

An Assessment of Knowledge on Hygiene among High School Students and Utilization of Sanitation Facilities in Schools

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Authors

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1. Introduction

Hygiene is a science that deals with the promotion and preservation of health. It refers to the set of practices linked to the conservation of health and healthy living. The millennium development goals have firmly established that the issues of water, sanitation and hygiene on global agenda. It involves usual washing of the body (bathing), washing the hands when essential, washing ones' clothing, washing the hair, brushing the teeth, cutting the nails, and caring for the gums. Hygiene practice plays a vital role in preventing some of the common communicable diseases spreading from virus, Bacteria and protozoa micro organisms. Poor hygiene practices and inadequate sanitary conditions play major roles in the increased burden of communicable diseases within developing countries particularly among children. Children in general are predominantly vulnerable to the neglect of necessary personal hygiene (*Postma L et al (2004)*). As, Children between age 5-15 yrs spend most of the time at school, it is said that majority of the health problems affecting school children are preventable by promotion by teachers, who are the first contacts. Teaching children on the importance of good hygiene can install habits, which will improve their health for a lifetime. Beginning healthy hygiene habits at a young age will help older children transition into adult hygiene routines (*Kaviraj Motakpalli et al (2013)*). The World Health Organization considers health education, health services, and healthy environment are components of schools (WHO 2015). The importance of school health has been acknowledged across countries since the beginning of 20th Century. In year 2004, the government of India (GOI) has started a Total Sanitation Campaign (TSC) to ensure school sanitation and Hygiene Education (SSHE) which emphasizes skill based child to child hygiene education for behavior change among school going children. In this context present study made an attempt to know the knowledge and practice of school going children on hygiene in Yadgir district.

1.1 Review of Literature

A school based cross sectional study by Motakpalli et al (2013) in Mangalore for 6-14 age group, found that about 65 per cent of girls had good personal hygiene compared to boys about 60 per cent. And about 28 per cent of boys had poor personal hygiene compared to girls 25 per cent. The difference between boys and girls was statistically significant. The common unhygienic status observed were oral hygiene, unclean ears and tongue. The study emphasized on more hygiene practice education on oral hygiene, daily brushing, cleaning of

tongue, flossing teeth to avoid bad breath, trimming nails, regular cleaning of ears, washing hands and body regularly.

A study by Elsabagh et al (2016), in Delta region of Egypt, included 231 preschool children revealed that more than three quarter of children knew requirements of personal hygiene. About two thirds of children had good to moderate knowledge and more than half had good practice. Male and older children had significant better knowledge, attitude and practice than female and younger ones. Residents had no significant effect on children knowledge, attitude and practice. Study concluded that students knowledge, attitude and practices of personal hygiene were deficient in some aspect. This requires therefore, more, hygiene formal education as a part of regular curriculum and informal health education message.

A study conducted by Narayan and Umarani (2014) in selected schools of Mangalore on oral hygiene pointed out that, school children had moderate knowledge on oral hygiene. Further, study revealed that there was no significant association between levels of knowledge with selected demography variables

Langer et al (2015) in an their study on menstrual/knowledge, in tertiary care institution in North India, revealed that at menarche 59 per cent of adolescent were aware of menstruation and in $\frac{3}{4}$ th of them, mothers were source of information. The study shows that, adolescent girl's age, education of mother, having prior menstrual awareness and knowledge influenced significantly in shaping favorable menstrual attitude. The study further emphasized on the need to plan menstrual health education programme for adolescent girls and their mothers

A study by Ansari and Warbhe (2014) made a cross sectional study for school students to assess knowledge among school students on personal hygiene and their practice. The study revealed that, about 90 per cent of student took bath with soap and water. About three per cent brushed alternatively and 31 per cent brushed twice a day. As a whole study found that majority of students practicing hygiene method. Neglected aspects were teeth, nail and hair hygiene. Study emphasized for periodic personal hygiene education to ensure good hygiene practice

A review of earlier studies on the students' knowledge and practice on hygiene reveals that majority of the studies have focused on hygiene knowledge of private school going children and focused on urban area. Also little evidence can be visualized across the literature, where knowledge and practice aspects are simultaneously focused. Furthermore, very few studies have found analyzed sanitation facilities of school, its functionality and its utilization.

Considering the importance of knowledge, its practice and sanitation facility of school, the present study has two core objectives, which is carried out in government school going children of Yadgir with rural and urban resident students.

1.2 Objectives

- a) To understand awareness and practice among school students on hygiene and knowledge imparting approach in the schooling system.
- b) To assess the availability, functionality and utilization of sanitation facilities in schools.

1.3 Methodology

The study is conducted in Government high schools of Yadgir District of Karnataka, the most backward district of the state. Two talukas of the district, i.e Shahapur and Yadgir were randomly selected for the study. Keeping 400 students to be interviewed as a target through self administer questionnaire, eight schools from Yadgir taluk and seven schools from Shahapur taluk were randomly selected to execute the study through a self-administered questionnaire. About 25 students from each school, who could read and write Kannada language properly, capable of understanding the given questions were selected. More or less equal proportions of students from class 8-10 were chosen for the study. Male female ratio was decided based on number of males and females in each class. After obtaining the permission from the competent authority of the school, a pre-tested self-administered questionnaire in Kannada language was distributed to the chosen students. Explained the students clearly about the purpose of the study.

Socio-demographic variables Covered: Age, resident, class, sex, religion, caste, literacy and employment status of parents.

Questions under Knowledge of Hygiene and its Practice: The study covered the knowledge and practice of daily hygiene routines like Knowledge on general approach for water Hygiene methods, knowledge on kind of defecation, knowledge on hand washing and its practice, knowledge on bathing and its practice, knowledge on use of private comb and its practice, knowledge on oral health and its practice.

Subject under Availability of sanitation facility and utilization: Availability of water and soap, students perception on utilization of sanitation facility. The basic hygienic condition of school premises, including school sanitation was assessed.

Execution

Students at the outset, allowed for reading the full questionnaire for 15-20 minutes. Thereafter an orientation was given to the students on the entire questionnaire for 40 minutes, wherein each question was interpreted simultaneously to the chosen students, in each school, in order to ensure uniformity in understanding the question on the part of the students. They were given opportunity to ask queries. Students were informed about anonymity of their name and about school as well. It took 25 minutes on an average to fill the questionnaire for students in each school. At the end we could cover 388 students, 211 boys, 177 girls within time and financial limitations. A formal discussion with head of the school was also executed to understand the approach of knowledge imparting system among students.

Ethical Consent: An ethical consent was obtained from the DDPI of the district.

Findings of the study

2 Background Characteristics of respondent

Table 1 shows characteristics of the study population. There is almost equal representation of students from all the classes. Boys outnumbered girls by 8 per cent. SCs and STs together comprise 34 per cent, which is relatively higher than the general population proportion. Selection of the government schools might be the reason for this higher proportion. Hindu is a major reported religion among the students and majority of the students are hailing from rural set up. Literate proportion is more among the father than the mother.

Table 1: Characteristics of respondents

Background		N	Percentage
Sex	Boys	211	54
	Girls	177	46
Residence	Rural	345	89
	Urban	43	11
Caste	SC/ST	133	34
	Other	255	66
Religion	Hindu	338	87
	Others	50	13
Class	8 th	128	33
	9 th	135	34
	10 th	125	33
Education status			
Father	Illiterates	190	52
	Literate	176	48
Mother	Illiterates	276	71
	Literate	107	28
Total		388	100

3 Students' Knowledge on selected hygiene Routine combined.

It is generally believed that knowledge on basic hygiene method is a pre requisite condition for hygiene practice and hygiene routine. Keeping this notion, an attempt is made to assess what proportions of students are having knowledge on the selected hygiene indicators. For this we have considered six basic indicators with one or two sub indicators as shown in table 2. Knowledge on basic hygiene indicator has three sub indicators, they are, boiling water, filtering through cloth and purification through modern technology. Under human defecation, we asked whether germs spread through toilet and what kind of defecation is advocated from hygiene view point. Under knowledge on hand washing we asked how many students wash their hand before meals and after defecation. Similarly for knowledge on oral hygiene we captured what proportion of students, feel brushing twice a day is good for oral hygiene and whether they clean their tongue every day. Finally we also asked them whether or not daily bathing is good for hygiene and whether using personal comb is good for hair hygiene.

From the table 2 it can be learnt that great majority of students are aware of importance of bathing and cleaning tongue as a part of routine hygiene. Significant number of students are having knowledge on importance of hand washing, using private comb and kind of defecation. Relatively, knowledge on basic hygiene method (combined 69 per cent) and importance of brushing twice a day (61 per cent) for oral hygiene found to be less.

Table 2: Knowledge of students on selected hygiene indicators in parentage

Indicators	No. of students having knowledge	Combined percentage
Basic water hygiene method		
Boiling water	284 (73)	69
Filtering through cloth	228 (59)	
Water purifier	287 (74)	
Knowledge on human defecation		
Germs through toilet	378 (79)	87
Kind of defecation	303 (78)	
Knowledge on hand washing		
Hand wash after defecation	337 (87)	87
Hand wash before meals	337 (87)	
Knowledge on bathing	385 (99)	99
Knowledge on oral hygiene		
Tongue clean	384 (99)	80
Brushing teeth	236 (61)	
Use of personal comb	315 (81)	81

4 Knowledge of students on hygiene indicators across background characteristics

Having seen the aggregate proportion of students having knowledge for the given hygiene indicators, in this section, an attempt is made to analyze the knowledge of students across background characteristics of the students. Sex of the students, residence, caste, class, literacy of mother, employment status of father and mother are the prime characteristics considered for the analysis. Such investigation would throw the light on the variation in the knowledge of students, if any across characteristics. The outcome of such analysis will be useful for appropriate/ selective policy framework.

4.1 Students knowledge on general approach for water hygiene methods

By definition water hygiene refers to reduction or elimination of contamination in the water to prevent from water born infectious diseases. Without clean water, basic hygiene practice is not possible (UNICEF). Boiling water, filtering through cloth and purifying water through modern technology are the existing general methods to purify the water. Table 3 shows, among three different asked methods of water hygiene methods, 73 and 74 per cent of students are having knowledge on boiling water and purification through modern technology respectively. Filtering through cloth is a traditional method of water hygiene method and is predominant in such locations where community by and large uses open well. Knowledge on such method found to be relatively less among students. More number of girls having knowledge than boys across all methods. More students of higher class and more students of literate mother having knowledge than their counterpart. Though moderate number of students is having knowledge on different methods, the number of students having knowledge on all the methods found to be poor (37 per cent). Across caste and across employment status of parents there is no definite trend. The relationship between sex of the students and knowledge on all methods, class of the students and knowledge on all methods found statistically significant.

Table 3: Students having knowledge on general approach for water hygiene methods by background characteristics

Characteristics	Boiling water	Filtering through cloth	Modern Technology	Knowledge all methods	p- value
Sex					
Boys (N=211)	148 (70)	118 (56)	149 (71)	67 (32)	0.040
Girls (N=177)	136 (77)	110 (62)	138 (78)	74 (42)	
Total (N=388)	284 (73)	228 (59)	287 (74)	141 (37)	
Residence					
Rural	252 (73)	203 (59)	255 (74)	125 (36)	0.900
Urban	32 (74)	25 (58)	32 (74)	16 (37)	
Caste					
SC (N=101)	81 (80)	57 (56)	68 (67)	34 (34)	0.421
ST (N=32)	21 (66)	17 (53)	21 (66)	9 (28)	
Others (N=255)	182 (71)	154 (60)	198 (78)	98 (38)	
Class					
8th (N=128)	95 (74)	66 (51)	78 (61)	37 (29)	0.007
9th (N=135)	96 (71)	81 (60)	100 (74)	45 (33)	
10th (N=125)	93 (74)	81 (65)	109 (87)	59 (47)	
Literacy of mothers					
Illiterates (N=276)	201 (73)	155 (56)	200 (72)	96 (35)	0.606
Literate (N=107)	80 (75)	70 (65)	863 (77)	43 (40)	
Employment status					
Father					
Working	245 (73)	202 (60)	247 (73)	123 (36)	0.563
Not working	17 (85)	8 (40)	16 (80)	6 (30)	
Mother					
Working	225 (74)	189 (62)	228 (75)	116 (38)	0.124
Not working	52 (73)	32 (45)	49 (69)	20 (28)	

4.2 Knowledge on management of human defecation

Knowledge on importance of clean toilet and closed defecation is crucial from the hygiene perspective. As human faeces contain virus and bacteria, it is important that clean toilet and closed defecation are critical to ensure hygiene. From table 4 it is found that, as a whole knowledge on transmission of germs through toilet is higher than the knowledge on kind of defecation. Students of higher class and students of literate mother are having more knowledge. Across caste and employment status of parents there is mixed result. Class of students and knowledge on type of defecation, literacy of mother and knowledge on transmission of germs through toilet found statistically significant.

Table 4: Knowledge on management of human defecation by background characteristics

Characteristics	Germs transmitted through dirty toilet		kind of defecation for Hygiene: Closed/Open	
	Knowledge	p-value	Knowledge	p-value
Sex				
Boys (N=211)	204 (97)	0.277	163 (77)	0.389
Girls (N=177)	174 (98)		140 (79)	
Total(N=388)	378 (98)		303 (78)	
Residence				
Rural	338 (98)	0.151	267 (77)	0.294
Urban	40 (93)		36 (84)	
Caste				
SC (N=101)	97 (96)	0.547	69 (69)	0.025
ST (N=32)	31 (97)		22 (69)	
Others (N=255)	250 (98)		212 (83)	
Class				
8th (N=128)	125 (98)	0.670	85 (66)	0.000
9th (N=135)	132 (98)		103 (76)	
10th (N=125)	121 (97)		115 (92)	
Literacy of mothers				
Illiterates (N=276)	268 (97)	0.00	204 (74)	0.340
Literate (N=107)	106 (99)		95 (89)	
Employment status				
Father				
Working	238 (97)	0.738	299 (89)	0.834
Not working	20 (100)		18 (90)	
Mother				
Working	300 (98)	0.103	270 (88)	0.591
Not working	68 (96)		61 (86)	

4.3 Knowledge and Practice on hand washing

Hand washing is considered as the universal precaution in preventing the transmission of micro organisms. It is recognized as the most effective and economical way to ensure hygiene. Most of the communicable diseases can be prevented through proper hand washing which takes just few seconds. From the table 5, it can be witnessed that around 90 per cent of the students known the significance of hand washing before meals and after using toilets. There is marginal difference between boys and girls about such knowledge. More percentage of students having knowledge at higher classes than the lower. More children of literate mother found to have knowledge than the children of illiterate mother. There is a gap between knowledge and practice. However gap is more across students in case of hand wash practice before meals (27 per cent) than hand washing after toilet (12 per cent). None of

the relation found statistically significant except sex of the students and practice of hand washing after toilet, employment status of mother and practice of hand washing before meals.

Table 5: Knowledge and Practice on hand washing

Characteristics	Hand washing before meals				Hand washing after toilets			
	Knowledge	p-value	Practice	p-value	Knowledge	p-value	Practice	p-value
Sex								
Boys (N=211)	184 (87)	0.291	100 (47)	0.012	180 (85)	0.09	130 (62)	0.002
Girls (N=177)	153 (86)		105 (59)		159 (90)		138 (78)	
Total (N=388)	337 (87)		205 (53)		339 (88)		268 (70)	
Residence								
Rural	301 (87)	0.714	177 (51)	0.087	302 (88)	0.812	233 (68)	0.134
Urban	36 (84)		28 (65)		37 (86)		35 (81)	
Caste								
SC (N=101)	88 (87)	0.204	57 (56)	0.137	92 (91)	0.481	66 (65)	0.560
ST (N=32)	32 (100)		17 (53)		28 (88)		20 (63)	
Others (N=255)	217 (85)		131 (51)		219 (86)		182 (71)	
Class								
8th (N=128)	107 (84)	0.339	64 (50)	0.223	110 (86)	0.442	84 (66)	0.136
9th (N=135)	118 (87)		67 (50)		114 (84)		100 (74)	
10th (N=125)	112 (90)		74 (59)		115 (92)		84 (67)	
Literacy of mothers								
Illiterates (N=276)	236 (85)	0.777	143 (52)	0.347	239 (87)	0.601	187 (68)	0.516
Literate (N=107)	97 (94)		59 (55)		95 (89)		76 (71)	
Employment status								
Father								
Working	291 (86)	0.446	184 (55)	0.090	296 (88)	0.204	233 (69)	0.833
Not working	18 (90)		7 (35)		16 (80)		15 (75)	
Mother								
Working	267 (87)	0.605	153 (50)	0.042	269 (88)	0.991	206 (67)	0.417
Not working	61 (86)		45 (63)		62 (88)		53 (75)	

4.4 Knowledge and Practice on Bathing

Bathing is recognized as one of the best ways for overall physical hygiene and to ensure emotional wellbeing too. As table 6 shows that 99 per cent of students are having knowledge on importance of bathing therefore across the background characteristics there is no considerable variation. Caste, employment status and knowledge of the student found statistically significant. Similar to knowledge, practice of the students on bathing is also very high (99 per cent) and therefore across the background, there is no visible variation under practice aspect. None of the variable found statistically significant. As a whole knowledge and practice on bathing found to be similar.

Table 6 : Knowledge and Practice on Bathing

Characteristics	Bath			
	Knowledge	p-value	Practice	p-value
Sex				
Boys (N=211)	211 (100)	0.165	208 (99)	0.537)
Girls (N=177)	174 (98)		173 (98)	
Total (N=388)	385 (99)		381 (99)	
Residence				
Rural	342 (99)	0.828	338 (98)	0.346
Urban	43 (100)		43 (100)	
Caste				
SC (N=101)	100 (99)	0.019	98 (97)	0.437
ST (N=32)	31 (97)		31 (97)	
Others (N=255)	254 (100)		282 (99)	
Class				
8th (N=128)	126 (98)	0.558	124 (97)	0.359
9th (N=135)	134 (99)		133 (99)	
10th (N=125)	125 (100)		124 (99)	
Literacy of mothers				
Illiterates (N=276)	274 (99)	0.921	270 (98)	0.683
Literate (N=107)	106 (99)		106 (99)	
Employment status				
Father				
Working	336 (99)	0.023	332 (98)	0.311
Not working	19 (95)		19 (95)	
Mother				
Working	304 (99)	0.471	300 (98)	0.756
Not working	70 (99)		70 (99)	

4.5 Knowledge and Practice of using personal Comb

Comb is one of the largest source that is responsible for the transmission of dandruff from one person to another. The capacity of such transmission for comb is believed to be higher than sharing soap or pillow. Table 7 shows knowledge and practice of use of personal comb. As it is evident from the table, about 81 per cent of students are having knowledge on importance of using private comb. Across sex and residence, students are more or less having same level of knowledge (81 per cent). Among the caste category higher proportion of students from 'others (83 per cent)' having knowledge than say SCs 79 per cent and STs 75 per cent. Furthermore, students from higher classes and children of literate mother are having knowledge than their counterpart. There is no glaring difference as far as numbers of students having knowledge across employment status of parents are concerned. Caste, class of the students and their knowledge aspect found statistically significant. Though knowledge of students is quite high, but their practice is low. Only 22 per cent of students are found to have practice of using private comb. Practice found less among girls (21 per cent) than boys (24

per cent) and less in rural area (22 per cent) than urban area (28 per cent). Further, practice is better among children of working parents than their counterpart. The relationship between sex of the students and their practice (0.001) and caste of the students and practice found statistically significant (0.077).

Table 7 : Knowledge and Practice of using personal Comb

Characteristics	Knowledge	p-value	Practice	p-value
Sex				
Boys (N=211)	172 (82)	0.983	51 (24)	0.001
Girls (N=177)	143 (81)		37 (21)	
Residence				
Rural	280 (81)	0.259	76 (22)	0.686
Urban	35 (81)		12 (28)	
Caste				
SC (N=101)	80 (79)	0.014	26 (26)	0.077
ST (N=32)	24 (75)		9 (28)	
Others (N=255)	211 (83)		53 (21)	
Class				
8th (N=128)	90 (70)	0.001	26 (22)	0.163
9th (N=135)	114 (84)		27 (20)	
10th (N=125)	111 (89)		35 (28)	
Literacy of mother				
Illiterates (N=276)	217 (79)	0.375	64 (23)	0.249
Literate (N=107)	95 (89)		23 (22)	
Employment status				
Father				
Working	272 (81)	0.458	80 (24)	0.67
Not working	16 (80)		3 (15)	
Mother				
Working	248 (81)	0.746	75 (25)	0.379
Not working	59 (83)		12 (17)	

4.6 Students believe brushing twice is good for oral health and students practice

Oral health is a part of general health. It influences overall quality of life also. A good oral and dental hygiene prevents bad breath, tooth decay and gum diseases. A good oral health believed to be having positive impact on life expectancy also. Best way suggested is brushing with tooth paste twice a day and cleaning tongue twice that removes bacteria, food debris and toxin items. Under knowledge on oral hygiene, students were asked ‘how many times that one should brush per day for good oral health?’ and whether tongue has to be kept clean for good oral health?. Table 8 shows students knowledge on brushing and their practice. The proportion of students having knowledge on importance of brushing twice is 61 per cent. More girls, rural students, ‘children from other category’ students of upper classes, children

of literate mother having knowledge than their respective counter parts. Caste of the students, class of the students and their knowledge found statistically significant. Though knowledge of the students found moderate (62 per cent), their practice revealed very poor (22 per cent). Though more girls are having knowledge (66 per cent), there is no difference between boys and girls as far as their practice is concerned (22 per cent). Similarly, there is no difference between rural and urban residence students. Further, same proportion of students from different caste category found to have knowledge. More children of literate mother, and more students of upper class found having knowledge than their counterpart. None of the variable found statistically significant under practice aspect.

Table 8 : Students believe brushing twice is good for oral health and students practice

Brushing Teeth				
Characteristics	Knowledge	p-value	Practice	p-value
Sex				
Boys (N=211)	120 (57)	0.081	47 (22)	0.655
Girls (N=177)	116 (66)		39 (22)	
Total	236 (62)		86 (22)	
Residence				
Rural	213 (62)	0.443	76 (22)	0.925
Urban	23 (54)		10 (23)	
Caste				
SC (N=101)	51 (51)	0.028	22 (22)	0.994
ST (N=32)	15 (47)		7 (22)	
Others (N=255)	170 (67)		57 (22)	
Class				
8th (N=128)	60 (47)	0.002	20 (16)	0.109
9th (N=135)	87 (64)		31 (23)	
10th (N=125)	89 (71)		35 (28)	
Literacy of mothers				
Illiterates (N=276)	160 (58)	0.437	55 (20)	0.080
Literate (N=107)	73 (68)		30 (28)	
Employment status				
Father				
Working	200 (60)	0.61	75 (22)	0.769
Not working	14 (70)		5 (25)	
Mother				
Working	181 (59)	0.424	67 (22)	0.834
Not working	47 (66)		17 (24)	

4.7 Knowledge and Practice on cleaning tongue

Cleaning tongue is a major part of oral hygiene. Table 9 shows proportion of students having knowledge on the importance of tongue cleaning. As a whole great majority (98 per cent) of students having knowledge on tongue and therefore, there is no significant difference across different characteristics of students. The relationship between caste and knowledge found

statistically significant. Speaking absolutely, proportion of students practicing too is quite high (80 per cent). Such practice is found more among girls, students of urban area, SC students, children of literate mother, children of working father and not working mother. None of the variable found statistically significant under practice aspect.

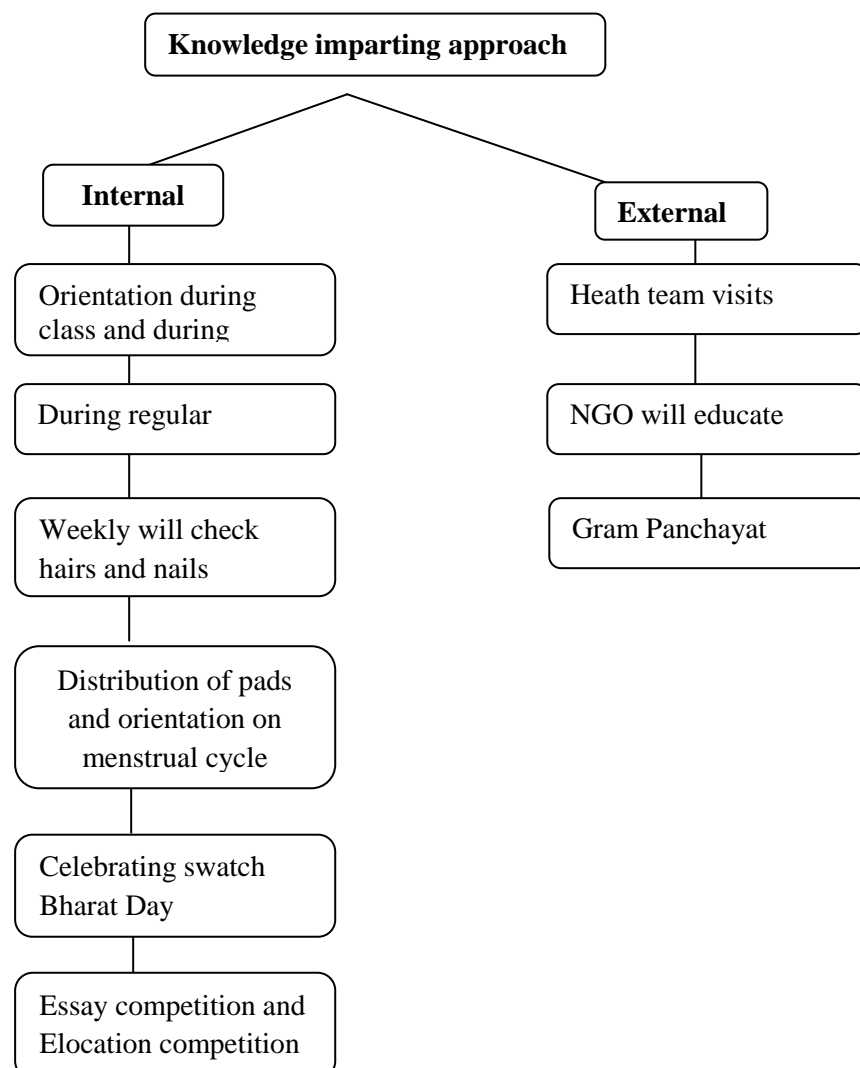
Table 9: Knowledge and Practice on tongue clean

Characteristics	Knowledge	p-value	Practice	p-value
Sex				
Boys (N=211)	208 (97)	0.598	162 (77)	0.232
Girls (N=177)	176 (99)		147 (83)	
Residence				
Rural	341 (99)	0.777	270 (78)	0.159
Urban	43 (100)		39 (91)	
Caste				
SC (N=101)	101 (100)	0.025	88 (87)	0.004
ST (N=32)	30 (94)		25 (78)	
Others (N=255)	253 (99)		196 (77)	
Class				
8th (N=128)	125 (98)	0.091	100 (78)	0.387
9th (N=135)	134 (99)		104 (77)	
10th (N=125)	125 (100)		105 (84)	
Literacy of mothers				
Illiterates (N=276)	274 (99)	0.560	217 (79)	0.517
Literate (N=107)	105 (98)		87 (81)	
Employment status				
Father				
Working	335 (99)	0.914	268 (80)	0.863
Not working	20 (100)		15 (75)	
Mother				
Working	304 (99)	0.519	238 (78)	0.296
Not working	70 (99)		61 (86)	

As a whole knowledge on hygiene found to be satisfactory, however such practice remains a major concern in day to day hygiene routine. Maximum number of students found having knowledge on the importance of daily bathing, tongue cleaning, hand washing before meals, hygiene management of defecation and importance of using personal comb but students found to have relatively lesser knowledge on basic water hygiene methods (combined) and importance of brushing teeth twice a day. Practicing such hygiene routine appears to be a major concern among the students. Hygiene routines such as brushing twice, uses of personal comb, hand washing before meals and after defecation are widely non practiced.

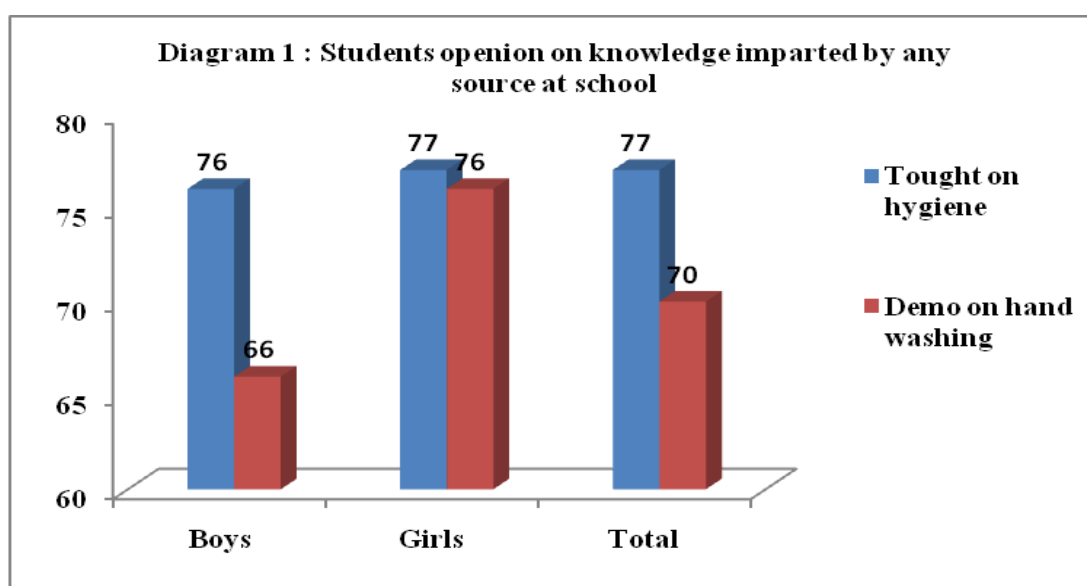
5 Knowledge imparting approaches through schools

Children spend their most of the active time at school, therefore, it is considered as an ideal place for learning and growing up. WHO considered schools are potential source to strengthen the learning of healthy practices. Thus, health education, health services and healthy environment are components of schools. Accordingly heads of the school were asked the way how knowledge of hygiene is imparted to the students. Out of visited 15 schools, we have gathered multiple knowledge imparting approaches from head of the school. In order to ensure uniformity in assessing such knowledge imparting approach, we have retained only such approaches which are commonly practiced approach in all the visited schools. Such approach can be broadly categorized as internal and external approaches as shown in following chart. Internal approaches are such activities which are conducted by the staff of the school, whereas external approaches refer to extension activity of an external agency like NGOs or Gram panchayat to create awareness on hygiene and its practice.



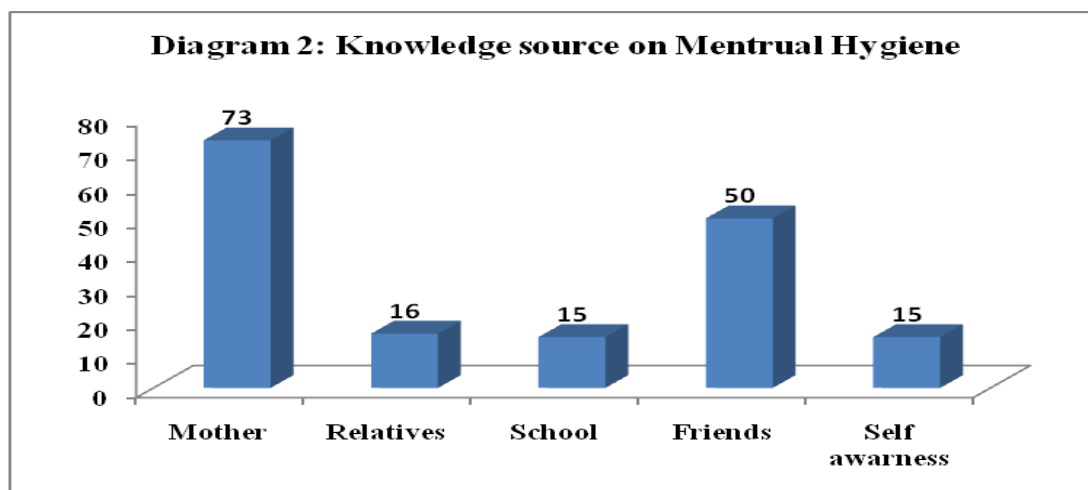
5.1 Impact on general hygiene knowledge

In order to assess the impact of such knowledge imparting approach of the school, question was asked to the students that ‘ever any knowledge is imparted on hygiene at school’ and whether ‘ever demo on hand washing is given at school’? As the diagram 1 shows, about 77 per cent of students said that they have taught on hygiene at school, however only 70 per cent of students reported that they had been shown demo on hand washing at school. The difference between boys and girls in reporting ‘Demo on hand washing’ at school may be inability to understand the asked question or may be because of poor memory or because of absenteeism.



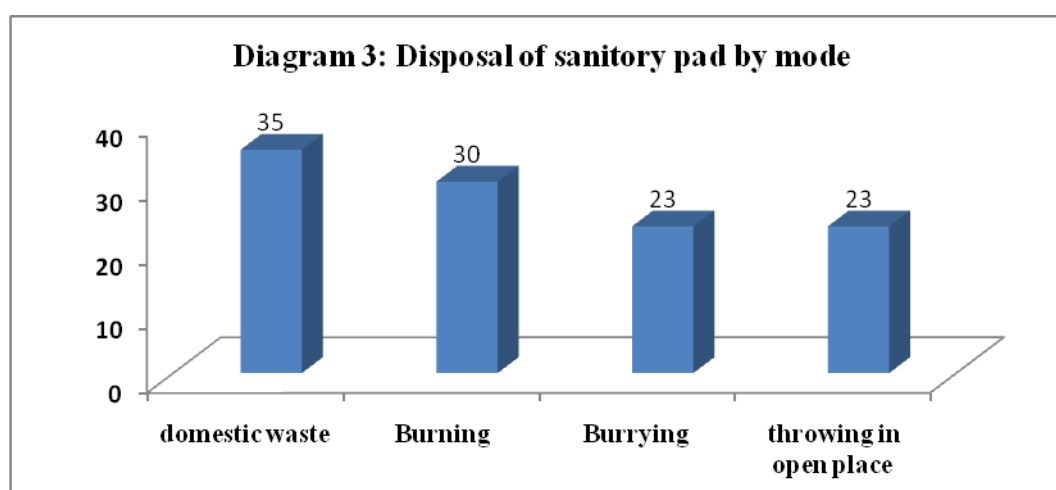
5.2 Impact on menstrual hygiene knowledge

After the assessment of knowledge imparting approaches on general hygiene at school, we made an attempt to know what is the impact of such education is over menstrual hygiene of girls. Two questions are asked for the students. One is on knowledge source of menstrual cycle for students and the other one is on mode of disposal of sanitary pads. From diagram 2, it is clear that, mother is the single (73 per cent) largest source of information for their children followed by friends. In fact least number of students (15 per cent) reported that school education as source of knowledge. This shows that school has not been so effective source of information on menstrual cycle, despite the fact that it is mandatory to distribute sanitary pads in government schools and giving orientation to the students



5.3 Disposal of sanitary pads

The second question is asked on the way of disposal of sanitary pads. Out of many ways to dispose sanitary pads, WHO suggests that either burning or burying is relatively better method to avoid water, air and soil contamination/pollution. In relation to the question, that number of girls reported how 'they dispose sanitary pads' reveals that 35 per cent of girls, dispose it through domestic waste, further, burning, burying and throwing it in open place reported about 30, 23 and 23 per cent respectively. Thus, as a whole disposing practice of sanitary pads among girls is poor. This reveals, despite schooling system claims that they regularly impact the knowledge on hygiene its effectiveness on the knowledge of menstrual cycle may be concluded as less effective.



6 Availability, Utilization and functionality of Sanitation facility at School

6.1 Cleanliness of school and Premises

It is highly essential that keeping the school and its premises clean from the hygiene perspective. Sanitation is best defined as the way in which humans promote healthy living and good health by preventing human contact with waste and other forms of micro organism that cause diseases. Sanitation is a comprehensive term and it means that more than just a toilet. Sanitation can be understood as intervention that reduces human exposure by diseases by providing clean environment in which we live. It involve both behavior and facilities which work together to form a hygiene environment (UNICEF). Therefore availability of proper hand wash facility, urinals and toilet is highly essential.

Therefore in the context of school, we made an attempt to assess cleanliness of class room, quoridar, and floor and school yard through depth observation. The cleanliness of class rooms are categorized as Good, moderate and bad. It's evident from table 10 that, of the visited 15 schools three forth of the schools are having moderate class rooms. The condition of quoridar is very bad in 3 schools, and moderate in 6 schools. The school yard does not have compound wall and therefore cow dung and human faces were very common. Lack of public co operation is a major reported reason for bad school yard.

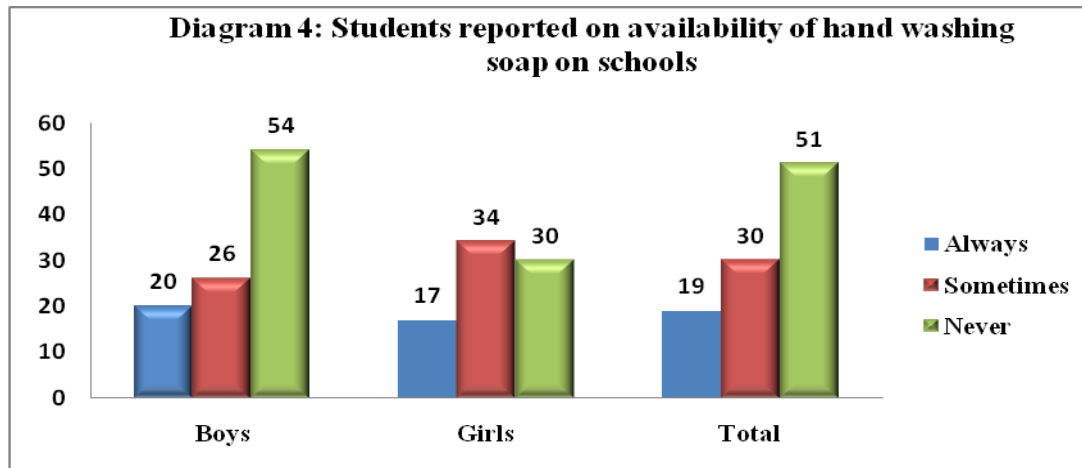
Table 10: Cleanliness of school and Premises

	Good	Moderate	Bad	Total
Cleanliness of class room	4	11	0	15
Cleanliness of quoridor	6	6	3	15
Cleanliness of floor	4	9	2	15
Condition of school yard	5	5	5	15

6.2 Availability of hand washing soaps at schools

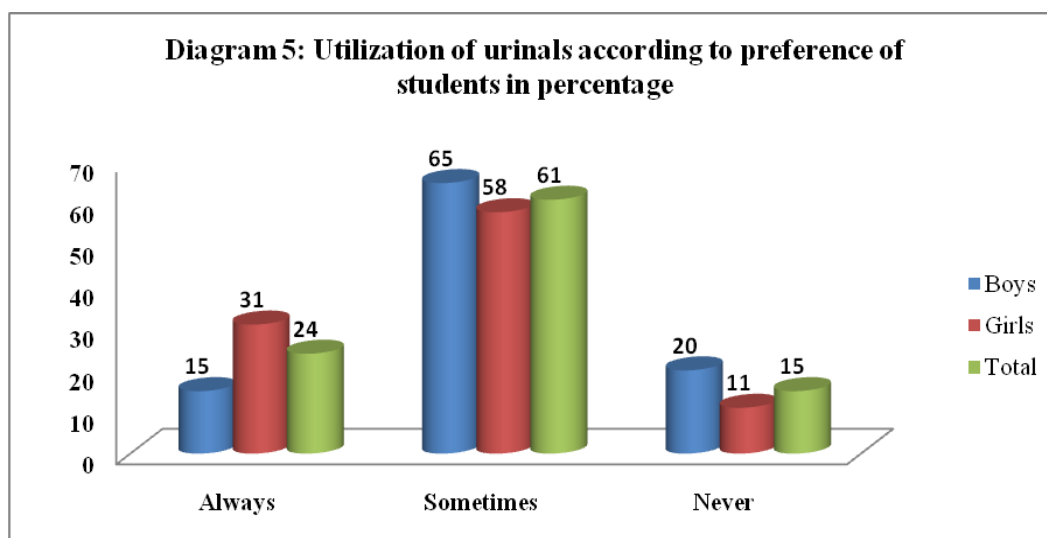
Although term 'hand washing' sounds simple, this act is essential to prevent disease and health of children. Hand washing with soap is considered as a 'complete hand washing' from hygiene view point. As per the hygiene norms, keeping soap is mandatory at every government school. Therefore we asked the students on the status of availability of soap in the visited school. From diagram 4, it is very much evident that only half of the students reported that soap is always available in the school. 19 per cent reported that they never seen soap at school. Therefore it is ascertained here that availability of soap is not at all a routine one. In this connection we also asked the reasons with head of the school. Of the many reasons reported, lack of dedicated fund for sanitary items by the authority and stealing of

soap by the students were the prime causes reported for not availability of soap regularly at schools. Further schools reported to be suffering from lack of staff. Under such circumferences monitoring the sanitary items of students suffers a practical hurdle. As a whole, it can be said that facility aspect in the form of soap for hygiene is very much lacking at the visited school.



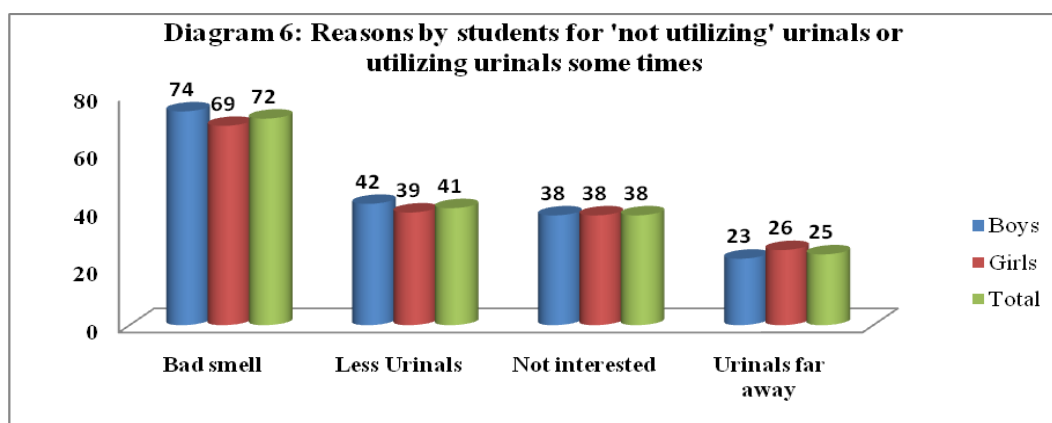
6.3 Utilization of Urinals according to preference

Availability and its utilisation of urinals are prime part of sanitation system and hygiene behaviour of students at school. Of the visited 15 school, 11 schools had urinals for boys, however all the 15 schools had urinals for girls. In order to assess the condition of available urinals and hygiene behaviour of the students wherever, urinals are available we asked, how many of them utilise the urinals. Interestingly, only one fourth of the students found utilising the urinals always, nearly half of them utilising some times and little less than one fourth 'never' utilise the urinals. As a whole, less boys are found utilising toilet than girls (diagram 5).



6.4 Reasons by students for ‘not utilizing’ urinals or ‘utilizing urinals sometimes’

Reasons were asked with students for ‘not utilising’ or utilising ‘urinals only sometimes’. Multiple reasons were given by the students for poor utilisation or never utilisation. Among them ‘bad smell’ of the urinals was the major reason (71 per cent), followed by less urinals (40 per cent) not interested (38 per cent) and urinals far away (30 per cent). This shows that poor maintenance of urinals led for bad smell and students therefore reluctant to utilise urinals. Lack of maintenance grant and poor water supply system of school are the major reported reasons in the school for poor maintenance of urinals.



6.5 Sanitation facility of school-Toilet

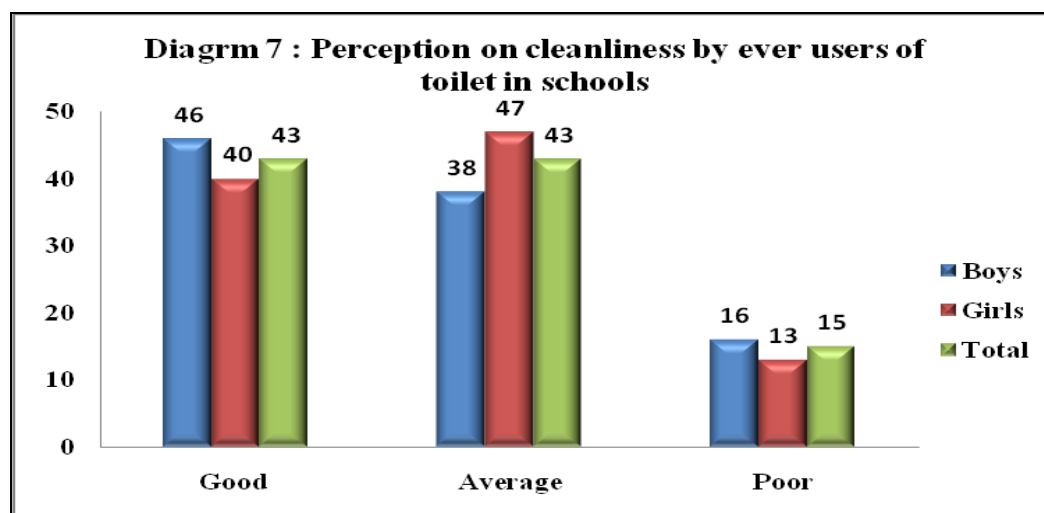
Condition of toilet in terms of doors, ventilators, availability of water and cleanliness of the system is very essential for hygiene practice as well as hygiene behaviour of students. Poor condition of toilet may naturally result in under utilisation or not utilisation of a system. Therefore in order to assess overall condition/ facility of toilets in the visited school we observed the door conditions, ventilators and also status of availability of water. Table 11 shows the condition of the toilet in terms of prior mentioned parameters. Only 5 schools out of 15 are having water within toilet and for the rest water being brought from outside. Similarly condition of doors are not up to the mark in 6 schools. However, all the schools found to have ventilators for toilets.

Table 11: Sanitation facility of school-Toilet

No. of schools	
Availability of water in toilet	
Within Toilet	5
Brought outside	10
Total	15
Condition of doors in toilet	
Good	9
Moderate	5
Poor	1
Total	15
Availability of ventilators in toilet	
Yes	15

6.6 Perception of the ever users on cleanliness of the toilet

The perception of the ever users on cleanliness of the toilet reveals that little less than 50 per cent of students felt as cleanliness is good, and same percentage of students felt it as poor. Lack of expected cleanliness of toilet would likely to affect on the behaviour of students on utilization of toilet in the schools. Limited maintenance fund, inadequate water supply and poor local support are the major problem of reported reasons for poor cleanliness on toilet in the visited schools.



7 Conclusion and discussions

Hygiene knowledge and its practice believed to be greater role to play in preventing communicable disease particularly among children who are the vulnerable group. As a student, a child spends most of its active time at school. At young age, learning on hygiene and its practice likely to continue in their adulthood too. In this context a study about knowledge, practice on hygiene, among school children in Yadgir district reveals that majority of students are having good knowledge on hygiene, however, their practice found to be poor in general.

In case of knowledge on general approach for water hygiene method, more proportion of girls, more proportion of students of higher class and more proportion of children of literate mother having knowledge than their counter part. Some of such conclusions drawn by Motak Palli et. al. More or less similar kind of relationship can be observed in case of knowledge on human defecation, knowledge on use of private comb and knowledge on oral health. However, there is no definite trend could be observed across caste category and employment status of parents.

As far as practice of bathing is concerned, there is no major change across the characteristics of students. In case of use of private comb marginally less proportion of girls are found practicing compared to their counterpart. More children of literate mother and more students of higher class are found practicing better. More or less same trend can be observed for practicing oral health too.

Using combined comb (78 per cent) and not brushing twice (78 per cent) found highest non practiced hygiene behavior, followed by hand washing before meals (46 per cent) and hand washing after defecation (31 per cent). Though brushing twice and hand washing requires, less time and cost effective too, still it is largely neglected.

Of the visited 15 schools three fourth of schools are having moderately clean class rooms. The condition of quoridar is very bad in three schools. School yards were witnessed with cow dung and human facet due to absence or partial compound wall. Such status has undermined the concept of total sanitation in school. This reckless condition certainly results in increased infectious diseases among children. Lack of public cooperation and insufficient maintenance fund are the major reported reasons for the situation. Why not the related officials focus on this issue is a major concern.

Indeed safe drinking water is the first step for the healthy living. Among the visited schools only two schools out of fifteen schools are having filtered drinking water. Lack of regular and timely power supply in the schools made the concept of water purification highly inactive. The supplementary power supply system paralyzed due to insufficient maintenance fund at schools.

Though hand washing is a simple, easier, economical method to ensure hygiene, availability of soap in schools is not consistent. This has hampered completeness of hand washing cycle. As reported by school authority the annual maintenance grant is insufficient to keep soaps at schools, and even if soap is provided, there is an acute problem of theft of soaps by students, which completely defeated the idea of keeping soaps at school to ensure hygiene.

Only one fourth of students utilize the urinals always. Major reasons given by the students for using urinals sometimes or never are bad smell. This poor maintenance of urinals made students rather reluctant in utilization of urinals and thus it has certainly a negative impact on the hygiene behavior of students. Similar kind of perception on cleanliness of toilet by ever users are reported in the case of cleanliness of toilets at school. Nearly half of the students felt that cleanliness of toilets as average.

In short, among the students, knowledge on hygiene found to be reasonably good, however, practice aspect as well as availability of sanitation facility in the school lagging much behind. If the concerned authority is so serious on the implementation of total sanitation concept of the schooling system, it is the high time to make out what is the real problem behind these conditions. Addressing such situation only make public schooling is being safeguarded from poor hygiene conditions and thereby can ensure health of thousands of students of poor section of the society.

8 Recommendations

Periodic intensive personal hygiene education especially on hand wash, brushing teeth and use of private comb is required to ensure good hygiene practice. Mere regular curriculum in the school is not enough.

The impact of school education and orientation found to be poor for safe menstrual practice. The intensity of orientation on menstrual cycle at school required to be enhanced for safe disposal of sanitary pads.

Ensuring cleanliness of urinals and toilets in majority of visited School must be a priority issue, for good hygiene behavior of students. Else student naturally prefer open place for urinals and defecation as well.

Insufficient maintenance grant is a common hurdle found in every school for substandard sanitation conditions. The concerned authority require to pay attention to ensure sufficient fund to be granted at least to maintain basic sanitation facility.

9 Limitations and future scope of the study

Indeed, study considers such students who could read and write Kannada language very well and capable of understanding the questions in a self administered questionnaire. Besides the study focused on government schools with more rural resident students. Therefore it is hard to generalize the findings of the study as such.

Despite, the study made attempt to point out the causes for the gap between knowledge and practice across the hygiene indicators, there is a wide opportunity to go in depth and to draw the pinpoint causes for the gap between knowledge and practice across some of the critical hygiene indicators among the students. Further, studies of this sort, in future can also focus on what exactly the issues that are proved to be an hurdle under public schooling system to realize theory of good sanitation in school and its implementation.

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