

A comparative study of clinical examination of children in government and private-aided schools in Ghaziabad district

■ PALLAVI GUPTA, KANCHAN KULSHRESTHA AND RITA BAKSHI

Received: 11.05.2012; Revised: 06.08.2012; Accepted: 01.10.2012

■ **ABSTRACT** : The present investigation was undertaken to assess the comparative study of clinical examination of children in government and private aided schools. Research has been conducted to collect the data (n=300) of male and female children. Clinical examination method was used to analyze the health status of children. Statistically, significant differences has been observed in the age of the children ($p < 0.05$). Private aided schools children reported better socio-economic status. Government schools children were getting lunch through mid day meal by NGO and private aided schools children were getting lunch from their homes. Health problem of children in government schools have been identified in hair (35.33% 'lack of luster' and 23.33% discolouration), teeth (20.67% mottled enamel), gums (10% spongy bleeding gums) and nails (8.67% brittle and spoon-shaped) whereas, health problems of children in private aided schools have been identified in hair (32.67% 'lack of luster' and 21.33% discolouration), teeth (16% mottled enamel) and nails (6% brittle and spoon-shaped). Statistically, significant differences have been observed in clinical examination of gums between children in government and private aided schools ($p < 0.05$). Data analysis showed that <6 per cent of the children have almost same kind of health problems in face, eyes, lips, tongue, skin and skeletal system in government and private aided schools. Nutritional status of government schools children has been observed much improved and beneficial.

■ **KEY WORDS** : Clinical examination, Health status, Mid day meal

■ **HOW TO CITE THIS PAPER** : Gupta, Pallavi, Kulshrestha, Kanchan and Bakshi, Rita (2012). A comparative study of clinical examination of children in government and private-aided schools in Ghaziabad district. *Asian J. Home Sci.*, 7 (2): 305-312.

See end of the paper for authors' affiliations

Correspondence to :

PALLAVI GUPTA

Department of Home Science,
Ginni Devi Modi Girls (P.G.)
College, Modinagar,
GHAZIABAD (U.P.) INDIA
Email:pallavigarg.g@gmail.com

Clinical examination is the process by which a doctor investigates the body of a patient for the signs of disease. It generally follows the taking of the medical history an account of the symptoms as experienced by the patient. It is a method based on examination for changes, and related to inadequate nutrition, that can be seen in superficial epithelial tissues especially skin, eyes hair, or in organs near the surface of the body. Nutrition is the most basic need, being a major determinant of health, labour productivity, and mental development. Nutritional problems in adolescents start during childhood and continue to adult life. Children's needs are multi-dimensional and therefore programmes for young children should cater to all their needs and seek integration, combining their health, nutrition, education and psycho-social well being (Sood, 2010). MDM provided by the NGO had no

better impact on growth of the primary school children, however, it reduced prevalence of vitamin deficiency significantly in comparison to the MDM run by Village Panchayats (Sharma, 2010). Deodhar (2007) had also pointed out that there is no guarantee that the children will get their rest of the 85 per cent of calories at home, and, that their out-of-school meals will have any significant amounts of nutrition. Hence, mid day meal scheme may want to provide much more than proportionate requirements of nutrition. Studies made by Agarwal *et al.* (1987) and Sethi, (2003) showed that the MDM programme and resulting increased nutritional health of children helped to increase the performance and reduce dropout rates. Therefore, current investigation is undertaken to assess the comparative study of clinical examination of children in government and private aided schools. Government

schools children are getting lunch through mid day meal by NGO, whereas private aided schools children are getting lunch from their homes. A complete clinical examination includes evaluation of general appearance of children. Major symptoms of clinical examination are-

- **Hair:**
Lack of lustre : dull dry hair
Discolouration: hair loses its black colour and appears reddish brown. Easy pluck ability
- **Face :**
Moon face: the face appears puffy with the cheeks sagging
- **Eyes:**
Conjunctival xerosis : dryness of the transparent membrane that covers the cornea and lines inside the eyelid, conjunctiva become discoloured (muddy coloured and loses its brightness)
Xerophthalmia: cornea becomes soft and raw and easy infected.
Bitot's spot: dry foamy triangular spots appearing on the temporal side of the eye.
Night blindness: inability to see in dim light
- **Lips:**
Angular stomatitis: lesions appearing on both the side of the mouth.
Angular scars: healed lesions of angular stomatitis.
Cheilosis: lips develop cracks and become red.
- **Tongue:**
Oedema
Red and raw (tongue is bright red in colour and very painful)
Magenta tongue (tongue is purplish red in colour)
Atrophic papillae (papillae have disappeared giving the tongue an extremely smooth appearance)
- **Teeth:**
Mottled enamel : mottled teeth with chalky white and brownish area with or without erosion of the enamel
- **Gums:**
Spongy bleeding gums: Swatting of gums bleeding on pressure.
- **Skin:**
Xerosis: generalized dryness with desquamation,
Dermatosis: skin lesions which are symmetrical and are evident only on the part of the body exposed to the sun (like forearm, legs, face and exposed part of the neck) the skin

become dry.

- **Nails:**
Brittle and spoon-shaped
- **Skeletal system:**
Beading of ribs
Pigeon chest: protruding breast-bone
Knock-knees or bow-legs

■ RESEARCH METHODS

Research has been conducted to collect data in government and private aided schools from Ghaziabad district of Uttar Pradesh. A range of data has been collected from both male and female heads from ten schools using proforma prepared by the researchers. Out of 10 schools, five schools were government schools and rest were private aided schools. Total 300 children have been selected from 1st to 5th class. Data were used to identify the health problems of children in government and private-aided schools.

■ RESEARCH FINDINGS AND DISCUSSION

Table 1 to 6 represent the socio-economic status of the children, Table 7 indicates the distribution of children according to age and Table 8 to 13 indicate the clinical examination of children in government and private aided schools.

Results of Table 1 reveal the distribution of children in government and private aided schools according to family type. Out of 150 children from government schools, majority (64%) of children were from joint family followed by 36 per cent of children were from nuclear family. Out of 150 children from private aided schools, majority (58%) of the children reported from joint family followed by 42 per cent of children were from nuclear family.

Table 2 reveals the distribution of children in government and private aided schools according to family income. Majority (62%) of parents of children from government schools have income in the range of Rs. 2500-5000 followed by 30.67 per cent of parents have income in the range of 5000-7500 and minimum (3.3%) have observed in the range of Rs. 0-2500. The mean income was observed Rs. 4323.38. Majority (50.67%) of parents from private aided schools have income in the range of Rs. 5000-7500 followed by 28 per cent of parents have income in the range of Rs. 7500-above and minimum (0.66%) income was observed in the range of Rs. 0-2500. The mean

Table 1 : Distribution of children in government and private aided schools according to family type						
Family type	Children in government schools providing mid day meal		Children in private aided schools not providing mid day meal		Total children	
	Number	Percentage	Number	Percentage	Number	Percentage
Nuclear	54	36	63	42	117	39
Joint	96	64	87	58	183	61
Total	150	100	150	100	300	100

Table 2 : Distribution of children in government and private aided schools according to family income					
Family income (Rs.)	Children in government schools providing mid day meal		Children in private aided schools not providing mid day meal		Statistical value
	Number	Percentage	Number	Percentage	
0-2500	5	3.33	1	0.66	t=5.961
2500-5000	93	62.00	31	20.67	P<0.05
5000-7500	46	30.67	76	50.67	Significant
7500-above	6	4.00	42	28.00	
Total	150	100	150	100	
Mean		4323.38		6353.33	
S.D.		2596.06		3514.04	

Table 3 : Distribution of children in government and private aided schools according to their number of siblings					
No of siblings	Children in government schools providing mid day meal		Children in private aided schools not providing mid day meal		Statistical value
	Number	Percentage	Number	Percentage	
0	0	0	0	0	t=6.603
1	0	0	3	2	
2	19	12.67	34	22.67	P<0.05
3	55	36.67	90	60.00	
4	24	16	7	4.67	Significant
5	26	17.33	12	8	
6	11	7.33	2	1.33	
7	12	8	2	1.33	
8	3	2	0	0	
Total	150	100	150	100	
Mean		4.02		3.03	
S.D.		1.54		1	

Table 4 : Distribution of children in government and private aided schools according to mother's occupation				
Occupation of mother	Children in government schools providing mid day meal		Children in private aided schools not providing mid day meal	
	Number	Percentage	Number	Percentage
Service	6	4.00	13	8.67
Business	2	1.33	11	7.33
Labour	39	26.00	20	13.33
Teacher	2	1.33	24	16.00
Agriculture	101	67.34	82	54.67
Total	150	100	150	100

Table 5 : Distribution of children in government and private aided schools according to mother's education				
Mother's education	Children in government schools providing mid day meal		Children in private aided schools not providing mid day meal	
	Number	Percentage	Number	Percentage
Illiterate	51	34.00	10	6.67
Primary	41	27.34	15	10.00
Junior High School	18	12.00	35	23.33
High School	5	3.33	9	6.00
Intermediate	23	15.33	44	29.33
Graduate	11	7.33	34	22.67
Post Graduate	1	0.67	3	2.00
Professional	0	0	0	0
Total	150	100	150	100

Table 6 : Distribution of children in government and private aided schools according to social groups

Social groups	Children in government schools providing mid day meal		Children in private aided schools not providing mid day meal	
	Number	Percentage	Number	Percentage
OBC	55	36.67	42	28.00
SC	44	29.33	23	15.33
Others	51	34.00	85	56.67
Total	150	100	150	100

Table 7 : Distribution of children in government and private aided schools according to age

Age (years)	Children in government schools providing mid day meal (n=150)		Children in private aided schools not providing mid day meal (n=150)		Statistical value
	Number	%	Number	%	
5	6	4.00	16	10.67	t=3.224 P<0.05 Significant
6	12	8.00	10	6.66	
7	17	11.33	29	19.33	
8	22	14.67	25	16.67	
9	37	24.67	27	18.00	
10	28	18.67	31	20.67	
11	16	10.67	10	6.67	
12	10	6.66	2	1.33	
13	2	1.33	0	0	
Total	150	100	150	100	
Mean		8.88		8.2	
S.D.		1.84		1.79	

Table 8 : Clinical examination(hair) of children in government and private aided schools

Body part	Symptoms	Response	Clinical examination of children in				Chi test (2) value, df=1	P value	Statistical significance
			Government schools (n=150)		Private aided schools (n=150)				
			Number	%	Number	%			
Hair	Lack of lustre	Yes	53	35.33	49	32.67	0.238	0.626	P>0.05 Insignificant difference
		No	97	64.67	101	67.33			
	Discolouration	Yes	35	23.33	32	21.33	0.173	0.677	
		No	115	76.67	118	78.67			

income was observed Rs. 6353.33 (Fig. 1).

Statistically, significant difference has been observed (p<0.05) in the income of parents in government and private aided schools.

Table 3 reveals the distribution of children according to their number of siblings in government and private aided schools. Out of 150 children from government schools, 36.67 per cent of them have 3 siblings followed by 17.33 per cent of them have 5 siblings. The mean numbers of sibling were found 4.02. Out of 150 children from private aided schools, majority (60.00%) of them have 3 siblings followed by 22.67 per cent of them have 2 siblings. The mean numbers of sibling were found to be 3.03.

Statistically, significant difference has been observed (p<0.05) in number of siblings in government and private aided schools.

Table 4 presents the distribution of children according

to their mother's occupation in government and private aided schools. Out of 150 children's mothers from government schools, majority (67.34%) of them were from agriculture occupation followed by 26 per cent of them from labour occupation and minimum (1.33%) from teacher as well as business occupation. Out of 150 children's mothers from private aided schools, majority (54.67%) of them were from agriculture occupation followed by 16 per cent of them was from teacher occupation and minimum (7.33%) were from business occupation (Fig. 2).

Table 5 reveals the distribution of children in government and private aided schools according to mother's education. Table indicates that 34 per cent of children's mothers from government school children were illiterate followed by 27.34 per cent were primary educated and minimum (3.33%) were high school educated. Table also indicates that 29.33 per cent of children's mothers from private aided schools were

Table 9 : Clinical examination(eyes) of children in government and private aided schools

Body part	Symptoms	Response	Clinical examination of children in				Chi test (2) value, df=1	P value	Statistical significance
			Government schools (n=150)		Private aided schools (n=150)				
			Number	%	Number	%			
Eyes	Conjunctival xerosis	Yes	6	4.00	3	2	1.031	0.310	P>0.05 insignificant difference
		No	144	96	147	98			
	Xerophthalmia	Yes	2	1.33	1	0.67	0.337	0.562	P>0.05 insignificant difference
		No	148	98.67	149	99.33			
	Bitot's spot	Yes	0	0	0	0	-	-	-
		No	150	100	150	100			
	Night blindness	Yes	1	0.67	0	0	1.003	0.317	P>0.05 insignificant difference
		No	149	99.33	150	100			

Table 10 : Clinical examination(lips) of children in government and private aided schools

Body part	Symptoms	Response	Clinical examination of children in				Chi test (2) value, df=1	P value	Statistical significance
			Government schools (n=150)		Private aided schools (n=150)				
			Number	%	Number	%			
Lips	Angular stomatitis	Yes	9	6	6	4.00	0.632	0.427	P>0.05 insignificant difference
		No	141	94	144	96.00			
	Angular scars	Yes	5	3.33	5	3.33	0.000	1.000	P>0.05 insignificant difference
		No	145	96.67	145	96.67			
	Cheilosis	Yes	3	2	1	0.67	1.014	0.314	P>0.05 insignificant difference
		No	147	98	149	99.33			

Table 11 : Clinical examination(tounge) of children in government and private aided schools

Body part	Symptoms	Response	Clinical examination of children in				Chi test (2) value, df=1	P value	Statistical significance
			Government schools (n=150)		Private aided schools (n=150)				
			Number	%	Number	%			
Tongue	Oedema	Yes	6	4.00	2	1.33	2.055	0.152	P>0.05 insignificant difference
		No	144	96.00	148	98.67			
	Red and raw	Yes	5	3.33	6	4.00	0.094	0.759	P>0.05 insignificant difference
		No	145	96.67	144	96.00			
	Magenta tongue	Yes	4	2.67	3	2.00	0.146	0.702	P>0.05 insignificant difference
		No	146	97.33	147	98.00			
	Atrophic papillae	Yes	2	1.33	3	2.00	0.203	0.652	P>0.05 insignificant difference
		No	148	98.67	147	98			

Table 12 : Clinical examination(skeletal system) of children in government and private aided schools

Body part	Symptoms	Response	Clinical examination of children in				Chi test (2) value, df=1	P value	Statistical significance
			Government schools (n=150)		Private aided schools (n=150)				
			Number	%	Number	%			
Skeletal system	Beading of ribs	Yes	5	3.33	2	1.33	1.316	0.251	P>0.05 insignificant difference
		No	145	96.67	148	98.67			
	Pigeon chest	Yes	2	1.33	0	0	2.013	0.156	P>0.05 insignificant difference
		No	148	98.67	150	100			
	Knock-knees or bow-legs	Yes	3	2	0	0	3.030	0.082	P>0.05 insignificant difference
		No	147	98	150	100			

Table 13 : Clinical examination of children in government and private aided schools

Body part	Symptoms	Response	Clinical examination of children in				Chi test (2) value, df=1	P value	Statistical significance
			Government schools (n=150)		Private aided schools (n=150)				
			Number	%	Number	%			
Face	Moon face	Yes	5	3.33	1	0.67	2.721	0.099	P>0.05 insignificant difference
		No	145	96.67	149	99.33			
Teeth	Mottled enamel	Yes	31	20.67	24	16.00	1.091	0.296	P>0.05 insignificant difference
		No	119	79.33	126	84.00			
Gums	Spongy bleeding gums	Yes	15	10.00	4	2.67	6.799	0.009	P<0.05 significant difference
		No	135	90.00	146	97.33			
Skin	Xerosis	Yes	7	4.67	4	2.67	0.849	0.357	P>0.05 insignificant difference
		No	143	95.33	146	97.33			
Nails	Brittle and spoon-shaped	Yes	13	8.67	9	6.00	0.784	0.376	P>0.05 insignificant difference
		No	137	91.33	141	94.00			

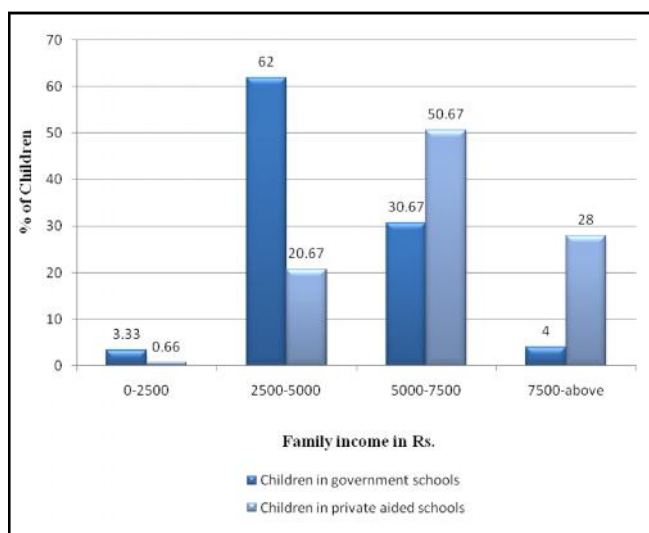


Fig. 1 : Distribution of children in government and private aided schools according to family income

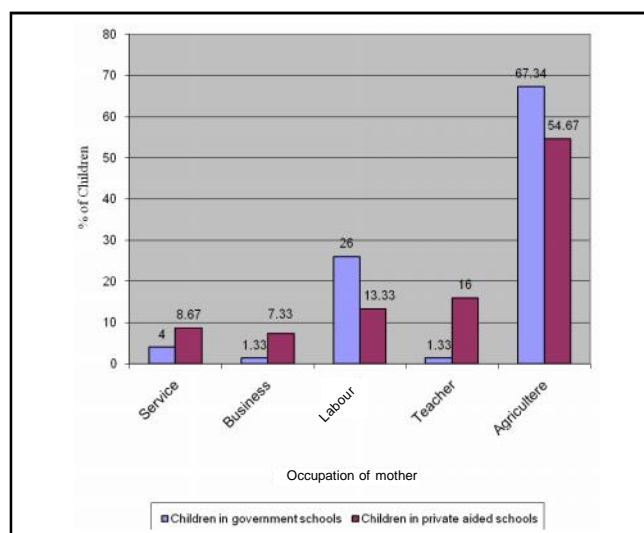


Fig. 2 : Distribution of children in government and private aided schools according to mother's occupation

intermediate educated followed by 23.33 per cent of them were Junior high school educated and minimum (2.00%) of them recorded post graduate (Fig. 3).

Table 6 reveals the distribution of children in government and private aided schools according to social groups. 36.67 per cent of government school children were from OBC followed by 34 per cent of them were from others social groups and only 29.33 per cent were from schedule caste (SC). Majority (56.67%) of private aided school children were from others social groups followed by 28 per cent of them were from OBC group (Fig. 4).

Table 7 shows the distribution of children in government and private aided schools according to age. Out of 150 children from government schools, 24.67 per cent of children were 9 years old followed by 18.67 per cent of them were 10 years old and minimum (1.33%) of them were 13 years old. Whereas,

Out of 150 children from private aided schools, 20.67 per cent of children were 10 years old followed by 19.33 per cent of them were 7 years old and minimum (1.33%) of them were 12 years old (Fig. 5).

Tables 8 to 13 show the clinical examination of the children. Following were the observations by researchers.

Clinical observations of children in Government schools:

- *Hair*: 35.33 per cent and 23.33 per cent of the children have problem of lack of lustre' and 'discolouration', respectively.
- *Eyes*: 4.00 per cent, 1.33 per cent, 0.67 per cent of the children have problem of conjunctival xerosis, xerophthalmia, and night blindness, respectively.
- *Lips*: 6.00 per cent, 3.33 per cent, and 2.00 per cent of the children have problem of angular stomatitis, angular scars,

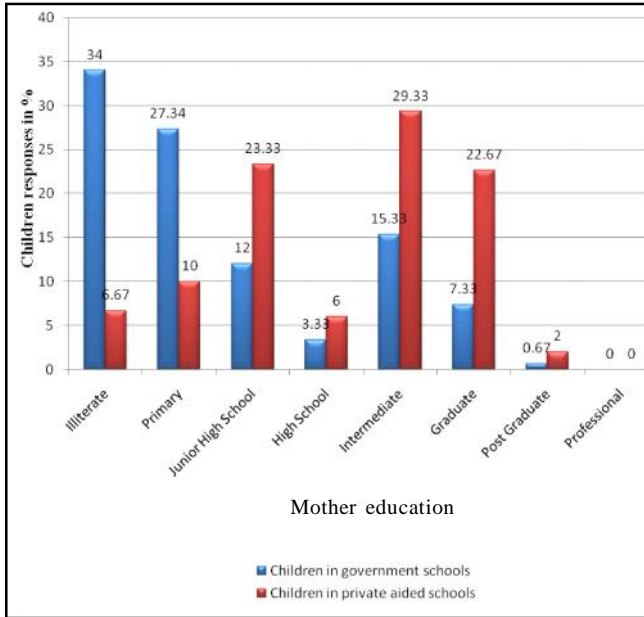


Fig. 3 : Distribution of children in government and private aided schools according to mother's education

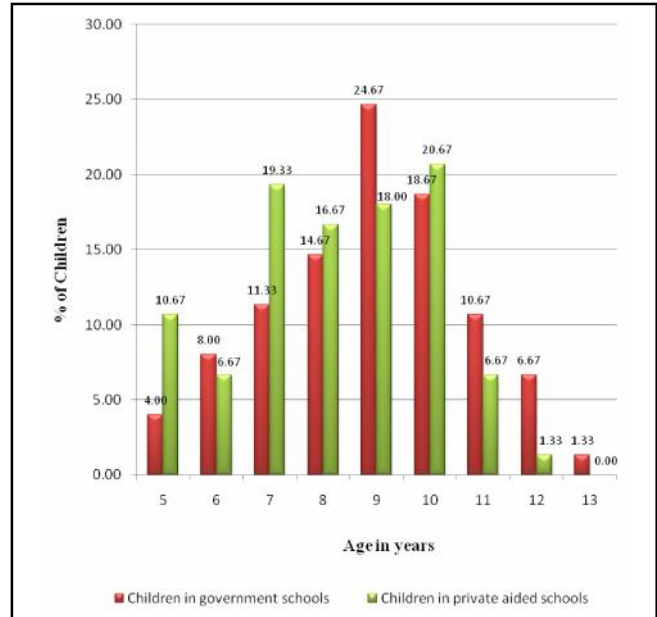


Fig. 5 : Distribution of children in government and private aided schools according to age

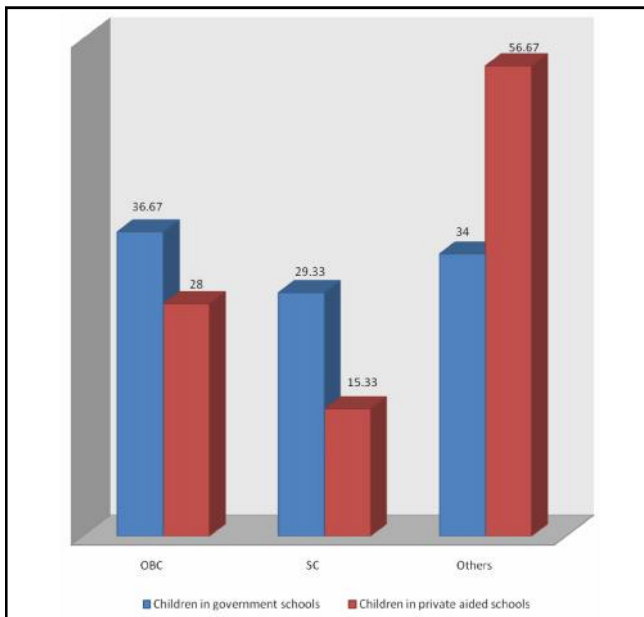


Fig. 4 : Distribution of children in government and private aided schools according to social groups

cheilosis, respectively.

- *Tongue*: 4.00 per cent, 3.33 per cent, 2.67 per cent, and 1.33 per cent of the children have problem of oedema, red and raw tongue, magenta tongue, atrophic papillae, respectively.

- *Skeletal system*: 3.33 per cent, 1.33 per cent, and 2.00 per cent of the children have problem of 'beading of ribs',

pigeon chest, and 'knock-knees or bow-legs', respectively in skeletal system of children.

- *Face*: 3.33 per cent of the children have moon face.
- *Teeth*: 20.67 per cent of the children have problem of 'mottled enamel' teeth.
- *Gums*: 10.00 per cent of the children have problem of 'spongy bleeding' gums.
- *Skin*: 4.67 per cent and 2.67 per cent of the children have problem of xerosis, dermatosis, respectively.
- *Nails*: 8.67 per cent of the children have problem of 'Brittle and spoon-shaped' in nails.

Clinical observations of children in private aided schools:

- *Hair*: 32.67 per cent and 21.33 per cent of the children have problem of 'lack of lustre' and 'discolouration', respectively.
- *Eyes*: 2.00 per cent and 0.67 per cent of the children have problem of conjunctival xerosis and xerophthalmia, respectively.
- *Lips*: 4.00 per cent, 3.33 per cent, and 0.67 per cent of the children have problem of angular stomatitis, angular scars, cheilosis, respectively.
- *Tongue*: 1.33.00 per cent, 4.00 per cent, 2.00 per cent, and 2.00 per cent of the children have problem of oedema, red and raw tongue, magenta tongue, atrophic papillae, respectively.
- *Skeletal system*: 1.33 per cent of the children have problem of 'beading of ribs'.
- *Face*: 0.67 per cent of the children have moon face.
- *Teeth*: 16.00 per cent of the children have problem of

'mottled enamel' teeth.

- Gums: 2.67 per cent of the children have problem of 'spongy bleeding' gums.
- Skin: 2.67 per cent and 1.33 per cent of the children have problem of xerosis, dermatosis, respectively.
- Nails: 6.00 per cent of the children have problem of 'brittle and spoon-shaped' in nails.

Conclusion:

Total 300 children have been selected for clinical examination. Out of 150 children from government schools, 24.67 per cent of children were 9 years old followed by 18.67 per cent of them were 10 years old whereas, out of 150 children from private aided schools, 20.67 per cent of children were 10 years old followed by 19.33 per cent of them were 7 years old. Statistically, significant age difference has been observed ($p < 0.05$). Private aided schools children reported better socio-economic status. Government schools children were getting lunch through mid day meal scheme by NGO and private aided schools children were getting lunch from their homes. Health problem of children in government schools have been identified in hair, teeth, gums and nails. Whereas health problems of children in private aided schools have been identified in hair, teeth, and nails. Only significant differences have been observed in clinical examination of gums between children in government and private aided schools ($p < 0.05$). Data analysis showed that <6 per cent of the children have almost same kind of health problems in face, eyes, lips, tongue, skin and skeletal system in government and private aided

schools. Nutritional status of government schools children has been observed much improved and beneficial.

Authors' affiliations:

KANCHAN KULSHRESTHA AND RITA BAKSHI, Department of Home Science, Ginni Devi Modi Girls (P.G.) College, Modinagar, GHAZIABAD (U.P.) INDIA

■ REFERENCES

Agarwal, D.K., Upadhyay, S.K., Tripathi, A. M. and Agarwal, K.N. (1987). Nutritional status, physical work capacity and mental function in school children. Scientific Report No. 6, New Delhi: Nutrition Foundation of India.

Deodhar, Satish Y. (2007). Mid-day meal scheme: understanding critical issues with reference to Ahmedabad City, Working Paper No. 2007-03-03, Indian Institute of Management, Ahmedabad

Sethi, B. (2003). Midday meal programme and its impact in improving enrolment in Rayagada district, Rayagada: Office of the District Magistrate.

Sharma, A.K. (2010). Impact of NGO run mid-day meal program on nutrition status and growth of primary school children. *Indian J. Pediatrics*, **77**(7) : 763-769.

Sood, Neelam (2010). Malnourishment among children in India: Linkages with cognitive development and school participation. Research Monograph No. 25, National University of Educational, Planning and Administration, NUEPA.
