



Morbidity status and associated factors among students of schools located in Sonapat district of Northern India. A community-based cross-sectional study.

Community Medicine

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ABSTRACT

Every third child has some sign of ill health that is simple and easily treated if detected early. They become easy victims of many diseases of childhood. Illness, disability, and injury can all be caused or prevented by a child's environment. **Methods:** This community-based study was carried out from June 2018 to June 2020. A pre-tested structured proforma was used to record morbidity patterns among 1462 students from randomly selected classrooms, each from 50 government and private schools. A checklist was used to evaluate the prevalence of headache, lice infestations, respiratory conditions; fever; diarrhoea; pains in the body, skin conditions like scabies and ringworm. A 2 test and Logistic regression analysis evaluated statistical significance at p-Value 0.005. **Results:** Out of 1462, 965(66%) of the study participants were affected by one or more morbidity conditions. Among them, 481(63.7%) boys and 484(68.5%) girls were affected. Headache(24.6%) was the commonest observed morbidity, followed by pain in the body(20.6%) and sore throat(16.5%). Morbidity was observed to be more among participants of urban schools, participants with inadequate handwashing practices, participants from schools where soaps were not available at handwashing points, and students with a poor level of personal hygiene. **Conclusion:** A sizable proportion of school children were suffering from preventable illnesses, which were later realised to be caused by the schools' environmental and WASH conditions. It is recommended that adequate handwashing practises, a higher level of personal hygiene, and trained teachers in schools protect students from various morbidities be incorporated.

KEYWORDS

School health, school environment, WaSH, morbidity, India.

INTRODUCTION:

An estimated 5.2 million children died in 2019 from preventable and treatable causes. More than 3000 adolescents die a day, totalling 1.2 million deaths a year, from largely preventable causes. In 2015, quite two-thirds of those deaths occurred in low- and middle-income countries in Africa and South-East Asia. Despite the progress made in increasing coverage, the gap in quality of care is contributing to complications and deaths among children. Most of those deaths can be prevented with good health services, education and social support. (*Children: Improving Survival and Well-Being*, n.d.), (*Adolescent Health | WHO | Regional Office for Africa*, n.d.)

Adolescence is usually considered a healthy time of life, with peaks in strength, speed, fitness, and many cognitive abilities. But this has been proven to be a misconception, as significant shifts in health happen around puberty as new health risks with potentially life-threatening consequences become prominent. (*Adolescent Development - The Promise of Adolescence - NCBI Bookshelf*, n.d.) Globally, the number of adolescents is expected to reach 1.13 billion by 2025, i.e., an increase of 219 million or 24% rise of current. In the developing world, as a whole, the adolescent population is estimated at 914 million, about one-fifth of all ages. Adolescents represent about 1/5th (21.8%) of the Indian population also. There are about 250 million adolescents in our country, out of the entire adolescents quite 2/3rds, i.e. 71.36% lives in rural areas. (Dev D. et al., 2019)

Adolescents spend a significant proportion of their life in school as a student. More than a billion students are in the school on any given day. (*Education for Sustainable Development Goals: Learning Objectives - UNESCO Digital Library*, n.d.) They spend a significant portion of their lives in school, approximately six hours each day or up to 12 vital years, where their social, psychological, physical, and intellectual development is shaped. (Pasanen et al., 1979), (*Socialization - Introduction to Sociology* -, n.d.)

The quality and design of a physical environment can cause or prevent illness, disability, and injury; therefore, a high-quality school environment is essential for students to achieve optimal health and development. (Cummins & Jackson, 2001) An estimated 2.5 billion people lack basic sanitation (more than 35% of the world's population). Many countries are challenged in providing adequate sanitation for their entire populations, leaving people at risk for water, sanitation, and hygiene (WASH)-related diseases. Poor WASH conditions still account for 842,000 diarrhoeal deaths every year. (World Health Organization, n.d.), (Cumming, 2016) Since sanitation is a basic necessity that affects everyone's life; schools should also function as demonstration centres for proper sanitation in the community. Health,

survival, and development are all dependent on sanitation and hygiene. (Aniruddh & J. P., 2021)

According to the existing literature, there is no information on the morbidity status of school children in the Sonapat district of Haryana. As a result, a study was conducted to analyse the morbidity status and associated factors among school children in schools of a district in Haryana to suggest relevant suggestions.

MATERIAL AND METHODS:

To understand the morbidity status and associated factors, a community-based cross-sectional study was carried out from June 2018 to June 2020 among school children from Grades 6-12 of 50 schools from the district Sonapat, Haryana. This study was a part of our more extensive study "environmental and WASH conditions in Indian schools". Schools that had been established for more than five years were included; less established schools and primary schools were excluded. Schools had to grant permission for the study to go ahead. Students for whom consent could not be obtained and those absent on the study day were also excluded.

Sample size:

Using the Cochrane formula, considering the prevalence of adequate environmental and sanitary conditions as 50% at 95% CI and 15% permissible error. This determined the sample size of ≈ 50 schools. A final sample size of 1,462 students was achieved by including students from one randomly selected classroom from each of the 50 sampled schools.

Sampling Method:

The schools were recruited using a multi-stage random sampling technique from two randomly selected educational blocks in a Haryana district. Fifty public and private schools from rural and urban areas were chosen using the Probability Proportional to Size (PPS) method, and one class from each sampled school was chosen at random. All students in that randomly selected class were included to arrive at the final sample size.

Recruitment Method:

After administrative approval from the District Education Officer of Sonapat, recruitment of the schools was done in the study. Once the schools were recruited, the investigator visited the selected schools. The purpose of the study was explained to the school Headmaster/Principal to get full cooperation from them. The data was collected on environmental and sanitary conditions of schools, and one classroom of the school was selected by lottery method to assess the classroom ventilation, lighting, per capita space and seating facilities

provided to the students. Data on variables like designated teachers for school health, daily morning inspection, periodic medical examination and record maintenance were obtained from the Headmaster/Principal by the investigator himself. After written consent, a self-administered questionnaire was given to them to study the knowledge of the designated teachers for school health. Students from the same class were observed for morning health inspections. After collecting the data, it was checked for completeness.

Data Collection Tools And Data Management:

Based on the morning health inspection outlined in School Health(D. Rayanna, 1933), a pre-tested structured survey proforma was utilised to record morbidity patterns among school children. A checklist was included to assess the prevalence of headaches, rash and spots, nausea and vomiting, lice infestations, red and watery eyes, fever, coughing and sneezing, listlessness or sleepiness, sore throat, disinclination to play, diarrhoea, body pains, and skin conditions such as scabies and ringworm among students. Hand washing, regular bathing, dental hygiene, nail hygiene, and clothing hygiene are all factors to consider when evaluating personal hygiene.

Whether or not the school had a designated health teacher and trained in school health was recorded. The level of the class teacher's knowledge regarding school health was graded as adequate ($\geq 75\%$), moderately adequate (50-75%) and inadequate ($< 50\%$). Data was entered, coded and tabulated in Microsoft Excel version 2019. One point was given for every adequate hygiene attribute. The level of students' personal hygiene was scored out of the five attributes and graded as good (score 5/5), moderate (score 4/5), or poor (score $\leq 3/5$).

Statistical Analysis:

Data was entered in Microsoft Excel, and SPSS v.16 software was used for statistical analyses. Percentages and proportions were calculated using a 2 test for the categorical variable. Logistic regression analysis was done to evaluate the statistical significance of the observation related to the morbidity and the associated factors. A p-value of 0.05 was considered statistically significant.

Ethical Considerations:

The Institutional Ethics Committee of Bhagat Phool Singh Government Medical College Khanpur Kalan, Haryana, granted the study approval. Permission to conduct the study in the selected schools was received from the District Education Officer of Sonapat District. Informed written consent was taken from parents/guardians and students, respectively. The participants' anonymity and data confidentiality were ensured.

RESULTS:

Our study was conducted among 1,462 students: 707 (48.4%) were girls, and 755 (51.6%) were boys. Of these, 918 (62.8%) participants were from rural schools and 544 (37.2%) from urban schools; 583 (39.9%) were from government schools and 879 (60.1%) from private schools.

Table 1: Demographic Profile Of Schoolchildren Enrolled In The Study

Attributes		Girls (n=707)	Boys (n=755)	Total (n=1462)
Location Of Schools	Rural	410 (58%)	508 (67.3%)	918 (62.8%)
	Urban	297 (42%)	247 (32.7%)	544 (37.2%)
Ownership of schools	Government	285(40.3%)	298(39.5%)	583(39.9%)
	Private	422 (59.7%)	457 (60.5%)	879 (60.1%)
Student age (in years)	12	247(34.9%)	193(25.6%)	440(30.1%)
	13-15	305 (43.1%)	352 (46.6%)	657 (44.9%)
	16	155(22%)	210(27.8%)	365(25%)
Grade	6-8	267 (37.8%)	317 (42%)	584 (39.9%)
	9-10	298(42.1%)	169(22.4%)	467(32%)
	11-12	142 (20.1%)	269 (35.6%)	411 (28.1%)

Out of 1462, 965(66%) participants have morbidity, which was observed to be more among participants(35.3%) of rural schools than participants(31.8%) of urban schools. Prevalence of chills or fever (10.5%), listlessness or sleepiness(5.9%), nausea and vomiting(6.8%), any rash or spots(11%), disinclination to play(4.8%), diarrhoea(6.1%), skin conditions like scabies and ringworm(8.7%) and lice infestation(8.7%) was more among the participants from rural schools in comparison to the participants from urban schools. While

prevalence of headache (30%), red or watery eyes (13.6%), coughing or sneezing (16.5%), sore throat (21.3%) and pains in the body (25%) was more among the participants from the urban schools in comparison to the participants from the rural schools. (Table-2)

Table 2: Morbidity Pattern Amongst Students According To The Location Of Schools Under The Study Area.

Morbidity	Rural N=918	Urban N=544	Total N=1462
No Morbidity	324(35.3)	173(31.8)	497(33.9)
Headache	197(21.5)	163(30)	360(24.6)
Red or watery eyes	120(13)	74(13.6)	194(13.3)
Chills or fever	96(10.5)	47(8.6)	143(9.8)
Coughing or sneezing	144(15.7)	90(16.5)	234(16)
Listlessness or sleepiness	54(5.9)	23(4.2)	88(6)
Nausea and vomiting	62(6.8)	6(1.1)	68(5)
Any rash or spots	101(11)	4(0.7)	105(7.1)
Sore throat	125(13.6)	116(21.3)	241(16.5)
Disinclination to play	44(4.8)	7(1.3)	51(3.5)
Diarrhoea	56(6.1)	6(1.1)	62(4.2)
Pains in the body	166(18)	136(25)	302(20.6)
Skin conditions like scabies and ringworm	80(8.7)	18(3.3)	98(6.7)
Lice infestation	71(7.7)	27(4.9)	98(6.7)

* Figures in parenthesis are percentages.

Morbidities were observed in 481(63.7%) boys as compared to 484(68.5%) of the girls (p-value =0.055). In our study, 546 (62.1%) students of private schools were observed to be suffering from various morbidities as compared to 419(71.9%) amongst participants of government schools (p-value = < 0.001). In this study, 495(60.4%) participants with adequate handwashing practices and 470(73.1%) participants who had inadequate handwashing practices were observed to be suffering from various morbidities (p-value = < 0.001). In this study, 882(67.5%) participants of schools where soap was not available for handwashing facilities had morbidities as compared to 83(53.5%) amongst participants of schools where soap was available for handwashing facilities (p-value =0.001). Among participants with a good level of personal hygiene, various morbidities were observed to be in 74(43.5%) participants as compared to 277(54.1%) participants amongst those who had a moderate level of personal hygiene and 614(78.7%) participants amongst those who had poor level of personal hygiene (p-value = < 0.001). (Table-3)

Table 3: Determinants Of Morbidity Among Students Of Schools Under The Study Area.

Attributes	Morbidity			χ^2	p value
	Present	Absent	Total		
Gender					
Male	481 (63.7)	274 (36.3)	755(100)	3.671	0.055
Female	484 (68.5)	223 (31.5)	707 (100)		
Area of Schools					
Urban	371 (68.2)	173 (31.8)	544	1.857	0.173
Rural	594 (64.7)	324 (35.3)	918		
Ownership of Schools					
Private	546 (62.1)	333 (37.9)	879	14.861	<0.001
Government	419 (71.9)	164 (28.1)	583		
Handwashing Practices among Students					
Adequate	495 (60.4)	324 (39.6)	819	25.710	<0.001
Inadequate	470 (73.1)	173 (26.9)	643		
Handwashing facility in Schools					
Without Soap	882 (67.5)	425 (32.5)	1307	11.991	0.001
With soap	83 (53.5)	72 (46.5)	155		
Level of Personal Hygiene among Students					
Good	74 (43.5)	96 (56.5)	170	126.786	<0.001
Moderate	277 (54.1)	235 (45.9)	512		
Poor	614 (78.7)	166 (21.3)	780		
Teacher Designated for School Health					
Yes	325 (65.8)	169 (34.2)	494	0.016	0.901
No	640 (66.1)	328 (33.9)	968		
Trained Teachers for School Health					
Yes	205 (62.1)	125 (37.9)	330	2.866	0.090
No	760 (67.1)	372 (32.9)	1132		

Level of knowledge among designated Teachers regarding School Health					
Moderately Adequate	392 (64.3)	218 (35.7)	610	1.418	0.234
Inadequate	573 (67.3)	279 (32.7)	852		
Total	965(66)	497(34)	1462		

In binary logistic regression analysis, the prevalence of morbidity was observed to be more among females than the males [95% CI, 1.528(1.207-1.934)] (p value=0.001), students of urban schools than the rural schools [95% CI, 1.327(1.038-1.696)](p value=0.024), students of government schools than the private schools [95% CI, 1.642(1.263-2.135)] (p value=0.001), students from schools where soap was not available for handwashing than the students from schools where soap was available [95% CI, 1.613(1.108-2.348)] (p value=0.013), students with lesser level of personal hygiene than the students with better level of personal hygiene - Moderate[95% CI, 1.585(1.101-2.348)] (p value=0.013); Poor [95% CI, 5.533(3.726-8.216)] (p value=0.001), among students with inadequate handwashing practices than the students with adequate practices [95% CI, 1.013(0.776-1.321)] (p value=0.927) and students from those schools where trained teachers were not available for school health than their counterpart [95% CI, 1.073(0.808-1.425)] (p value=0.627). (Table-4)

Table 4: Logistic Regression Analysis Of Various Attributes With The Morbidity Status Among Students Of Schools Under The Study Area. (N=1462).

Attributes	Morbidity		p value
	Present	Adjusted Odd Ratio	
Gender			
Male	481/755 (63.7)	Reference	0.001
Female	484/707 (68.5)	1.528(1.207-1.934)	
Area			
Rural	594/918(64.7)	Reference	0.024
Urban	371/544(68.2)	1.327(1.038-1.696)	
Ownership of Schools			
Private	546/879 (62.1)	Reference	0.001
Government	419/583 (71.9)	1.642(1.263-2.135)	
Hand Washing Practices among students			
Adequate	495/819 (60.4)	Reference	0.927
Inadequate	470/643 (73.1)	1.013(0.776-1.321)	
Handwashing facility in Schools			
With soap	83/155 (53.5)	Reference	0.013
Without Soap	882/1307 (67.5)	1.613(1.108-2.348)	
Level of Personal Hygiene among Students			
Good	74/170 (43.5)	Reference	0.013
Moderate	277/512 (54.1)	1.585(1.101-2.348)	
Poor	614/780 (78.7)	5.533(3.726-8.216)	
Trained Teacher for School Health			
Yes	205/330(62.1)	Reference	0.627
No	760/1132(67.1)	1.073(0.808-1.425)	

DISCUSSION:

Children are a vulnerable group who are easily afflicted by many childhood diseases. Every third child has some sign of ill health. Many of these illnesses are simple and easy to treat if caught early. According to the school health programme, teachers should conduct daily morning inspections to look for signs of illness such as a dull face, a runny nose, a flushed face, and red and watery eyes.

A total of 1462 students were observed while examined by the teachers. In our study, 918(62.8%) participants were from rural schools and 544(37.2%) were from urban schools, among whom 965(66%) children were suffering from one or more morbidities, similar findings were observed by Saluja N et al. (Saluja et al., 2007) (67.8%), but a lesser result was observed by Shinde M et al. (Shinde et al., 2015) (58.72%) and Talukdar K et al. (Talukdar & Baruah, 2015) (57%). In contrast, a higher proportion was observed by Paul KK et al. (Paul et al., 2017) that 77% of children had some morbidity. Schools going children comprises 1/5th of the Indian population, and this proportion of morbidity is a considerable concern for India's future as a healthy student can build a healthy nation.

In the present study, the prevalence of headache(25.8%), sore throat(17.2%), coughing and sneezing(16.5%) and disinclination to

play(3.8%) was observed to be more among males. In comparison, prevalence of pains in the body (25.7%), red or watery eyes (14.5%), chills or fever(12.3%), any rash or spots(8.5%), skin conditions like scabies and ringworm(7.6%), lice infestation(7.4%), listlessness and sleepiness(7%), nausea and vomiting(6%) and diarrhoea(5.3%) was observed to be more among females. In our study, morbidities were observed to be more among girls (68.5%) than the boys (63.7%) (p value=0.055). Similarly, a study done in Assam by Talukdar(Talukdar & Baruah, 2015) showed that girls suffered more than boys (57.4% girls and 56.7% boys). Ananthakrishnan S(Ananthakrishnan, 2001) also found that the prevalence of morbidity among girls was more (97.5% girls 96.7% boys) than that in boys. In contrast to this, morbidities were observed to be more among boys than girls by Paul KK et al. (Paul et al., 2017) [87.5% Boys and 70.6% of girls], Deb S et al. (Deb et al., 2010) (76% boys and 74% of girls), Saluja N et al. (Saluja et al., 2007) (70.0% boys and 65.2% girls) and Shinde M et al. (Shinde et al., 2015) (62.13% boys and 54.83% girls). It could be related to the girls' poorer socioeconomic status, which is reflected in Haryana's poor sex ratio.

In this study, morbidity was observed to be more among participants (68.2%) from urban schools than the participants (64.7%) from rural schools (p value=0.173), and more among participants (71.9%) from government schools than participants (62.1%) from private schools (p value=0.001). Similarly, Deswal BS(Deswal et al., 2017) reported that one or more morbidity condition was more common among the students (38.33%) of government school than the students (13.74%) of private school. It could be related to increased air pollution and traffic in urban areas and poor infrastructure, inadequate lighting, and health-washing facilities in government schools.

The study reported that amongst children from rural schools, the prevalence of morbidities was as follows- rash or spots(11%), chills or fever (10.5%), skin conditions like scabies and ringworm(8.7%), lice infestation(7.7%), nausea and vomiting(6.8%), listlessness or sleepiness(5.9%), diarrhoea(6.1%) and disinclination to play(4.8%) were more common in rural schools as compared to their counterpart. This could be due to less hygienic practices and poor waste disposal practices, leading to more infections. While the prevalence of headache (31.8%), pains in the body (25%), sore throat (21.3%), coughing or sneezing (16.5%), and red or watery eyes (13.6%) were more among the participants from the urban schools. These could result from more pollution and traffic, leading to an allergic reaction or stressful life. The school should usually be centrally situated with proper roads and at a fair distance from busy places and routes, cinema houses, factories, railway tracks and market places.

In this study, the prevalence of chills or fever was observed among 143(9.8%) participants, which is much lesser than the findings of Dongre A et al. (Dongre et al., 2006) (56.6%), Talukdar K et al. (Talukdar & Baruah, 2015) (34.75%) and Gupta SK et al. (Gupta et al., 2012) (33.40%). In this study, the prevalence of red or watery eyes was observed in 194(13.3%) participants, higher than Motakpalli K et al.(Kaviraj Motakpalli, Siddesh Basavaraj Sirwar Bendigeri ND and Deepak C Jamadar, Amrutha Swati Indu, 2013), who found that 8.2% of students suffered from eye diseases. Shanthi Ananthakrishnan S(Ananthakrishnan, 2001) also stated that eye diseases were present in 4-8% of students. In our study, the prevalence of respiratory infection (coughing or sneezing & sore throat) was observed among 389(26.6%), which is much lesser than the findings of Dongre A et al. (Dongre et al., 2006) (56.6%), Gupta SK et al. (Gupta et al., 2012) (40 %), Mhaske M et al. (Mhaske et al., 2013) (38.2%), Talukdar K et al. (Talukdar & Baruah, 2015) (31.75%) and Musuku J et al. (Musuku et al., 2017) (24%) but higher than the findings of Srivastava et al. (Srivastava et al., 2012), (14.9%) and Motakpalli K et al. (Kaviraj Motakpalli, Siddesh Basavaraj Sirwar Bendigeri ND and Deepak C Jamadar, Amrutha Swati Indu, 2013) (9.2%). These conditions are often observed in infectious and contagious diseases; timely detection and precautionary measures like handwashing points with soap and water, physical distancing and trained teacher for school health etc., are needed to prevent the spread, as felt during the CoVID-19 also.

In this study, the prevalence of listlessness or sleepiness was observed among 88(6%) participants, which was much lesser than what Ramamoorthy S et al. (Srihari Ramamoorthy , Dilara Kamaldeen , Latha Ravichandran, 2017) (23.5%) and Patra SR et al. (Patra et al., 2018) (63.2%) found. In this study, the prevalence of disinclination to play was observed in 51(3.5%) participants. In this study, the headache

was observed to be more among students of urban schools (30%) than the students of rural schools (21.5%) (p value=0.001). It could be related to poor visual acuity, a poor lifestyle, or mental health issues, which were not observed in this study.

The prevalence of skin diseases was observed to be more among the students (15%) of rural schools as compared to the students (8.3%) of urban schools (p value=0.001). The prevalence of skin conditions like rash or spots, scabies, and ringworm was observed among 6.7% of participants, which is lesser than the findings of Fung WK et al. (Fung & Lo, 2000) (31.3%), Dongre A et al. (Dongre et al., 2006) (36.6%), Motakpalli K et al. (Kaviraj Motakpalli, Siddesh Basavaraj Sirwar Bendigeri ND and Deepak C Jamadar, Amrutha Swati Indu, 2013) (11%) and Ananthakrishnan S (Ananthakrishnan, 2001) (5.0-10.0%). In this study, the prevalence of lice infestation was observed among 6.7% of participants, which is lesser than the findings of Dagne H et al. (Dagne et al., 2019) (65.7%), Ozdemir A (Ozdemir et al., 2019) (51.9%), Dongre A et al. (Dongre et al., 2006) (42.8%), Rassami W et al. (Rassami & Soonwera, 2012) (23.32%) and Gulgun M et al. (Gulgun et al., 2013) (13.1%) but higher than the findings of Nazari M et al. (Nazari et al., 2016) (2.3%). Guideline regarding the overcrowding and ventilation and lighting should be followed strictly along with the promotion of personal hygiene among the students.

Among 1462 participants, symptoms of gastro-intestinal infection were observed in 98 (6.7%) participants. In this study, the prevalence of nausea and vomiting was observed in 5% of the participants and diarrhoea was observed to be in 4.2% of participants, which is much lesser than the findings of Dongre A et al. (Dongre et al., 2006) (56.6%) and Motakpalli K et al. (Kaviraj Motakpalli, Siddesh Basavaraj Sirwar Bendigeri ND and Deepak C Jamadar, Amrutha Swati Indu, 2013) (7%). In this study, symptoms of gastro-intestinal infection were observed in 38 (5%) boys and 60 (8.5%) girls. These were observed to be more among the participants (1.8%) from rural schools than those from urban schools (9.6%) (p value=0.001). Sufficient water should be available at all times for personal hygiene both school and home, along with soap for handwashing so that GI infection can be prevented.

In this study, the prevalence of pains in the body was observed among 302 (20.7%) participants, which was much lesser than the findings of Fonseca CD et al. (Fonseca et al., 2016) (75.2%), Akbar F et al. (Akbar et al., 2019) (70.3%), Rawaf K et al. (Rawaf K. Al Rawaf, Mohammed M. Zamzam I, Osama A. Al Rehaili, Adel F. Al Shihri, Mohammed S. Abunayan, Abdullah A. Al Dhibabi, Abdullah F. Al Jafar, 2017) (69.4%), Amani F et al. (Amani et al., 2018) (55%), Parthibane S et al. (S. Parthibane & Vinoth K. Kalidoss, 2019) (43.6%), Gheysvandi E et al. (Gheysvandi et al., 2019) (35.8%) Dianat I et al. (Dianat et al., 2017) (34.3%). In the current study, pains in the body was observed to be more among students of urban schools (25%) than the students of the rural schools (18.1%) (p value=0.002). Children spend approximately 80% of their school time in the classroom performing various activities such as reading, writing, drawing, and other related activities requiring them to sit for long periods. The dimensions of the school classroom furniture (benches and desks) must be appropriate for the students. Schoolchildren were observed changing postures frequently while using such classroom furniture; therefore, furniture should be suitable for the age group of students. (Dhara et al., 2009)

Strength And Limitation:

Our study is based on a statistically adequate and representative sample. These various domains point towards the holistic approach which should be provided to the students. Even though all precautions were taken to conduct a well-planned study, the following limitations were discovered. As the research was limited to a single district, it may not be representative of the entire state or country. Data on students' health status was gathered at various times throughout the year. As a result, bias due to seasonal variation cannot be ruled out.

CONCLUSION & RECOMMENDATIONS:

A sizable proportion of school children were suffering from preventable disease, which was later discovered to be caused by the school's environment and WaSH conditions. It is recommended that good handwashing practices, a higher level of personal hygiene, trained teachers in schools, a healthy environment, and proper WaSH facilities be implemented to provide preventive and curative services as soon as possible.

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