Category						
Grade I: Mild CED	46 (4.0)	53 (5.0)	205 (12.9)	203 (15.4)	251 (9.1)	256 (10.7)
Grade II: Moderate CED	164 (14.1)	127 (11.9)	400 (25.2)	262 (19.8)	564 (20.5)	389 (16.3)
Grade III: Severe CED	873 (75.1)	809 (75.7)	427 (26.9)	271 (20.5)	1300 (47.3)	1080 (45.2)
Normal or over nutrition	80 (6.9)	79 (7.4)	555 (35.0)	586 (44.3)	635 (27.1)	665 (27.8)
Total	1163	1068	1587	1322	2750	2390
HIG Category						
Grade I: Mild CED	88 (6.3)	89 (6.3)	228 (12.0)	169 (10.1)	316 (9.6)	258 (8.4)
Grade II: Moderate CED	232 (16.5)	241 (17.2)	356 (18.8)	233 (14.0)	588 (17.8)	474 (15.4)
Grade III: Severe CED	763 (54.3)	789 (56.2)	354 (18.7)	223 (13.4)	1117 (33.9)	1012 (33.0)
Normal or over nutrition	322 (22.9)	284 (20.2)	955 (50.4)	1042 (62.5)	1277 (38.7)	1326 (43.2)
Total	1405	1403	1893	1667	3298	3070

Percentages are mentioned in parenthesis

Abbreviations : LIG – Lower Income Group, MIG – Middle Income Group, HIG – High Income Group, CED – Chronic Energy Deficiency

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