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Community Medicine

HEALTH PROFILES OF FIVE YEAR OLD CHILDREN IN AN URBAN SCHOOL- A CROSS SECTIONAL STUDY

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ABSTRACT The health supervision of the school children is necessary and can help identify the magnitude of morbidity and malnourishment in a community. We conducted a health survey of five year old children attending an urban school in Srinagar.

Methodology: A cross-sectional study was designed for children of age five years in a high school of an urban area of district Srinagar. Clinical examination and the anthropometric measurements of children were taken.

Results: Mean weight of boys and girls was 20.9 kg and 18.9 kg respectively. Mean height of boys and girls was 114.8cm and 113.8 cm respectively. Mean BMI of boys and girls was 16.1 kg/m^2 and 15.9 kg/m^2 respectively. None of the student had short stature. Almost 50% of boys and girls were overweight and obese. There was only one underweight girl. Majority of boys and girls had co morbidities in the form of dental caries. 3% boys and 4% girls had refractive errors.

Conclusion: The burden of overweight, obesity and dental caries is noted to be high . The refractive errors although low is important as they were unknown to the parents. Comprehensive periodic school health check-ups should be carried out for early diagnosis of the common morbidities.

KEYWORDS : Malnutrition, anthropometry, obesity.

INTRODUCTION

School going children constitute one-fifth of the total population and are the future of the nation. The importance of school health has been acknowledged across countries since the beginning of 20th century. The school health committee (1961) in India recommended medical examination of children at the time of school entry and thereafter every 4 years [1]. School Health program is a program for school health service under national health mission (NHM), which has been necessitated and launched in fulfilling the vision of NHM to provide effective health care to population throughout the country. The School Health Program intends to cover 12,88,750 Government and private aided schools covering around 22 crore students all over India [2].

The health supervision of the school children is necessary and can help identify the magnitude of morbidity and malnourishment in a community [3,4,5,6].We conducted a health survey of five year old children attending an urban school in Srinagar.

METHODOLOGY

A cross-sectional study was designed to enroll all children of kindergarten class of the age five years in a high school of an urban area of district Srinagar.

DATA COLLECTION

Enrolled school children present on the examination day were examined by a health team consisting of three qualified medical practitioners from the department of pediatrics and community Medicine of Government Medical College, Srinagar. Clinical examination of the children was done, and the anthropometric measurements were taken.

Height of the children was measured using standardized steel anthropometric rod with parallel bar (accuracy ±0.1 cm). Weight was measured with the electronic weighing scale (accuracy ±10 g). The subjects were asked to remove their footwear and accessories before measuring their weights. Scales were calibrated after each measurement. Accuracy of weighing scale was verified from time to time against known weights. Body mass index (BMI) was calculated as body weight (in kilograms)/height (in meters) squared. Weight, height and BMI of children were plotted on revised Indian Academy of Pediatrics (IAP) growth charts 2015 [7]. Eye, ear, nose and throat, skin, dental, cardiac and respiratory examination was done. Suggestions were given to parents in writing for appropriate referral or management at the end of examination. Dietary advices were also given in writing.

Short stature was defined as height less than 3rd percentile for age and sex of the child. Tall stature was defined as height more than 97th percentile for age and sex of the child.

Overweight was defined as weight more than 23 adult equivalent cut off line as presented in revised IAP growth (BMI) chart 2015 for age and sex of child. Obesity was defined as weight more than 27 adult equivalent cutoff line in the revised IAP BMI chart foe age and sex of child. Underweight was defined as BMI less than 5th percentile for age and sex of child.

IAP classification was used to grade severity of malnutrition.
PEM grade I   71-80% of expected for age
PEM grade II   61-70% of expected for age
PEM grade III   51-60 % of expected for age
PEM grade IV   ≤50% of expected for age.

Data was entered in Excel sheet and analyzed using SPSS 16. Descriptive statistics in the form of percentages was used to present our findings.

RESULTS

All the subjects (N=118) of first standard 5 years of age were examined. Majority of subjects were girls, n=85(72%). Mean weight of girls was 18.9 kg and of boys was 20.9 kg. Mean height of girls was 113.8cm ; while as mean height of boys was 114.8cm. Mean BMI of girls was 15.9 kg/m^2, while as mean BMI of boys was 16.1 kg/m^2. Age dependent parameters, weight for age and height for age were calculated. Their distribution in percentiles among boys and girls is given in Table 1. Age independent parameter, body mass index for both boys and girls is also given in Table 1. 37.5% of boys and 16.47% of girls had tall stature. None of the student had short stature. Almost 50% of boys and girls were overweight and obese. Two boys had PEM grade1 malnutrition. There was only one underweight girl.

Other morbidities which were uncovered on examination are given in Table 2. Majority of boys and girls had co morbidities in the form of dental caries and wax in ears. 3% boys and 4% girls had refractive errors.

No child had anemia and cardiac disease. No child had attended the school with active respiratory problem.

Table 1: Distribution of subjects as per percentile charts.

Anthropometric indicies	Boys n= 33(%)	Girls n=85(%)
Weight for age (Percentile)		
<3	0(0.00)	0(0.00)
3-10	0(0.00)	0(0.00)

10-25	2(6.06)	5(5.88)
25-50	0(0.00)	9(10.60)
50-75	3(9.10)	7(8.23)
75-90	11(33.33)	37(43.53)
90-97	7(21.21)	22(25.88)
>97	10(30.30)	5(5.88)
Height for age (Percentile)	0(0.00)	0(0.00)
<3	0(0.00)	4(4.70)
3-10	2(6.25)	7(8.23)
10-25	2(6.25)	6(7.05)
25-50	5(15.62)	16(18.82)
50-75	3(9.37)	24(28.23)
75-90	8(25.00)	14(16.47)
90-97	12(37.5)	14(16.47)
>97		
Body Mass Index (BMI)	0(0.00)	1(1.18)
<3	0(0.00)	0(0.00)
3-5	0(0.00)	1(1.18)
5-10	2(6.06)	0(0.00)
10-20	7(21.21)	15(17.65)
25-50	7(21.21)	24(28.23)
50-overweight	9(27.28)	33(38.82)
Overweight	8(24.24)	11(12.94)
Obese		

Table 2: Morbidity pattern of study participants

Morbidity	Boys n=33(%)	Girls n=85(%)
Dental Caries	12(36.36)	39(45.88)
Refractive errors		
Both eyes	1(3.03)	1(1.17)
Right eye	0(0.00)	2(2.35)
Left eye	0(0.00)	1(1.17)
Ear wax		
Both ears	10(30.30)	17(20.00)
Right ear	1(3.03)	2(2.35)
Left ear	9(27.27)	12(14.11)
Cardiac disease	0(0.00)	0(0.00)
Respiratory disease	0(0.00)	0(0.00)

DISCUSSION

As per the study, an urban private school was selected to understand the health standards of urban children. Mean weight of girls was 18.9 kg compared to ICMR 2009-2010 standard of 17.7 kg and of boys was 20.9 kg compared to ICMR 2009-2010 standard of 18.7 kg. Mean height of girls was 113.8cm compared to ICMR 2009-2010 standard of 108.4 cm while as mean height of boys was 114.8cm compared to ICMR 2009-2010 standard of 109.9 cm. The most evident finding of our study was superior measurements of height and weight of children as compared to ICMR study which is largely representative of average Indian children. Singh R, et al also found higher mean values of height and weight in urban area of Jhansi [8]. Our results for under nutrition were also better as only one girl in the entire study was undernourished. Also no child in our study group was anemic. This reflects better standards of nutrition in urban areas. However, our study raises alarm regarding other spectrum of malnutrition- overweight and obesity which is becoming a universal trend in urban areas. Around fifty percent of boys and girls were overweight and obese. Studies emerging from different parts of India [9,10] within last decade are also indicative of similar trend.

In our study, 43.22% children (36.36% boys and 45.88% girls) were found to be suffering from dental caries which is higher than that observed by Shakya et al (19.8%) [11] and Pandey et al (13.56%)[12] and almost similar to study done by Rajput et al [13].

In our study around 3% of boys and 4% of girls had refractive errors. A low prevalence of refractive errors of 2% has also been reported from Eastern India by Datta et al, among primary school children of 5- 13 years [14]. However, considering that these children had never been suspected of having refractive errors , it underlines the fact that school health surveys should be a regular feature of community programmes.

CONCLUSION

The prevalence of overweight, obesity and dental caries is noted to be high among children attending an urban school in Srinagar. The presence of refractive errors although low is important as they were unknown to the parents and would have resulted in devastating consequences for children. The study demonstrates that comprehensive periodic school health check-ups should be carried out for early diagnosis and treatment of the common morbidities. The study also indicates the need to devise meaningful control measures, both home and school-based on risk factors for childhood obesity and also to monitor the trend in near future considering the alarming rise in the number of diabetics and hypertensive within the state in recent past.

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