Original Research Article

Health status of primary school children: study in urban slums of Lucknow

Neeti Verma[1], Prashant Kumar Bajpai[2]*

[1]Department of Community Medicine, Hind Institute of Medical Sciences, Safedabad, Barabanki, UP, India
[2]Department of Community Medicine, Uttar Pradesh University of Medical Sciences, Saifai, Etawah, UP, India

*Correspondence:
Dr. Prashant Kumar Bajpai,
E-mail: prashantbajpaillrm@gmail.com

ABSTRACT

Background: Children are the wealth of any nation because they constitute one of the population's essential segments. Through school health services, morbidity patterns and nutritional status deficiencies are detected early and controlled to get a healthy and economically productive future generation. The present study was undertaken to assess the health status of primary school children in slum areas of Lucknow and find the morbidity pattern of the study population.
Methods: A community-based cross-sectional study was conducted among 760 students of primary schools. A pre-designed, pre-tested, and semi-structured questionnaire was used as a study tool.
Results: Most of the subjects 362 (47.7%) were in age group of 7-9 years, and were distributed almost equally in the classes from 1st to 5th standard. About one fourth (26.8%) school children were underweight, whereas 5.6% school children were found overweight. Girls (34.0%) were found underweight more than the boys (20.8%). In contrast, more boys (8.8%) were overweight than girl students (2.6%).
Conclusions: The common infirmities found were underweight (26.8%), dental caries (6.1%), anemia (14.9%), pediculosis (17.2%) and ear discharge (2.2%). Proper knowledge regarding and the creation of awareness amongst the school children, their families, about the causes and ill effects of the various morbidities are essential. Emphasis should be given to school children regarding prevailing morbidities amongst them by class teachers.

Keywords: Anaemia, Children, Health status, Primary school, Urban slums

INTRODUCTION

Children are the wealth of any nation because they constitute one of the population's essential segments. School is a centre that plays a vital role in children's physical, social, mental, and emotional development. UNESCO since 1972, for statistics, considers 6-11 years as primary school age and 12-17 years as secondary school age. The World Health Organization's expert committee on school health services noted as long as 1950 that 'to learn effectively, children need good health'. School-age is the active growing phase of childhood. Primary school age is a dynamic period of physical growth and mental development of the child, and School health is an essential branch of community health.[1] School health services are an economical and powerful means of raising community health and becoming more important in future generations. One of the major problems faced by schoolchildren is infections. Repeated attacks of infections are often responsible for the existing poor health of children it compromising children's attendance and performance at school. The condition may worsen in a slum community with poor socio-economic conditions and compromised living situation morbidity among school-going children. The common problems seen in this age group are malnutrition, vitamin a deficiency, dental caries, upper

respiratory tract infection (URTI), and anemia.[2,3] Malnutrition due to deficiency or excess or imbalance of nutrients can put children at high risk of the early development of chronic diseases. Through school health services, morbidity patterns and nutritional status deficiencies are detected early and controlled to get a healthy and economically productive future generation. With the above background, this study was undertaken to assess the health status of primary school children in slum areas of Lucknow and find the morbidity pattern of the study population.

METHODS

A community-based cross-sectional study was conducted among 760 students of primary schools. Primary schools were selected by a simple random sampling method situated in the slum area under the service area of the urban health training center of Lucknow city's medical college. The total duration of the study was six months from July 2019 to December 2019.

Study population

All primary school children in class I to V from the selected schools came mainly from the neighbouring slum locality.

Sampling method

The multistage sampling method with a random selection technique was used.

Sample size

The sample size calculated by the following formula:

$$N = \left(\frac{Z\alpha}{2}\right)\left(\frac{2PQ}{L2}\right)$$

Where,

$$\left(\frac{Z\alpha}{2}\right) = 1.96$$

P is prevalence (of underweight children was 38.4 percent)[4],
L is an allowable error, which was taken 10% as relative
$Q = (100 - P) = 61.6$
Hence the minimum required sample size calculated is,

$$\frac{(1.96)2 \times (38.4) \times (100 - 38.4)}{3.84 \times 3.84} = 616.25$$

So, a total of 617 was the minimum sample size calculated for the study. We have taken a total of 800 participants, among which 40 were excluded due to not meeting the inclusion criteria. As a result, 760 study subjects were included in the present study.

Selection of study participant

First stage

The slum area under the service area of the urban health training center of a medical college of Lucknow city.

Second stage

A list of all the schools in the selected slum area was prepared. With the simple random selection by lottery method, eight schools were selected from the slum area. So, a total of 800 (100×8=800) students were selected for conducting the study.

Third stage

We had taken all the students from the chosen schools after applying the inclusion and exclusion criteria.

Study-tool

A pre-designed, pre-tested, and semi-structured questionnaire was used as a study tool.

Inclusion criteria

All children from class 1 to 5 in the age group of 6-11 years attending school.

Exclusion criteria

Children who are absent in the class during the day of data collection.

Methodology

Permission was obtained from the school authority. The questionnaire was drawn up in Hindi and back-translated in English to check the translation. The selected school was visited on a pre-assigned day of each week, and one grade was covered every week. There were averages of 152 students enrolled per grade. The students from each grade who were absent on the specific day of the study were excluded. A good rapport was built up with the students, and informed consent was obtained from the parents by giving a consent form to every participant. The form was signed by parents and returned back to the investigator at the second visit. The briefing was done regarding the questionnaire provided to the students, and they were asked to mark the responses. The questionnaire consisted of socio-demographic information, e.g., age, grade, sex, religion, literacy status of parents, and any illness over the last 15 days among the primary school children, and general clinical examination was done to assess any illness.

Data entry and analysis

The data were entered using SPSS Version 24.0, IBM Corp., USA, and results were expressed as a proportion. Test of significance applied was Chi-square goodness of fit test, and p<0.05 was taken as statistically significant.

RESULTS

Thus, after excluding 19 absentees, and 21 non-signed consent forms, a total of 760 students were finally included in the study. The response rate was 83%. We have included 760 participants in our study among which 347 (45.6%) were girls and 413 (54.4%) were boys. Most of the subjects 362 (47.7%) were in age group of 7-9 years, and were distributed almost equally in the classes from 1st to 5th standard (Table 1). More than one third (34.9%) of mothers were uneducated. Also, the proportion of parents was very low who were educated high school and above (Table 2). About one fourth (26.8%) school children were underweight, whereas 5.6% school children were found overweight. Girls (34.0%) were found underweight more than the boys (20.8%). In contrast, more boys (8.8%) were overweight than girl students (2.6%) (Table 3) the most common problems found were pediculosis (17.16%), anemia (14.9%), worm infestation (7.4%) and dental carries (6.1%). Anemia was found more among girls (18.1%) than the boys (8.9%) (Table 4).

Table 1: Demographic profile and school standards of study subjects.

	Gender		Total
	Boys	Girls	
	N (%)	N (%)	N (%)
Age groups (in years)			
6-7	98 (12.8)	72 (9.6)	170 (22.4)
7-9	173 (22.7)	189 (24.8)	362 (47.7)
9-11	142 (18.6)	86 (11.5)	228 (29.9)
Total	413 (54.4)	347 (45.6)	760 (100.0)
School standard of study subjects			
1st	83 (20.3)	71 (20.4)	154 (20.4)
2nd	89 (21.5)	82 (23.6)	171 (22.5)
3rd	99 (23.9)	75 (21.6)	174 (22.8)
4th	57 (13.8)	57 (16.4)	114 (15.0)
5th	85 (20.6)	62 (17.8)	147 (19.3)
Total	413 (54.4)	347 (45.6)	760 (100.0)

Table 2: Distribution of school children according to parent's education.

Level of education	Mother's education	Father's education
	N (%)	N (%)
Uneducated	265 (34.9)	163 (21.4)
Primary school	219 (28.8)	186 (24.5)
Secondary school	189 (24.9)	247 (32.5)
High school	51 (6.7)	89 (11.7)
Intermediate	30 (3.9)	42 (5.5)
Graduation and above	06 (0.8)	33 (4.3)

Table 3: Distribution of school children according to their nutritional status.

Nutritional status	Gender		Total	Test statistic (chi-square)	P value*
	Boys	Girls			
	N (%)	N (%)	N (%)		
Under weight	86 (20.8)	118 (34.0)	204 (26.8)	5.02	0.025
Normal weight	291 (70.4)	220 (63.4)	511 (67.3)	9.865	0.002
Over weight	36 (8.8)	9 (2.6)	45 (5.9)	16.2	<0.001

***One-way Chi-square goodness of fit test applied between boys and girls groups

Table 4: Distribution of school children according to gender and morbidity pattern.

Health problems	Boys (n=413)	Girls (n=347)	Total (n=760)	P value*
	N (%)	N (%)	N (%)	
Dental caries	24 (5.8)	17 (4.8)	41 (6.1)	0.274
Ear discharge	9 (2.2)	6 (1.7)	15 (2.2)	0.438
Anaemia	37 (8.9)	63 (18.1)	100 (14.9)	0.009
Vitamin A deficiency	5 (1.2)	8 (2.3)	13 (1.9)	0.405

Continued.

Health problems	Boys (n=413)	Girls (n=347)	Total (n=760)	P value*
	N (%)	N (%)	N (%)	
Worm infestation	27 (6.5)	23 (6.6)	50 (7.4)	0.572
Fever with cough and cold	14 (3.3)	17 (4.8)	31 (4.6)	0.590
Pediculosis	63 (15.2)	52 (14.9)	115 (17.2)	0.305
Scabies	2 (0.4)	3 (0.86)	5 (0.7)	0.655
Multiple boils	5 (1.2)	2 (0.5)	7 (0.9)	0.256
Diarrhoea	11 (2.6)	9 (2.5)	20 (2.6)	0.655

*One-way chi-square goodness of fit test applied between boys and girls groups.

DISCUSSION

School health surveys give an excellent chance to screen a vast number of paediatric populations with minimum resources. The children of today will be the adults of tomorrow. By focusing on children today, by giving them tools and knowledge to change behaviour, future generations can be stronger and healthier. The present study was undertaken to determine the nutritional status & morbidity pattern of the children, mother's education status, food availability, access to safe drinking water, and national per capita, which are critical underlying determinants of child malnutrition. In the present study, it was found that 397 (52.2%) children were suffering from one or more morbidities. It was found that 197 (25.9%) of male children were suffering from diseases, whereas 200 (26.3%) female children were suffering from any form of the disease. But this association is statistically insignificant. The prevalence of underweight among children was 26.8% in the present study, which is lower than the study done by Maheshwaran et al study.[5] Underweight prevalence in the present study was may be due to low socio-economic status. The author observed clinical anaemia in 14.9% of school children, which is lower than the finding of Panda et al (26%) study based at Ludhiana City.[6] Clinical anaemia was higher in girls than boys; similar results were reported by Kakkar et al in their study based at Dehradun.[7] Jain and Jain, Panda et al and Dambhare et al reported anemia (clinical pallor) in 42%, 26%, and 28.45%, respectively, which was higher than the finding of 14.9% reported in the present study.[6,8,9] The lower prevalence seen in this study could be due to the effective implementation of supplementary nutritional program and provision of iron and folic acid supplementation at school in this part of the country.[10] Hookworm and Plasmodium species may contribute to anemia in addition to dietary deficiencies.[11] Our findings of diseases among school children are consistent with the previous study reporting incidence of Upper respiratory tract infection, worm infestation, and dental caries as the most commonly prevailing diseases. Refractive errors, skin infections, and ear discharges form the subsequent more common diseases in these children.[12]

It has been observed from the study that the nutrition and health standards of government school children are still far inferior to the ICMR standards and warrants large-scale multicentric studies to identify the limitations and lacunae of the current implemented programs. Health education measures should be included through different programs to improve personal hygiene, poor sanitary practices, and nutritional supplements.

CONCLUSION

The common infirmities found were underweight (26.8%), dental caries (6.1%), anaemia (14.9%), pediculosis (17.2%) and ear discharge (2.2%). Effective strategy with good monitoring and evaluation is imperative in ensuring adequate and ideal implementation of school health services in primary schools in urban slums Lucknow. Thus, school health education should mainly target these problems with special focus on personal hygiene and cleanliness of ears and teeth by proper and regular brushing. The leading cause of morbidities amongst the school children were anaemia, ARI, worm infestation, dental carries, skin disorder, ocular disorder, and scabies. Since socio-economic factors play a decisive role in the health status of the school children, proper education and the creation of awareness amongst the school children and their families, particularly the mothers, about the causes and ill effects of the various morbidities are essential and should be done on a priority basis. Emphasis should be given to school children regarding prevailing morbidities amongst them by class teachers.

ACKNOWLEDGEMENTS

REFERENCES

1. Srivastava A, Mahmood SE, Srivastava PM, Shrotriya VP, Kumar B. Nutritional status of school-age children - A scenario of urban slums in India. Arch Public Health. 2012;70(1):8.
2. Joshi N, Rajesh R, Sunitha M. Prevalence of dental caries among school children in Kulasekharam village: a correlated prevalence survey. J Indian Soc Pedod Prev Dent. 2005;23(3):138-40.
3. Prasad KR. CME: School health. Indian J Community Med. 2005;30:109. Available at: https://www.ijcm.org.in/temp/IndianJCommunityMed304109-1138382_030943.pdf. Accessed on 3 January 2021.

4. Ananthakrishnan S, Pani SP, Nalini P. A comprehensive study of morbidity in school age children. Indian Pediatr. 2001;38(9):1009-17.

5. Maheshwaran R, Seeri JS, Murthy N. A study on growth status of high school children in rural south India. J Evolution of Medical and Dental Sci. 2013;2(45):8740-4.

6. Panda P, Benjamin AI, Singh S. Health status of school children in Ludhiana City. Indian J Community Med. 2000;115:150-5.

7. Kakkar R, Kandpal SD, Aggarwal P. Health status of children under school health services in Doiwala block, Dehradun. Indian J Community Health. 2012;24(1):45-8.

8. Jain N, Jain VM. Prevalence of anaemia in school children. Med Pract Rev. 2012;3:1-4.

9. Dambhare DG, Bharambe MS, Mehendale AM, Garg BS. Nutritional status and morbidity among school-going adolescents in Wardha, a Peri-Urban area. Online J Health Allied Sci. 2010;9:1-3.

10. Navaneethan P, Kalaivani T, Rajasekaran C, Sunil N. Nutritional status of children in rural India: a case study from Tamil Nadu, first in the world to initiate the mid-day meal scheme. Health. 2011;3:647-55.

11. Das P, Basu M, Dhar G, Mallik S, Pal R. Nutritional status and morbidity pattern of government primary school children in north Kolkata of West Bengal, India. South East Asia J Public Health. 2012;2:13-7.

12. Kumar S, Mahabalaraju DK, Anuroopa MS. Prevalence of obesity and its influencing factor among affluent school children of Davangere city. Indian J Community Med. 2007;32:15-7.