



Health and Disease among Primary School Children: A Snapshot from Rural Bangladesh

**Md. Abdullah Al Farooq¹, Mohammad Nazmul Haq², Tania Tajreen³,
Md. Minhajuddin Sajid¹ and Tanvir Kabir Chowdhury^{1*}**

¹Department of Pediatric Surgery, Chittagong Medical College and Hospital, Chattogram, Bangladesh.

²250 Bedded General Hospital, Chandpur, Bangladesh.

³Upazila Health Complex, Patiya, Chattogram, Bangladesh.

Authors' contributions

This work was carried out in collaboration among all authors. Author MAAF designed the study, collected data and edited the final draft of the manuscript. Authors MNH and TT collected data. Author MMS designed the study and reviewed the final draft. Author TKC performed the statistical analysis and wrote the first draft of the manuscript. All authors read and approved the final manuscript.

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ABSTRACT

Aims: There is scarcity of research on the health and disease status of primary school children in Bangladesh. This study aimed at assessing prevalence of medical diseases and surgical conditions among rural primary school children.

Materials and Methods: It was a cross sectional study conducted in 2018 on 2 public and 2 private primary school children in Bakila and Gogra village of Chandpur district. History of immunization, deworming, major current or previous illness, allergy, trauma, surgery and drug history were recorded. Anthropometric measurements, milestones of development, body build and nutritional status; and other general and systemic examinations were carried out. Comparison was made between the public and private primary school students.

Results: 227 primary school children (99 public school students and 128 private school students), were evaluated. Median age was 7 years and male to female ratio was 1.39:1. At least one medical disease or surgical condition was present in 146 (64.3%) students. Medical disease was present in

*Corresponding author: Email: ivan_tanvir@yahoo.com;

114 (50.2%) and surgical condition was present in 40 (17.6%) children. About 96.48% children completed immunization and 76.65% children were having regular deworming. Overall, 19.38% children were underweighted and 24.23% children were stunted. Bronchial asthma was the most common medical disease (11.89%), followed by rhinitis (8.37%) and food allergy (5.73%). Dental caries was the most common surgical condition, followed by tonsillitis (4.41%) and chronic suppurative otitis media (CSOM), 2.64%.

Conclusion: A diverse medical diseases and surgical conditions were prevalent among primary school children and most of these are preventable. These did not vary significantly between public and private schools.

Keywords: School health; primary school; surgery; disease; rural.

ABBREVIATIONS

CSOM : Chronic Suppurative Otitis Media
 BMI : Body Mass Index
 WHO : World Health Organization
 UTI : Urinary Tract Infection
 RTI : Respiratory Tract Infection
 DNS : Deviation of Nasal Septum
 IMCI : Integrated Management of Childhood Illness
 GICS : Global Initiative for Children's Surgery

1. INTRODUCTION

Although there has been tremendous development in the world at addressing health care issues over the last few decades, there are still disparities in health care among countries and among areas within countries. It has been estimated that one third of childhood deaths in the world are attributed to surgical conditions [1]. But the delivery of safe, effective surgical care to children is still a neglected area within global surgical efforts. About five billion people worldwide do not have timely access to safe and affordable surgical care [2]. The majority of them live in low-and-middle-income countries, where more than 50% of the population are children. According to the population and housing census 2011, children aged between 5-9 years were about 12.62% of the population in Bangladesh, among which about 83.32% lived in rural areas [3]. Although, the crude death rate among children of 5-9 years of age was 0.9%, the actual prevalence of disease burden in these children is unknown [3]. There has been inadequate research on the health and disease status of primary school children in Bangladesh, which mostly represent this age group (5-9 years). This hinders evidence-based planning for addressing the health situations among them. Chandpur has been reported as an underperforming district in maternal and child health indicators through a cluster analysis of districts in Bangladesh [4]. In

Chandpur, the 5-9 year-old children comprise 13.22% of the total population of this district and it is the widest group in the population pyramid [5]. However, according to the 2011 census, only 67.31% of these children were attending school. Nonetheless, study of disease prevalence among primary school children would largely represent the disease pattern in this age group. This study was aimed to assess the health status of primary school children in rural Chandpur with focused search for surgical conditions, to find out health issues that need priorities.

2. MATERIALS AND METHODS

2.1 Study Design

This study was a part of a cross sectional study conducted to compare socio-economic and health indices between 2 public and private primary school children during the year 2018 in 2 villages of Haziganj upazila in Chandpur, Bangladesh [6]. The villages were Bakila and Gogra of 2 no. Bakila Union. The health-related data were collected between January and March, 2018 when several health camps were conducted. Guardians of the children were informed about the date and time of free health check-up and treatment program. They were briefed about the research and the benefit of their children. Guardians were ensured that it was harmless to their child. Union Chairman, school teachers, one member of the school committee and one representative of the guardian and some volunteers were involved with the entire process. They were requested to come along with their children in the given date and time.

2.2 Study Procedure

All the children were enquired and examined according to a pre-prepared data sheet with the help of their guardians. Every child was

examined after taking pre designed medical history for the presence of any medical disease or surgical condition. History of immunization, deworming, major current or previous illness, allergy, trauma, surgery and drug used/using were recorded. Anthropometric measurements, gross mental health, milestones of development, body build and nutritional status, along with other general examinations, were carried out. Systemic review was also carried out to detect gastrointestinal disease, chest disease, cardiac disease, hepato-biliary disease, pancreatic disease, central nervous system disorder, genitourinary disease, musculoskeletal, vascular, skin disease, eye disease, ear-nose-throat disease, genetic and chromosomal disorders, and metabolic and hormonal disorders. Underweight and stunting were calculated by using WHO AnthroPlus software version 1.0.4. Underweight was defined when weight-for-age-z scores were below minus two and stunting was defined as height-for-age-z scores below minus two. The results of the study were principally based on history and physical examination findings. Students who were suspected to have any diseases that would need investigations were referred to appropriate centres. In some children, results of lab tests were available and were incorporated in the diagnosis. A total of 227 primary school children (99 children from 2 public schools and 128 children from 2 private schools) were evaluated.

2.3 Variables

Comparison was made between the public and private primary schools and among different age groups with regards to immunization, deworming and nutritional status; and presence and types of medical diseases and surgical conditions. Chi-square test was conducted to compare frequency of diseases between sexes, frequency of immunization, deworming, underweight and stunted children between public and private students. It was also used to compare age group specific analysis of disease occurrences. Independent sample t test was conducted to compare age, body mass index (BMI), height and weight between groups. SPSS (Statistical package for social science) version 22 was used for analysis. *P* value < 0.05 was considered to be significant. The study was conducted after approval from The Head of The Department of Paediatric Surgery, Chittagong Medical College Hospital, chairman of 2 No Bakila Union Parishad and heads of the concerned schools. This study guaranteed the confidentiality of data

by expressly omitting names from the case record forms and data were collected and processed in absolute anonymity.

3. RESULTS

Median age of the 227 children was 7 years and age ranged from 4 to 14 years. There were 132 male students and 95 female students (ratio 1.39:1). However, mean age of the students of public schools (8.11 ± 1.91 years) was higher than that of private schools (6.30 ± 1.88 years). In public schools, age of 28 students were 10 years or above while in private school 10 students were 10 years or more old. Among all the children, 146 (64.3%) students had at least one medical disease or surgical condition. Medical diseases were present in 114 (50.2%) and surgical conditions were present in 40 (17.6%) children. There was no significant difference between sex with regards to presence of disease ($P=0.47$). Table 1 describes the health parameters between the public and private schools. About 96.48% children completed immunization and 76.65% children were having regular deworming. Overall, 19.38% children were underweight and 24.23% children stunted. Number of underweight and stunted children were significantly more in public school children ($P<0.01$). However, there was no significant difference with regards to BMI between the groups (mean 14.93 ± 1.78 in public vs 15.22 ± 1.97 in private, $P=0.25$). At least one medical disease or surgical condition was present in 64.32% students. However, there were no significant differences between the public and private school children with regards to occurrence of medical diseases or surgical conditions ($P=0.98$ and 0.07 , respectively).

Mean age of the children who were stunted was 8.03 ± 2.08 years and those who were not stunted was 6.79 ± 2.01 years, $P=0.55$. Mean height of the stunted and not stunted children was 111.75 ± 10.02 cm and 116.12 ± 11.24 cm, respectively, $P=0.00$. Mean weight of the stunted and not stunted students was 18.47 ± 3.90 kg and 20.73 ± 5.11 kg, respectively, $P=0.00$. On the other hand, Mean age of the children who were underweight was 8.01 ± 1.73 years and those who were not underweight was 6.87 ± 2.11 years, $P=0.00$. Mean height of the underweight and not underweight children was 112.39 ± 9.08 cm and 115.70 ± 11.46 cm, respectively, $P=0.04$. Mean weight of underweight versus normal weight children was 17.23 ± 2.94 versus 20.89 ± 5.05 kg, $P=0.00$.

Table 1. Health parameters of the public and private primary school children

Health parameters	Public school (n=99)		Private school (n=128)		Total (N=227)		P value
	No	%	No	%	No	%	
Immunization							
• Complete	94	94.95%	125	97.66%	219	96.4%	0.06
• Incomplete	1	1.01%	3	2.34%	4	1.76%	
• No vaccination	4	4.04%	0	0.00%	4	1.76%	
Deworming							
• Regular	79	79.80%	95	74.22%	174	76.6%	0.02
• Irregular	20	20.20%	23	17.97%	43	18.9%	
• Not done	0	0.00%	10	7.81%	10	4.41%	
Weight for age							
• Underweight	32	32.32%	12	9.38%	44	19.3%	<0.01
• Normal weight	67	67.68%	116	90.63%	183	80.6%	
Height for age							
• Stunted	38	38.38%	17	13.28%	55	24.2%	<0.01
• Normal stature	61	61.62%	111	86.72%	172	75.7%	
Presence of either medical disease or surgical condition							
• No	38	38.38%	43	33.59%	81	35.6%	0.46
• Yes	61	61.62%	85	66.41%	146	64.3%	
Presence of medical disease							
• No	54	54.55%	70	54.69%	124	54.6%	0.98
• Yes	45	45.45%	58	45.31%	103	45.3%	
Presence of surgical condition							
• No	84	84.85%	96	75.00%	180	79.3%	0.07
• Yes	15	15.15%	32	25.00%	47	20.7%	

Among all children, 98 (43.17%) complained about some symptoms when asked about the presenting complaints. Symptoms were more in private students than in public students (72, 56.25% vs 26, 26.26%; respectively). Abdominal pain, cough and running nose were the three most common symptoms. Table 2 lists ten most common presenting complaints among the public and private school children.

Table 3 summarises the medical diseases in both groups. Bronchial asthma was the most common medical disease (11.89%). It was the most common medical disease in private school children (16 children, 12.50%) while rhinitis was the most common medical disease among public school children (12 children, 12.12%). Among the children with bronchial asthma, 9 in private schools and 5 in public schools were already diagnosed earlier and were on medication. There were 13 new diagnosis of bronchial asthma (7 in private and 6 in public group). Allergy to different food items were reported for 13 children. Among them respectively 3, 3,3,1, and 1 student had allergies to brinjal, beef, prawn, egg, and hilsha

fish. One child in private school complained of dimness of vision during night. He was given vitamin-A capsule and was referred to an ophthalmologist; but the parents did not comply. He came back after a couple of months with improvement in night vision and another vitamin-A capsule was given. Helminthiasis was present in 2 patients in public and 10 patients in private school, which was diagnosed clinically by absence of taking anthelmintic drugs, abdominal distension and passage of worm through mouth or with stool. Two children in each group (3 males, 1 female) had urinary tract infection (UTI) which was diagnosed by clinical feature and urine routine examinations. One child in public school had clinical anaemia which was confirmed by blood for Hb%. One patient had cardiac pansystolic murmur and was diagnosed as ventricular septal defect and referred to a cardiologist. Nocturnal enuresis was diagnosed in a 14-year-old girl in public school. She did not have any structural abnormality and was advised investigations for further evaluation which she did not comply with.

Table 2. Ten most common symptoms among public and private primary school children

Symptom	Public school (n=99)		Private school (n=128)		Total (N=227)	
	No	%	No	%	No	%
No symptoms	73	73.74%	56	43.75%	129	56.83%
Abdominal pain	4	4.04%	6	4.69%	10	4.41%
Cough	0	0.00%	10	7.81%	10	4.41%
Running nose	4	4.04%	5	3.91%	9	3.96%
Skin itch	4	4.04%	5	3.91%	9	3.96%
Decreased appetite	1	1.01%	6	4.69%	7	3.08%
Dyspepsia	0	0.00%	7	5.47%	7	3.08%
Dental caries	0	0.00%	6	4.69%	6	2.64%
Loose motion	3	3.03%	3	2.34%	6	2.64%
Calf muscle cramp	0	0.00%	5	3.91%	5	2.20%
Fever	0	0.00%	5	3.91%	5	2.20%

Table 3. Medical diseases among students of public and private primary schools

Medical diseases	Public (n=99)		Private (n=128)		Total (N=227)	
	NO	%	NO	%	NO	%
Asthma	11	11.11%	16	12.50%	27	11.89%
Rhinitis	12	12.12%	7	5.47%	19	8.37%
Food allergy	5	5.05%	8	6.25%	13	5.73%
Helminthiasis	2	2.02%	10	7.81%	12	5.29%
RTI	3	3.03%	6	4.69%	9	3.96%
Angular stomatitis	3	3.03%	4	3.13%	7	3.08%
Scabies	2	2.02%	4	3.13%	6	2.64%
Calf muscle cramp	0	0.00%	4	3.13%	4	1.76%
Conjunctivitis	3	3.03%	1	0.78%	4	1.76%
UTI	2	2.02%	2	1.56%	4	1.76%
Diarrhoea	2	2.02%	1	0.78%	3	1.32%
Nonspecific lymphadenopathy	2	2.02%	1	0.78%	3	1.32%
Allergic dermatitis	2	2.02%	0	0.00%	2	0.88%
Viral fever	0	0.00%	2	1.56%	2	0.88%
Anaemia	1	1.01%	0	0.00%	1	0.44%
Contact dermatitis	1	1.01%	0	0.00%	1	0.44%
Dysentery	0	0.00%	1	0.78%	1	0.44%
Epiphora	0	0.00%	1	0.78%	1	0.44%
Fungal infection	0	0.00%	1	0.78%	1	0.44%
Gingivitis	1	1.01%	0	0.00%	1	0.44%
Hepatitis	0	0.00%	1	0.78%	1	0.44%
Nocturnal enuresis	1	1.01%	0	0.00%	1	0.44%
Otitis externa	0	0.00%	1	0.78%	1	0.44%
Pharyngitis	0	0.00%	1	0.78%	1	0.44%
Seborrheic dermatitis	1	1.01%	0	0.00%	1	0.44%
Visual impairment	0	0.00%	1	0.78%	1	0.44%
Vitiligo	0	0.00%	1	0.78%	1	0.44%
Total	54	54.55%	74	57.81%	128	56.39%

*RTI: Respiratory tract infection; UTI: Urinary tract infection

Dental caries was the most common surgical condition among the children of both groups (6 in public and 17 in private schools). Mean age of the patients with dental caries was 7.07 years; among them 9 were male and 14 were female. Chronic suppurative otitis media (CSOM) was also found more in private school children (5 in

private vs 1 in public school). However, tonsillitis was found in 7 public and 3 private school children (Table 4). One child in private school had tonsillitis, deviation of nasal septum (DNS), enlarged adenoid and otitis externa. One 6-year-old male child in private school complained of very narrow urinary stream. He was

uncircumcised and was diagnosed as having congenital meatal stenosis. Another 7-year-old male child in private school had idiopathic rectal prolapse.

Since the students of public schools had a higher mean age than that of private schools, we performed age group specific analysis for the presence of diseases. There were no significant differences among the age groups regarding presence of overall diseases, medical diseases and surgical conditions ($P= 0.80, 0.44, 0.88$, respectively). Fig. 1 depicts the similar patterns of disease occurrence among age groups.

4. DISCUSSION

From this study, it is evident that various diseases prevail among primary school children. Many of these diseases were not diagnosed by their earlier medical consultations even with qualified medical practitioners. It is also notable that from a single visit the disease load was high and many of these might have remained undiagnosed if not actively searched for or until the disease process become very advanced. According to the integrated management of childhood illness (IMCI) performance report 2017, Chandpur had a low coverage of IMCI

Table 4. Surgical conditions among public and private primary school children

Surgical condition	Public (n=99)		Private (n=128)		Total (N=227)	
	NO	%	NO	%	NO	%
Dental caries	6	6.06%	17	13.28%	23	10.13%
Tonsillitis	7	7.07%	3	2.34%	10	4.41%
CSOM	1	1.01%	5	3.91%	6	2.64%
Wart	1	1.01%	2	1.56%	3	1.32%
External angular dermoid	1	1.01%	1	0.78%	2	0.88%
Inguinal hernia	0	0.00%	2	1.56%	2	0.88%
Smegmoma	1	1.01%	1	0.78%	2	0.88%
Meatal stenosis	0	0.00%	1	0.78%	1	0.44%
Pterygium	1	1.01%	0	0.00%	1	0.44%
Rectal prolapse	0	0.00%	1	0.78%	1	0.44%
Tonsillitis, DNS, adenoid, otitis externa	0	0.00%	1	0.78%	1	0.44%
Ventricular septal defect	1	1.01%	0	0.00%	1	0.44%
Total	19	19.19%	34	26.56%	53	23.35%

*CSOM: Chronic suppurative otitis media, DNS: Deviation of nasal septum

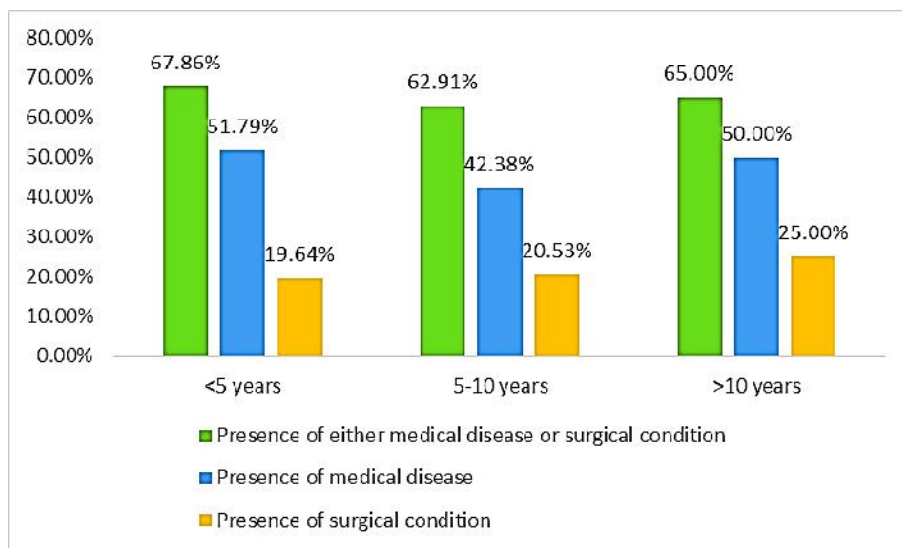


Fig. 1. Age group stratified analysis of disease occurrences among the primary school children

Values represent percentage among the respective age groups. (n= 56 for <5 years age group, n=151 for 5-10 years age group, and n=20 for >10 years age group)

facilities and it was the third lowest reporting district for childhood illness [7]. Schools are very good media to reach children in need of health care. School-based health screening can identify children with diseases that may impact their ability to learn and long-term quality of life; and can provide opportunities for public health actions such as screening, referral, and treatment of conditions [8]. Our study also shows the need for good school-based health care facilities.

In this study, mean age of the public-school students was higher than that of private schools. The reasons are probably many folds. Some students in public schools are admitted at a later age. In private schools, when the students reach at higher level, they leave the schools and get themselves admitted in the government schools or they migrate to other areas. Moreover, the school fee increases at the higher classes in private schools and many cannot afford it. For these reasons, the number of students at higher primary classes are fewer than the lower classes in private schools. Underweight (19.38%) and stunting (24.23%) were prevalent among the school children, and more in public schools. This is understandable from the relatively lower socio-economic status of the parents in public schools. Stunting is one of the most common indicators of childhood malnutrition worldwide [9]. Since WHO z values were used to calculate stunting, it can be argued that whether this stunting was due to malnutrition or in part due to ethnic and genetic predisposition to short stature in this country. According to Bangladesh demographic and health survey (2017), rates of stunting and underweight among children under age 5 years were 31% and 22%, respectively [10]. Although, height, weight and age correlated with each other ($P=0.00$), students who were underweight and stunted represented more older children in this study. However, this difference in age was significant ($P=0.00$) with regards to weight, but marginally insignificant regarding height ($P=0.55$). Rani et al. suggested that children's age, household wealth, mother's height, and parental education were important determinants of stunting in Bangladesh [11]. A cross sectional study of 155 children, aged 6-12 years, in the capital city, Dhaka, reported a prevalence of underweight of 11%. and overweight or obesity of 25% [12]. Another study on 6-12 years old school children from Dhaka reported that prevalence of underweight was 22.1% in poorer children versus 11.2% in rich children [13]. Another country wide study involving 10,135

students from 6 to 15 years reported that underweight children were 19.2% in rural schools versus 16.1% in urban schools [14]. A meta-analysis on overweight and obesity among children and adolescents in Bangladesh identified an increasing trend in overweight and obesity. However, the prevalence varied widely from 1.0% to 20.6% for overweight and 0.3% to 25.6% for obesity [15]. In this study, only 6 (2.64%) children were overweight and all of them belonged to private schools.

Prevalence of bronchial asthma was 11.89% in this study and it was the most prevalent medical disease in these children. The newly diagnosed children had bilateral rhonchi without respiratory tract infection or fever and had history of shortness of breath. A study among 1658 five-year-old children in Matlab, Chandpur reported an asthma prevalence rate of 8.7% in 2016 [16]. Their previous study among 60 to 71-month-old children in 2001 reported a prevalence of 16.2% [17]. They also reported a significantly positive correlation of ascariasis with wheezing and children with *Ascaris* infection were twice as likely to have wheezing [16]. In this study, 12 (5.29%) children had ascariasis and only one of them had associated asthma. It was found that, deworming rate was significantly lower in private schools than the public schools; and also, prevalence of helminthiasis was more in private schools (10 students in private vs 2 in public school). This might be due to the government school-based deworming program in the public schools. Deworming rate was 96%, however a large number of children (18.94%) were dewormed irregularly. Bangladesh demographic and health survey reported that the national deworming rate was 99% in 2017 [18]. However a study conducted among 5-13 years old primary school children in Sherpur showed that the rate of helminthiasis was 39.2% and deworming rate was 81.4% [19]. In the present study, the prevalence of rhinitis and RTI was 8.37% and 3.96%, respectively. This may be due to the fact that the study was conducted during the late winter months. A study conducted among 6,566 under-five children in Bangladesh reported a RTI rate of 5.42% and they observed that health seeking behaviour was less among the poorest than the richest [20]. A Multi-Arm Cluster-Randomized Controlled Trial in Bangladesh reported that improved water quality, sanitation, hygiene and nutrition interventions reduce respiratory illness in young children [21]. In our study, it is found that a substantial number of children were suffering from allergy (13 children,

5.73%), angular stomatitis (7 children, 3.08%), and scabies (6 children, 2.64%). Although fewer in number, there are still prevalence of vitamin deficiencies, fungal infections, various skin diseases and other communicable diseases among the children. These findings reemphasize the necessity of continuation of timely interventions to prevent and treat these conditions. In spite of a very good national vitamin -A campaign, we found one child with night blindness. A large-scale study in Bangladesh in 2007 showed that over two-thirds of the children had avoidable ocular diseases [22]. A community-based study on epidemiology of childhood blindness in Bangladesh in 2019 found a prevalence rate of 6.3 per 10,000 children in Sirajganj and another study found a prevalence of 6 per 10,00 children. However, the prevalence of ocular morbidity was 5.63% [23,24]. Our study did not perform visual acuity tests in the school children. Had this been done, more children with ocular problems might have been detected. Several studies had emphasized the need for delivery of eye care services through school eye health programmes in the developing countries [25,26].

Dental carries (10.13%) was the most common surgical condition, followed by tonsillitis (4.41%). Dental caries is a major public health concern in the developing countries. Mishu et al. showed that the number of decayed teeth was inversely and significantly associated with the standardized age-adjusted weight among rural Bangladeshi primary school children. They suggested that oral and general health policies need to be integrated with social policies [27]. Their earlier study showed a male preponderance, however, in this study, females were affected more [28]. Bhuiyan et al. reported that primary school children have limited awareness about oral health and poor knowledge of oral hygiene habits and it creates much-needed niche for implementing school-based oral health awareness and education programs [29]. This is also supported by other studies in Bangladesh [30–32]. There was also prevalence of CSOM, external angular dermoid, and inguinal hernia. Some other surgical conditions were pterygium, meatal stenosis, rectal prolapse, and VSD. Children of this age group are also vulnerable to other emergency medical diseases and surgical conditions such as, trauma, burn, drowning, snake bite and foreign body ingestion, which leads to morbidities, loss of school days and mortalities [33,34]. According to the last available IMCI report, Chandpur had the second

highest number of child injury cases (2,231), just behind its neighbouring district, Cumilla; and it had the sixth highest number of drowning (369 cases) among all districts of the country in 2016 [7]. We did not find any cases of trauma or drowning since it was a single visit.

It has been estimated that about 30% of global disease burden is treatable with surgery [35]. Recently, surgery has been recognised by WHO as an essential component of global health, and specifically global child health. However, there are substantial disparities among areas in providing surgical health care to children. Recent research in LMICs suggested that capacity building, scale up of children's surgical care, more implementation research, and ongoing advocacy are some of the most necessary factors to improve access to children's surgical care [36]. The global initiative for children's surgery (GICS) identified priorities for children's surgical care within four pillars: infrastructure, service delivery, training and research [1].

It is evident from the study that most of the prevailing diseases among school children are preventable or easily treatable. Health maintenance visits in school aged children can promote health, detect disease, provide opportunities for counselling to prevent injuries and other health problems. School performance reports, pre-visit questionnaires and psychosocial screening questionnaires may be useful [7]. There have been scattered efforts to improve the health conditions of the school aged children in the country [37]. But for more effective and sustainable results, school health programs run by the government need to be expanded to address these issues [38]. This study shows the need for comprehensive and regular health and disease assessment for every primary school child especially in rural areas.

This study has several limitations. There was lack of longitudinal data since it was a cross sectional study. Moreover, we did not perform visual acuity tests, funduscopy, and laboratory investigations, such as blood tests or chest x-rays other than very select cases. Which means that we might have failed to diagnose several diseases among the children. It was a broad study, and further studies incorporating laboratory investigations, ophthalmoscopic examinations and imaging studies need to be conducted. There is also scope for more restrictive studies focusing any particular questions. Moreover, sample size was small and

data were collected from only 4 schools. However, in spite of these limitations, we believe, this study can convey some important messages as discussed above.

5. CONCLUSION

There is prevalence of both undiagnosed medical diseases and surgical conditions among primary school children. Most common medical diseases were bronchial asthma, rhinitis and food allergy. Most common surgical conditions were dental caries, tonsillitis and CSOM. Students of public schools were significantly more underweighted and stunted than students of private schools. However, there was no significant differences between students of public and private schools regarding disease occurrence.

CONSENT

Informed written consent was taken from parents of the participants. Guardians who were willing to permit their children to participate in this program were asked to register the name of their children with detailed particulars and sign the consent form.

ETHICAL APPROVAL

The study was conducted after approval from Head of Department of Pediatric Surgery, Chittagong Medical College Hospital, Chairman of 2 No Bakila Union Parishad and Heads of the concerned schools. The current study has guaranteed the confidentiality of our data by expressly omitting names from the case record forms. The current study has collected and processed the data in absolute anonymity.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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