

# Socio-Demographic Factors Affecting Morbidity In Primary School Children In Urban Area Of Meerut

N Saluja, S Garg, H Chopra, S Bajpai, S Pandey

## Citation

N Saluja, S Garg, H Chopra, S Bajpai, S Pandey. *Socio-Demographic Factors Affecting Morbidity In Primary School Children In Urban Area Of Meerut*. The Internet Journal of Epidemiology. 2010 Volume 9 Number 2.

## Abstract

**Objective:** 1. To study the socio-demographic factors affecting morbidity in primary school children (5-11 years) in urban Meerut. **Study Design:** Cross-sectional. **Setting:** Govt. Primary Schools of Urban Meerut. **Participants:** 800 school children (5-11 years). **Methodology:** Out of a list of all govt. primary schools, 5 were randomly chosen. Students aged 5-11 years were included in the study. Complete data of each child was collected in a pre-designed, pre-tested proforma. **Statistical Analysis:** percentages and Chi-square test. **Result:** Out of 800 children (426 boys and 374 girls), 542 children (67.8 %) were found to be suffering from one or more morbid conditions. Prevalence of morbidity was found to be maximum in Muslim children ( 82.5%), children belonging to lower class ( 90%) and Schedule castes (75.5%). The association of morbidity with the type of family was also found to be significant ( $p < .01$ ) being 73.1% in nuclear families and 49.7% in joint families. Morbidity was significantly higher ( $p < .001$ ) in children who were non vegetarian (73.9%) as compared to vegetarians (62.5%) & also maximum (84.4%) in children with poor personal hygiene as compared to those with good personal hygiene ( $p < .001$ ). The difference in morbidity with literacy status of parents was found to be statistically significant ( $p < .001$ ) being maximum in children of illiterate parents. **Conclusion:** Most of the defects and diseases that are seen among the school children are preventable and the health of the child can be preserved and improved by promotion of hygienic practices through proper health education by the teachers, who are the first contacts.

## INTRODUCTION

The World Health Organization's Expert Committee on School Health Services noted as long as 1950 that "to learn effectively, children need good health".<sup>1</sup> Children's health is an important concern for all societies since it contributes to overall development. Health, nutrition and education are important for the overall development of the child and these three inputs need to be addressed in a comprehensive manner. A review of available macro data and studies shows that the major causes of mortality and morbidity among children are a group of disease conditions that are related to poor living conditions and lack of basic needs. The burden of child mortality is being borne disproportionately by the schedule castes and tribes as compared to other caste groups<sup>2</sup> (IIPS: 2000). Much of the disease burden derives from the poor environmental conditions, in which children live, including exposure to biological, physical and chemical hazards in the environment and a lack of resources essential for human health.

Extensive surveys have been carried out in different parts of the country and the findings show that sickness, morbidity

and mortality rates in India are among the highest in the world.<sup>3</sup> Most of the defects and diseases that are seen among the school children are preventable and the health of the child can be preserved and improved, provided that the defect or disease is detected and remedied early by a well organized school health programme. Keeping all the facts in view, a need was felt to carry out a survey of the health status of primary school children in various schools of Meerut city with the following objective-

1. To study the socio-demographic factors affecting morbidity in primary school children (5-11 years) in urban Meerut.

## MATERIAL AND METHODS

The present cross-sectional study was carried out from March 2007 to October 2007 in urban area of Meerut. The study subjects were school going children (5-11 years). For the purpose of study, the urban area of Meerut district was divided into four zones. A list of all government primary schools was taken and arranged according to the zones. Equal numbers of students were examined from the

randomly selected school/ schools from each zone. For calculating the sample size, the prevalence of malnutrition was considered as the most common health problem in primary school age children. Therefore, by taking prevalence of malnutrition as 50% for confidence level 95% with a relative precision of 10%, an optimum sample size for study was obtained by applying the formula  $n = 3.84 pq/SE^2$ . This sample size was doubled in order to cover both boys and girls, & thus a total of 800 students (426 boys and 374 girls) were interviewed and examined. They were interviewed through oral questionnaire method and desired information was collected on pre-designed and pre-tested proforma. The social class of the sample group was determined by modified Kuppuswami's classification<sup>4,5</sup>.

**RESULTS**

The maximum number of children (23.6%) studied were in the age group of 9 years and minimum (4.3%) in the age group of 5 years. The same was the case in boys and girls distribution. (Table 1)

**Figure 1**

Table 1-Age and sex wise distribution of children

Age in years	Boys		Girls		Total	
	No.	Percent	No.	Percent	No.	Percent
5	7	1.6	27	7.2	34	4.3
6	47	11.0	38	10.2	85	10.6
7	61	14.3	45	12.0	106	13.3
8	65	15.3	79	21.1	144	18.0
9	109	25.6	80	21.4	189	23.6
10	80	18.8	52	13.9	132	16.5
11	57	13.4	53	14.2	110	13.8
Total	426	53.3	374	46.8	800	100.0

In all 542 (67.8%) children were found to be suffering with one or more morbid conditions accounting for the sickness rate of 67.8% children as shown in Table-2.

**Figure 2**

Table 2-Distribution of children according to morbidity

Morbidity	Boys		Girls		Total	
	No.	Percent	No.	Percent	No.	Percent
Present	298	70.0	244	65.2	542	67.8
Absent	128	30.0	130	34.8	258	32.2
Total	426	100.0	374	100.0	800	100.0

$\chi^2=2.02; df=1; P>0.05$

Table 3 shows the various socio-demographic factors affecting morbidity in children

**Figure 3**

Table 3-Socio-demographic factors affecting morbidity

S.No	Socio-demographic factors	Total No. of children		Morbidity		$\chi^2$
		Number	Percent	Present	Percent	
1	<b>Religion</b>					$10.91; df=1; P<0.001$
	Hindu	673	84.1	440	65.4	
	Muslim <sup>a</sup>	120	15.0	99	82.5	
	Others <sup>b</sup>	7	0.9	3	42.9	
	Total	800	100.0	542	67.8	
	For calculation purpose, a and b have been merged. □					
2	<b>Caste</b>					$15.83; df=2; P<0.001$
	General	287	35.9	173	60.3	
	OBC	207	25.9	138	66.7	
	SC	306	38.2	231	75.5	
	Total	800	100.0	542	67.8	
3	<b>Social Class</b>					$122.0; df=2; P<0.001$
	Upper <sup>a</sup>	1	0.1	-	-	
	Upper Middle <sup>b</sup>	86	10.8	53	61.6	
	Lower Middle	295	36.9	135	45.8	
	Upper Lower <sup>c</sup>	408	51.0	345	84.6	
	Lower <sup>d</sup>	10	1.2	9	90.0	
	Total	800	100.0	542	67.8	
	For the purpose of calculation a, b and c, d have been merged.					
4	<b>Family Type</b>					$35.28; df=1; P<0.001$
	Nuclear	617	77.1	451	73.1	
	Joint	183	22.9	91	49.7	
	Total	800	100.0	542	67.8	
5	<b>Dietary Habits</b>					$11.85; df=1; P<0.001$
	Vegetarian	432	54.0	270	62.5	
	Non-vegetarian	368	46.0	272	73.9	
	Total	800	100.0	542	67.8	
6	<b>Personal Hygiene</b>					$132.96; df=2; P<0.001$
	Poor	320	40.0	270	84.4	
	Fair	198	24.7	153	77.3	
	Good	282	35.3	119	42.2	
	Total	800	100.0	542	67.8	

**Figure 4**

S.No	Socio-demographic factors	Total No. of children		Morbidity		$\chi^2$
		Number	Percent	Present	Percent	
7.	<b>Educational status of father</b>					$93.99; df=5; P < 0.001$
	Illiterate	149	18.7	131	87.9	
	Primary	193	24.2	162	83.9	
	Middle	48	6.0	32	66.7	
	High School	220	27.6	118	53.6	
	Intermediate	152	19.1	79	51.97	
	Graduate <sup>a</sup>	24	3.0	12	50.0	
	Post Graduate <sup>b</sup>	11	1.4	5	45.5	
	Total	797	100.0	539	67.6	
	For calculation purpose, a and b have been merged.					
8.	<b>Educational status of mother</b>					$139.01; df=5; P < 0.001$
	Illiterate	373	46.7	309	82.8	
	Primary	242	30.3	164	67.8	
	Middle	43	5.4	28	65.1	
	High School <sup>a</sup>	129	16.1	37	28.7	
	Intermediate <sup>b</sup>	11	1.4	3	27.3	
	Graduate <sup>c</sup>	1	0.1	-	0.0	
	Post Graduate	-	-	-	-	
	Total	799	100	541	67.7	
	For calculation purpose, a, b and c have been merged.					

**DISCUSSION**

In our study, 67.8% children (70.0% boys and 65.2% girls) were found to be suffering with one or more morbid conditions accounting for the sickness rate of 67.8% children with 4.6 morbidities per sick child. Morbidity was observed more in boys as compared to girls, but morbidities like pediculosis, scabies and nutritional anaemia was found to be more common in girls. Similarly Semwal et al<sup>6</sup> also found anemia to be higher among girls (30.2%) than in boys (26.0%). Hassan et al<sup>7</sup> in a study on 802 children aged 5-15 years found that girls had higher prevalence of anaemia than boys. Shakya et al<sup>8</sup> also found that prevalence of anaemia, malnutrition and dental caries was more in girls than boys. In contrast Srinivasan et al<sup>9</sup> found that the prevalence of anaemia and worm infestation was significantly higher in boys (87.7% and 52.6% respectively) as compared to that among girls (72.0% and 24.0%). In the present study morbidity was found to be maximum (82.5%) in Muslims followed by Hindus (65.4%) and least in children belonging to other religions (P<0.001) which is similar to the findings of Sharma et al<sup>10</sup> who also observed higher morbidity due to malnutrition among Muslims (68.09%) as compared to Hindus (50.29%). Similarly Chandra et al<sup>11</sup> observed that nutrition related disorders were more prevalent among the Muslim and Christian communities (75% and 73.3%

respectively) as compared to the backward Hindu & the forward Hindus communities (64.1% > 43.4%). In our study morbidity was found to be maximum (75.5%) in Schedule Castes followed by Other Backward Classes (66.7%) and least in general caste (60.3%) and this difference in morbidity in relation to caste was found to be statistically significant (P<0.001). Morbidity was also found to be maximum (84.6% and 90%) in upper lower and lower class followed by upper middle (61.6%) and lower middle class (45.8%) (P<0.001) and these findings are similar to the findings of Gupta et al<sup>12</sup>, Sharma et al<sup>13</sup>, Mullick et al<sup>14</sup> & Chandra et al<sup>11</sup>. Gupta et al<sup>12</sup> studied the relationship of the nutritional status and morbidity pattern with family income and found that morbidity was high among children belonging to low socio-economic group. Similarly Gupta et al (1977)<sup>15</sup> noted a direct correlation between nutritional deficiency diseases and poor socio-economic status. Sharma et al<sup>13</sup> also observed that children belonging to low socio-economic status were more anaemic (35.71%) than children from higher socio-economic group (2.59%). The higher prevalence of morbidity in children from low socio-economic status in our study can be attributed to the poor dietary intake, higher incidence of infection and infestation among them. Chandra et al<sup>11</sup> in a nutrition assessment survey of school children of Karnataka also noted that nutrition related morbidity had a direct relationship with poor socio-economic status. In our study morbidity was more in children who belonged to nuclear families (73.1%) and was less in children belonging to joint families (49.7%). In a study by Gupta et al<sup>12</sup> showing the relationship of nutritional status and morbidity with family size noted a significant direct relationship between family size and protein calorie malnutrition. Sharma et al<sup>13</sup> observed that children of large sized families were more anaemic as compared to children from small sized families. Mullick et al<sup>14</sup> noted that nutrition related disorders were more prevalent in children belonging to large sized families. Morbidity, in our study was found to be more in children who were non vegetarian (73.9%) as compared to those children who were vegetarian (62.5%). Sharma et al<sup>13</sup> showed a direct relationship between dietary intake and morbidity due to anaemia in children. In a study by Mullick et al<sup>14</sup> nutrition related morbidity was found to be more prevalent in children taking poor diet. She also observed that high prevalence of anaemia (37.48%) was directly associated with lack of milk, fruits, green leafy vegetables and other protective foods in the diet of children. Verma et al<sup>16</sup> in a study observed that as compared to non vegetarians (38%), more vegetarians (65.9%) were anaemic.

In a study by Mullick et al<sup>14</sup> on primary school children of Jhansi, worm infestation and dental caries were found to be more common in children with poor personal hygiene which are similar to the findings in our study where morbidity was found to be maximum (84.4%) with poor personal hygiene and progressively decreased with improvement of personal hygiene being lowest with good personal hygiene (42.2%). In our study morbidity was found to be maximum in children of illiterate parents ( $p < 0.001$ ) while Chandra et al<sup>11</sup> in a survey of nutritional assessment of school children found that nutrition related disorders were not related to either the father's or mother's literacy status, but a significant association was found between underweight/lean BMI of child with literacy status of father.

## **CONCLUSION**

Health is a key factor in school entry, as well as continued participation and attainment in school. Most of the defects and diseases that are seen among the school children are preventable and the health of the child can be preserved and improved, by promotion of hygienic practices through proper health education by the teachers, who are the first contacts.

## **References**

1. WHO Expert Committee on School Health Services. Report on the First Session. Geneva, World Health Organization, 1950 (WHO Technical Report Series, No. 30).
2. IIPS and ORC Macro (2000) National Family Health Survey (NFHS-2) 1998-99: India, IIPS, Mumbai.
3. Taneja M.K. Health status of urban school children in western U.P. *Ind. J. Pediatrics*, 1978; 45 (370): 359-369.
4. D. Mishra, H.P. Singh. *Indian Journal of Paediatrics*, 2003;70: 273-274.
5. Mahajan B.K, Gupta M.C. Textbook of Preventive and Social Medicine, 2ND Edition. 1995; 134-135.
6. Semwal J, Srivastava A.K, Gupta S, Kishore S, and Chandra R. Nutritional status of school children in rural areas of Dehradun district. *Indian J. Prev. Soc. Med*, 2006; 37 (1&2): 76-81.
7. Hassan M.A, and Khalique N. Health Status and Anthropometric Profile of School Going Children (5-15 years) in Aligarh City. Souvenir; 29th Annual Conference of IAPSM and 9th Annual Conference of Maharashtra Chapter of IAPSM, 2002; 125
8. Shakya SR, Bhandary S, and Pokharel PK. Nutritional status and morbidity pattern among government primary school children in eastern Nepal. *Kathmandu University Medical Journal*, 2004; 2(4), Iss. 8: 307-314.
9. Srinivasan K, and Prabhu G.R. A study of morbidity status of children in social welfare hostel in Tirupati town. *Ind. J. Com. Med.*, 2006; 31 (3): 170-72.
10. Sharma D.K, Kumar S, Singh R. and Agrawal G.C. A study of health status of primary school children in urban area. *Ind. J. Com. Med.*, Sept. - Dec.1984; IX (3): 5-11.
11. Chandra Pravin KR, Uma M P, Sadashivappa T, and Prabhakara GN. Nutrition Assessment Survey of School Children of Dharwad and Haliyal Taluks, Karnataka State India. *Kathmandu University Journal of Sci., Eng. and Tech.*, Feb.2006; II (1): 1-6.
12. Gupta S, Srivastava G, and Agarwal V. Morbidity in relation to family income. *Ind. Paediatr.* 1976;13: 339-343.
13. Sharma P. A study of nutritional status and growth of school children in Meerut. Thesis for M.D. (Paediatrics), 1988, C.C.S. University, Meerut.
14. Mullick, H. Assessment of Health Status of Urban Primary School Children of Jhansi (Uttar Pradesh). Thesis submitted for M.D. in Community Medicine, 1991, Bundelkhand University, Jhansi.
15. Gupta V and Saxena S. Nutritional status of school children in rural and urban areas of Bikaner, West Rajasthan. *Ind. J. Paediatr.* 1977;44: 301.
16. Verma M, Chhatwal J, and Kaur G. Prevalence of anaemia among urban school children of Punjab. *Indian Paediatrics*, 1998; 35(12): 1181-6.

**Author Information**

**Neelu Saluja**

Assistant Professor, Community Medicine, MAMC Agroha (Hisar)

**S.K. Garg**

Professor, Community Medicine, LLRM Medical college, Meerut

**Harivansh Chopra**

Professor, Community Medicine, LLRM Medical college, Meerut

**S.K. Bajpai**

Associate Professor, Community Medicine, LLRM Medical college Meerut

**S.M. Pandey**

Assistant Professor, Community Medicine (stats) MAMC Agroha