

AN ASSESSMENT OF THE IMPACT OF HYGIENIC PRACTICES ON HEALTH AND SCHOLASTIC PERFORMANCE OF SCHOOL GOING CHILDREN

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ABSTRACT

BACKGROUND:

The level of personal hygiene bears a strong influence on the preventive capacity for many diseases and hence the assessment of its level assumes great significance . The school being a strong base for hygienic practices, the present study aimed to assess the level of personal hygiene and its associated factors as well as its effect on morbidity.

INTRODUCTION:

Schools play an essential role in supporting the development of children, providing a platform to help children grow in a healthy environment. School age children form a substantial proportion of the world's population and hence schools serve as a base for inculcation of hygienic practices at a young age. The present study aims at assessing the level of personal hygiene, and its impact on school going children in Bangalore.

OBJECTIVES:

- To assess the status of personal hygiene practices of school going children
- To study the impact of poor personal hygiene practices on the health status of children
- To study the prevalence of health related morbidities and its impact on scholastic performance and school absenteeism.

METHODOLOGY:

A cross sectional study of school going children in the age group of 8-14 years. The study sample included 187 students attending schools in and around Bangalore. A pre-structured questionnaire was administered amongst the study population which included various aspects about personal hygiene awareness and practices, commonly

faced morbidities, number of days of absenteeism due to medical reasons and scholastic performance in the last conducted examination.

RESULTS:

A total of 187 students participated in the study. There were 108(57.8%) girls and 79(42.2%) boys in the study. Of the students,180(96.3%) were aware about the importance of personal hygiene. Most common morbidity faced by the children was common cold 81(34.3%),followed by stomach pain 51(27.3%).However in the present study ,in the students with awareness about importance of personal hygiene the proportion of absenteeism or academic performance was no different when compared to those who did not. .

CONCLUSION:

Majority of the health problems affecting school children are preventable by promotion of hygienic practices through proper health education at an early age by teachers who are the first contacts. Intervention programmes and periodic reminders would be effective in reducing poor hygiene associated morbidities.

KEYWORDS: PERSONAL HYGIENE, MORBIDITIES, ABSENTEEISM, SCHOOL CHILDREN, SCHOLASTIC PERFORMANCE

INTRODUCTION

School is the place where education about health including important aspects of hygienic practices, environmental cleanliness, good sanitation practices as well as social customs is imparted. Schools are sacred because they provide an environment for development of intelligence and for learning skills that can be utilized by students to achieve their goals in life. Children need good health to learn effectively. Majority of the health problems affecting school children are preventable through proper health education by teachers who can promote personal hygiene practices as they are the first contacts of school going children⁽¹⁾

The level of personal hygiene of a person is the cumulative effect of his or her own efforts to be neat and clean both internally and externally. The knowledge for this is attained through sources like teachers, parents, friends, books or media.⁽²⁾

According to the World Health Organization (WHO), "Hygiene refers to conditions and practices that would help to maintain health and prevent the spread of diseases."⁽³⁾

Poor knowledge of practices and attitudes towards personal hygiene such as hand washing ,play major roles in the high incidence of communicable diseases and therefore can have negative consequences for a child's long term development overall⁽⁴⁾. Most diseases such as diarrhoea and pneumonia are transmitted mainly by contaminated hands, diarrhoea and pneumonia alone kills an estimated 1.7 million children every year. Many of these deaths can be prevented by hand washing with soap.⁽⁵⁾

Hand washing is one of the most important factors in controlling the spread of micro-organisms in preventing the development of infections.⁽⁶⁾

Improved awareness of hand hygiene practices especially among children have effectively reduced gastrointestinal and respiratory tract infections by up to 50% ,thereby impacting the two leading causes of childhood morbidity and mortality around the world. Additionally, studies have also shown that school going children with better knowledge and practices of hand hygiene have fewer sick days and absenteeism in school and achieve higher grades. Most school children are aware of the essence of hand washing, having sufficient knowledge about hand washing but poor in practice. ⁽⁷⁾

The purpose of this study is to attempt to assess the prevalence of personal hygiene practices in school children and its impact on health ,disease-associated absenteeism and scholastic performances of children in Bangalore, that would help in bringing about appropriate awareness programmes to prevent disease related morbidities attributed to poor hygienic practices in school going children in the future.

OBJECTIVES

- To assess the status of personal hygiene practices of school going children.
- To study the impact of poor personal hygiene practices on the health status of children
- To do a comparative analysis of the prevalence of health related morbidities and its impact on scholastic performance and school absenteeism.

METHODOLOGY

The present study was an observational cross-sectional study. It was conducted in school going children enrolled in Class III to Class IX, in the age group of 8 to 14 years attending schools in rural and urban vicinities of Bangalore. School going children who were willing to participate in the study, after taking necessary consent from parents/guardians were included in the study. This population was targeted as children in this age group are more likely to be able to give coherent responses and are expected to be aware of basic hygienic practices. Children who were not willing for participation in the study, children who do not fall in the age group of 8-14 years, children who suffered from chronic illnesses and had school absenteeism due to non-medical reasons have been excluded from the study. Data relevant for the study was obtained via a self-administered, pre-structured questionnaire, children who had difficulty answering the questions were assisted by their parents or guardians. Data collection was started after obtaining ethical clearance and due consents. The questionnaire included information on age, sex, class, occupation of parents, locality of school. The questionnaire was structured to effectively assess general knowledge on personal hygiene practices, common practices like hand washing practices, use of soap in hand washing and other personal hygiene measures like brushing teeth daily, trimming of nails, washing clothes, showering practices etc. Data regarding scholastic performance in the last academic year and the number of leaves taken due to medical reasons were collected. Information was also collected about the common comorbidities faced by school going children, any morbidity suffered by the students, in the past one year like diarrheal diseases, worm infestation, respiratory infections, gastrointestinal infections were recorded. No laboratory investigations or interventions were conducted on subjects and confidentiality and anonymity of subjects were maintained.

STATISTICAL ANALYSIS

Data was analyzed using descriptive and inferential statistics. Data was entered and analyzed into SPSS software (SPSS 20.0 Version). Results on continuous measurements are presented on Mean \pm SD (Min-Max) and results on categorical measurements are presented in Number (%). Significance is assessed at 5 % level of significance.

RESULTS

Of the total study population of 187, Of the 108 females it was observed that,54.2% attended schools in rural areas and 61.5%in urban areas and of the 79 males,45.8% attended schools in rural areas and 38.5% in urban areas. Majority of the students in the study,96.3% felt that personal hygiene was important. In our study, 63.6% children got knowledge about personal hygiene from parents, 25.1% from teachers, 9.1% from TV and 2.1% from books and newspaper. It was observed that most of the children attending schools in rural localities obtained their knowledge from their teachers. Out of all the 187 children, 76.5% had been taught proper hand hygiene at school, 14.4% did not know of proper hand hygiene measures and 9.1% had not been taught. About 44.9% suffered from common cold, 43.3%from stomach pain, 27.3% from throat pain, 25.1% had diarrhoea, 12.8% had dental caries,11.8% had eye discharge,11.2% from worm infestation,10.2% had skin lesions, had 8% oral ulcers,7.5% had vomiting, 5.3% had ear pain and 2.7% had bleeding gums. Among the 187 students, only 14.4% did not report facing any form of illness in the last academic year and about 85.6% suffered from some form of morbidity. In the study, amongst the 160 who had suffered from illness in the past one year, the most common morbidities were cold and cough 44.9% followed by stomach pain 43.3%. Amongst the students who scored <70 % in the previous exam, Stomach Pain (46%) Cold and Cough (44%), Diarrhoea (32%) and Eye discharge/redness (11,22%) were the common ailments faced by children. Most of the children, 65.7% rarely remained absent from school due to any illnesses and scored >70 percentage in the last examination. Of the students who remained absent very often 6% scored <70.

DISCUSSION

This study was done in Tertiary Care Centre, Bangalore among 187 school going children. Out of 187 children 108(57.8%) were girls and 79(42.2%) were boys, Similarly, in a study done by Ghanim et al⁽⁴⁾ out of a total of 428 students, 224 (52.3%) were boys and 204 (47.7%) were girls and in a study done by Thekdi et al⁽⁸⁾ there were 366 boys(73.2%) and 134 girls(26.8%) in the study population.

Mostly, 126(67.4%) were in the age group of 10-15 years. Similarly, in a study done by Ghanim et al⁽⁴⁾ majority 149 (53%) girls belonged to age 12-13 years and only 25 (9%) were 14 years and above and in a study done by Dajaan et al⁽⁹⁾, (39.3%) were within the ages of 12-14 years.

In our study, 180(96.3%) children felt that personal hygiene was important and 166(88%) children agreed that being neat and clean keeps one healthy, 12(6.4%) did not know the importance of personal hygiene and 9(4.8%) disagreed. Whereas, in a study done by Ghanim et al⁽⁴⁾ out of a total of 428 students, two hundred seventy-eight students (65%) had adequate perception about personal hygiene, but only 27% mentioned that personal hygiene was important to fight diseases. Likewise in a study done by Ratnaprabha et al⁽¹⁰⁾, "Good Hygiene" practices were followed by 42.3% out of the 213 students.

In our study, 119(63.6%) children got knowledge about personal hygiene from parents, 47(25.1%) from others, 17(9.1%) from TV and 4(2.1%) from books and newspaper. Similarly, in a study done by Ghanim et al⁽⁴⁾, parents and teachers were the most common source of knowledge providers about personal hygiene to the participants.

Even in rural areas majority (97.1%) of the respondents were aware of the importance of hand washing and 75% perceived that diseases could be prevented through hand washing according to the study done by Md. Jawadul Haque et al⁽¹¹⁾.

In our study, out of all the 187 children, 143(76.5%) had been taught proper hand hygiene at school, 44(23.5%) of the students either did not know or had not been taught about proper hand hygiene. However in other studies done by Dajaan et al⁽⁹⁾, 53% of school children claimed to never have been educated on how to wash hands, similarly in a study by Shilunga et al⁽¹²⁾ where 41.6% were never taught how to wash hands.

In our study, most of them, 169(90.4%) felt taking a shower every day is needed to keep clean. Similarly, in a study done by Ghanim et al⁽⁴⁾ taking shower (62%) (N=265) and washing of hands (60%) (N=257) were the two top ranked hygiene practices reported by the students.

Likewise in a study done by Komal P Thekdi⁽¹³⁾, daily bathing (84%), brushing teeth (63%), washing hands with soaps and water were the most common hygienic practices in the school children.

In our study, about 167(89.3%) were aware that brushing teeth with toothpaste prevents teeth problems. About 95(50.8%) brushed teeth once a day, 88(47.1%) brushed twice a day and 4(2.1%) after every meal. About 74(39.6%) visited dentist once a year, 68(36.4%) only while having pain, 28(15%) never visited, (9.1%) twice a year.

Similarly, in a study done by Paul et al⁽¹⁴⁾ Brushing daily was significantly associated with reduced dental caries ($\chi^2= 8.7$; $P < 0.005$) and foul- smelling breath ($\chi^2= 4.93$; $P < 0.05$). Fungal infections were significantly less in children who bathed daily ($\chi^2= 28.7$; <0.005) and wore clean clothes ($\chi^2= 5.06$; $P < 0.05$).

Similarly, in the study done by Paul et al⁽¹⁴⁾ in rural children, more than 90% of children maintained good personal hygiene such as clean tongue, clean hair, handwashing, and using footwear. The most common morbidities found were dental caries (38.9%), history of worms in stool and lethargy (20%). A mean score of 6.14 ± 0.11 (out of 8) was seen for personal hygiene and not associated with any morbidity or gender. Brushing daily was significantly associated with reduced dental caries ($\chi^2 = 5.06$; $P < 0.05$).¹⁹

Likewise, in a study carried out by Mayavati S. Mhaske et al⁽¹⁵⁾ the major morbidities observed were dental caries (66.1%), upper respiratory tract infections (38.20%), ear wax (29.9%) and myopia (10.0%) observed ENT problems (9%), eye diseases(8.2%), gastro intestinal(7%) and others(7.6%).

In our study, about 84(44.9%) suffered from cold, 81(43.3%) from stomach pain, 51(27.3%) from throat pain, 47(25.1%) had diarrhoea, 24(12.8%) had dental caries, 22(11.8%) had eye discharge, 21(11.2%) from worm infestation, 19(10.2%) had skin lesions, had 15(8%) oral ulcers, 14(7.5%) had vomiting, 10(5.3%) had ear pain and 5(2.7%) had bleeding gums.

Similarly, study done by Komal P Thekdi⁽¹³⁾, cold was the most common health problem they know. Abdominal pain and worm infestations (6.0%) were the most common health related problems suffered by the children. A significant association found between personal hygiene practices followed by school children and their health related problems. ($\chi^2=65.2$, P value<0.001).

About 108(61%) had taken leaves < 7 days due to illness in the last academic year, 64(36.2%) took 7-14 days and only 5(2.8%) > 14 days.

In our study , 23% gave health reasons for absenteeism from school.

In a study done by Ratnaprabha et al⁽¹⁰⁾. 60.6% had reported school absenteeism in the last one month had poor hygiene practices. Similarly in a study done by Ratnaprabha et al⁽¹⁰⁾ 60.6% who had reported school absenteeism in the last one month had poor hygiene practices.

In our Study ,Overall children who suffered from health problems had scored <70 percentage of marks scored in the last examination. Amongst the students who scored <70% in the previous exam, stomach pain (46%), cold and cough (44%), diarrhoea (32%) and eye discharge/redness (11.2%) were the most common ailments faced by children.

Amongst the students who rarely faced difficulty studying, 81.5% of the children did not have illness and similarly 72.3% of these students scored >70% in the last examination.

According to the study done by Ratanaprabha et al⁽¹⁰⁾,50 (71.4%) who had <70% scholastic performance had poor hygiene practices.

About 68% of the students felt that washing hands with soap and water was as effective as using a hand sanitizer and 19.8% felt that washing hands with soap and water was more effective. Studies have shown there is evidence of washing hands with soap can reduce the risk of diarrhoeal diseases by 42–47% as seen in systematic reviews of literature.⁽¹⁶⁾

Studies done by Luby et al⁽¹⁷⁾ in Pakistan, have shown that Children younger than 5 years in households that received plain soap and handwashing promotion had a 50% lower incidence of pneumonia ,a 53% lower incidence of diarrhoea and a 34% lower incidence of impetigo were seen in some studies.⁽¹⁸⁾

School absenteeism because of infections in schools is reduced when a hand hygiene program utilizing sanitizing gels is properly carried out, especially during the flu season was seen in a study done by Azor-Martínez⁽¹⁹⁾

Studies done showed common chronic conditions such as asthma, allergies, repeated otitis media, cancer, epilepsy, cerebral palsy type 1 diabetes mellitus, hypothyroidism, hearing loss - even unilateral and visual impairment, are known to be associated with poor academic performance.⁽²⁰⁾

Overall, in our study, children who suffered from health problems faced difficulty in studying. Most of the children, 90(65.7%) rarely remained absent from school due to any illnesses and scored >70 percentage in the last examination. About 99(72.3%) who rarely faced difficulties due to morbidities were able to score >70 percentage in the last examination. However even the students with good hygiene practices and those

free from illness were observed to have suffered from morbidities and their scholastic performance and the proportion of absenteeism was no different when compared to those who had illness.

CONCLUSION

Schools should provide hygiene education at an early grade to supplement training provided by parents or guardians, to ensure that all children at an appropriate age can protect themselves and others from preventable exposure to illness and also ensure that children have an easy access to safe and clean water facilities and toilets.

Health education should be made a compulsory component of school education at all levels. A well-planned school health program could provide a proper health education with the active involvement of parents and teachers. It would help parents to create a healthy environment in their homes so that their children can lead a healthy life. Periodic interventional programmes and reminders would help in maintaining good hygienic practices in schools, which in turn would lead to less days of health-related absenteeism and better academic performance.

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Table 1: GENDER DISTRIBUTION ACCORDING TO LOCALITY OF STUDENTS

	Region		Total (n=187)	P value
	Rural (n=96)	Urban (n=91)		
Gender				
• Female	52(54.2%)	56(61.5%)	108(57.8%)	0.308
• Male	44(45.8%)	35(38.5%)	79(42.2%)	

Table 2 : AWARENESS OF IMPORTANCE OF PERSONAL HYGIENE

	Region		Total (n=187)
	Rural (n=96)	Urban (n=91)	
Is personal hygiene important?			
• Don't Know	2(2.1%)	0(0%)	2(1.1%)
• No	3(3.1%)	2(2.2%)	5(2.7%)
• Yes	91(94.8%)	89(97.8%)	180(96.3%)

Table 3 : HAND HYGIENE EDUCATION AT SCHOOL

	Region		Total (n=187)	P value
	Rural (n=96)	Urban (n=91)		
Has your child been taught/have you been taught proper hand hygiene at school?				
• No	9(9.4%)	8(8.8%)	17(9.1%)	0.492
• Yes	76(79.2%)	67(73.6%)	143(76.5%)	
• Don't know	11(11.5%)	16(17.6%)	27(14.4%)	

Table 4 : AWARENESS OF BENEFITS OF HANDWASHING

	Region		Total (n=187)	P value
	Rural (n=96)	Urban (n=91)		
Which of the following are the benefits of handwashing?				
• All of the above	62(64.6%)	44(48.4%)	106(56.7%)	0.082+
• Cuts down school absenteeism	3(3.1%)	2(2.2%)	5(2.7%)	
• Reduces common illnesses (Diarrhoea, Vomiting, Respiratory Illnesses)	22(22.9%)	36(39.6%)	58(31%)	
• Stops spread of diseases	9(9.4%)	9(9.9%)	18(9.6%)	

Table 5- PREVALANCE OF ILLNESS

Illness	No. of students	%
No	27	14.4
Yes	160	85.6
Total	187	100.0

Table 6: CORRELATION OF HEALTH RELATED MORBIDITIES AND SCHOLASTIC PERFORMANCE

Health related Items	Percentage of marks scored in the last examination?		Total (n=187)	P value
	<70% (n=50)	>70% (n=137)		
Diarrhoea	16(32%)	31(22.6%)	47(25.1%)	0.191
Stomach Pain	23(46%)	58(42.3%)	81(43.3%)	0.654
Vomiting	6(12%)	8(5.8%)	14(7.5%)	0.157

Worm Infestation	9(18%)	12(8.8%)	21(11.2%)	0.076+
Cold and Cough	22(44%)	62(45.3%)	84(44.9%)	0.879
Throat Pain	8(16%)	43(31.4%)	51(27.3%)	0.037*
Oral Ulcers	2(4%)	13(9.5%)	15(8%)	0.221
Dental caries	7(14%)	17(12.4%)	24(12.8%)	0.773
Bleeding gums	0(0%)	5(3.6%)	5(2.7%)	0.171
Ear pain/discharge	3(6%)	7(5.1%)	10(5.3%)	0.811
Eye discharge/redness	11(22%)	11(8%)	22(11.8%)	0.009**
Skin lesions	6(12%)	13(9.5%)	19(10.2%)	0.615

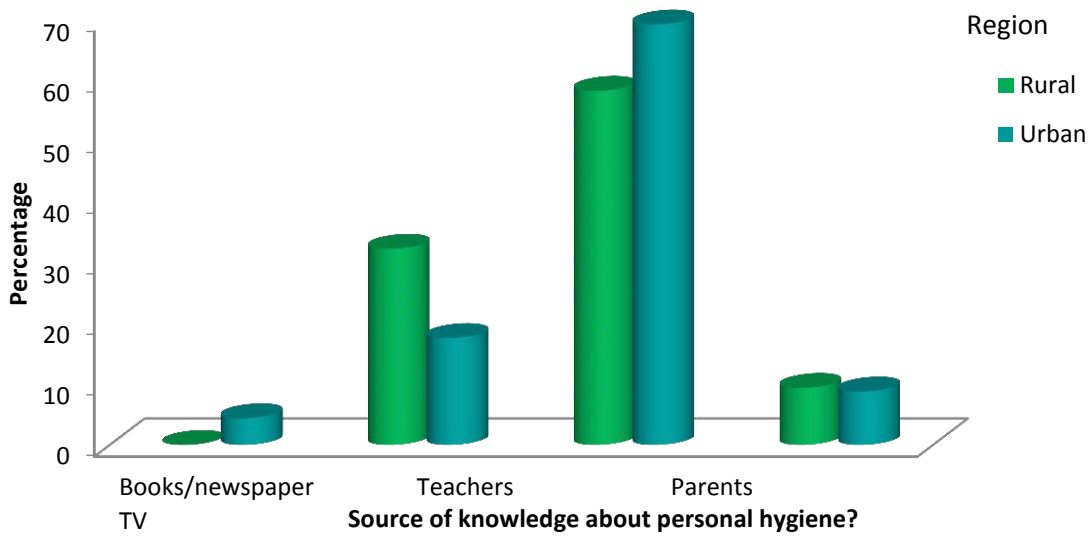
Table 7 : REASON FOR SCHOOL ABSENTEEISM

	Region		Total (n=187)	P value
	Rural (n=96)	Urban (n=91)		
Reason for school absenteeism				
• Family functions	40(41.7%)	39(42.9%)	79(42.2%)	0.788
• Health related	24(25%)	19(20.9%)	43(23%)	
• Other	32(33.3%)	33(36.3%)	65(34.8%)	

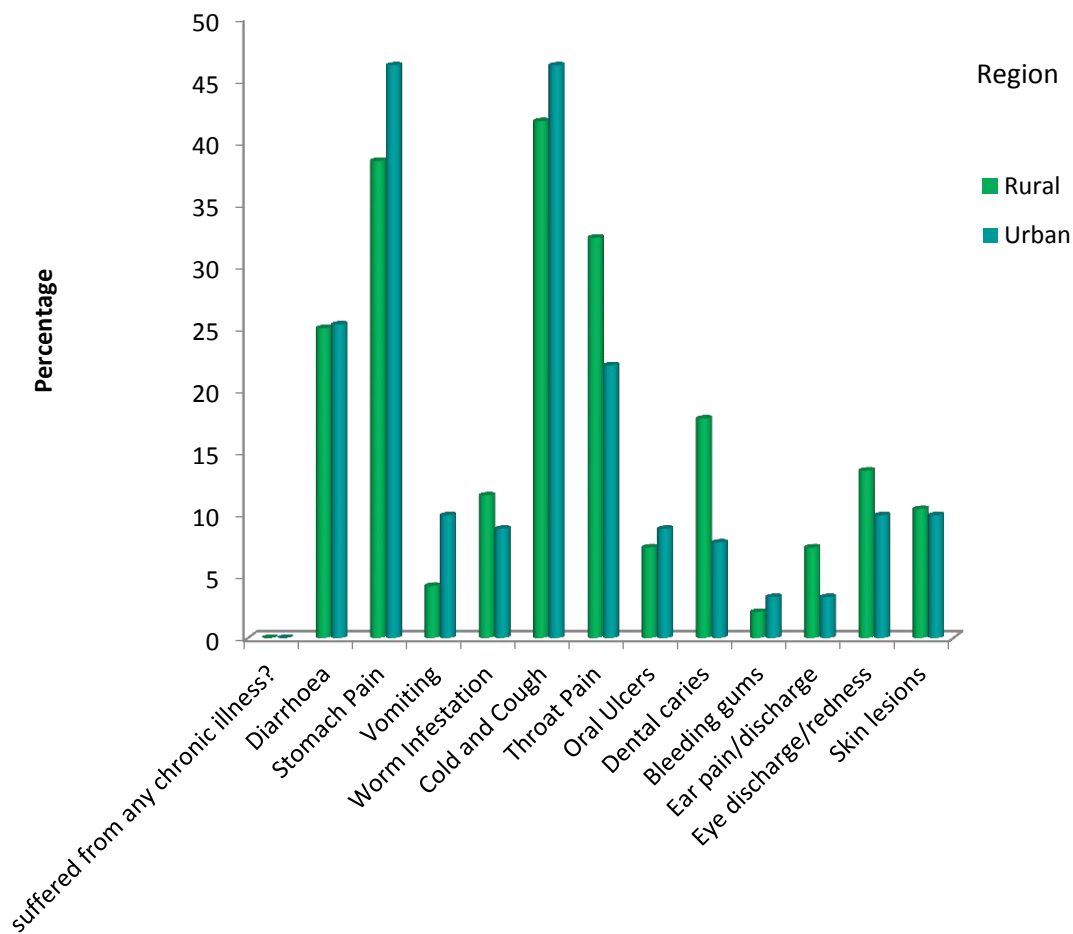
Table 8: FREQUENCY OF ABSENTEEISM AND PERCENTAGE OF MARKS OBTAINED

Questions	Percentage of marks scored in the last examination?		Total (n=187)	P value
	<70% (n=50)	>70% (n=137)		
How often does your child remain absent from school?				
• Occasionally	18(36%)	47(34.3%)	65(34.8%)	0.026*
• Rarely	29(58%)	90(65.7%)	119(63.6%)	
• Very often	3(6%)	0(0%)	3(1.6%)	

Graph 1: SOURCE OF KNOWLEDGE ABOUT PERSONAL HYGIENE



Graph 2: MORBIDITIES FACED BY SCHOOL CHILDREN



Has your child suffered from any of the following in the past one year?