Research Article

Practices regarding personal hygiene among government high school students of a rural area in Central Karnataka

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ABSTRACT

Background: Health will affect quality of life, educational achievements, and economic productivity. Childhood behaviors continue in adulthood, especially health-related ones such as personal hygiene practices and habits acquired in childhood. **Objectives:** The objectives of this study were to assess the practices regarding personal hygiene among the government high schoolchildren in rural field practice area of S S Institute of Medical Sciences and Research Institute, Davangere, Karnataka, and to determine the factors associated with it. **Materials and Methods:** It was a cross-sectional study done in two government high schools in Lokikere PHC area in Davangere during January to February 2017. Self-administered questionnaire assessing practices regarding personal hygiene was used. **Results:** A total of 213 students participated in the study, and "Good Hygiene" practices were followed by 42.3% of the students. Girls comparatively had better hygiene practices than boys and higher maternal education had better hygiene practices. Students who had awareness regarding diseases transmitted by poor personal hygiene had better hygiene practices. **Conclusion:** Good hygiene practices were seen in less than half of the students and needed constant health education and reinforcement about personal hygiene to these schoolchildren.

KEY WORDS: Personal Hygiene; Practices; Knowledge; High Schoolchildren

INTRODUCTION

Health is inextricably linked to educational achievements, quality of life, and economic productivity. By acquiring health-related knowledge, values, skills, and practices, children can be empowered to pursue a healthy life and to work as agents of change for the health of their communities.[1]

Since the 1950s, it was acknowledged that to learn effectively children need good health.[2] Research shows that malnutrition as well as parasitic and other infections in primary school-age children cause low school enrolment, high absenteeism, early drop-out, and poor performance.[1,3,4] When health is defined more broadly as a state of complete physical, mental, and social well-being rather than merely the absence of disease,[5] the health benefits of education are easily established. School has a direct effect on the self-esteem and health of its staff and students.[6] This positive effect is particularly significant for girls who as future mothers are more likely to seek prenatal care earlier, give birth to healthier babies and bring them home to healthier environments. In fact, the single most important determinant of a child's health is believed to be its mother's level of education.[7,8] The evidence of the close relationship between health and education supports the drive for promoting health in schools to combine the goals of "Health for All" and "Education for All" through the Global School Health Initiative.[9] Improving schoolchildren health needs behavior change to be accepted and adopted by the children; this is done in schools under hygiene promotion.[10] Basic hygiene refers to practices that help to prevent the

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spread of diseases and maintain health.[11] It involves regular washing of the body, washing the hands when necessary, washing ones clothing, washing the hair, brushing the teeth, cutting the nails, and caring for the gums.[11] Schoolchildren are particularly vulnerable to neglect of basic personal hygiene.[12] The consequences in terms of mortality and morbidity are also more severe in them compared to adults. The WHO reported water, sanitation, and hygiene has the potential to prevent at least 9.1% of the global disease burden and 6.3% of all deaths.[13]

Water, sanitation, and hygiene have two components one technical/structural and other human development components. Technical component includes drinking water, handwashing, toilet, and soap facility. The human development components are activities and practices of children that help to prevent water hygiene-related diseases indirectly providing multiple benefits. India has one of the largest groups of school-going children, especially in rural areas. There are about 1.1 million schools; availability of drinking water is present in 1.03 million (95%) schools. Toilets for girls and boys separately are existing in 1 million and 0.8 million schools, respectively, but availability of water for flushing in boys and girls toilet stands at 27.6% and 31.5%. Percentage of schools with soap for handwashing is merely 12%.[10] Under these conditions, schools and community environment become unsafe places where diseases are transmitted. The improvement in technical component indirectly depends on human development. Minimal personal hygiene is taught in all schools, but the practice of same is lacking. Increased practice increases the demand for the facility to practice. There is a need to gather information about practices and related factors, the lack of information more profound in rural areas. Hence, it was decided to design the present study in our rural field practice area with the following objectives.

Objectives

1. To assess the practices regarding personal hygiene among the government high schoolchildren in rural field practice area of S S Institute of Medical Sciences and Research Institute, Davangere.
2. To determine the factors associated with practices regarding personal hygiene.

MATERIALS AND METHODS

It was a cross-sectional study conducted in government high schools (Class 8, 9, 10) in rural field practice area of S S Institute of Medical Sciences and Research Institute, i.e., Lokikere PHC area in Davangere district, Karnataka, during the period of January to February 2017. There were two schools and both were selected. One school situated in Lokikere village had total strength of 199 and another school in Turchaghatta village had 224 children. A convenient sample of 50% of the total strength in each school was considered for the study. Permission from the institutional ethical review board and school principals was obtained at the beginning of the study. Students not willing to participate and mentally challenged were excluded. Finally, 213 students selected randomly from both the schools participated in the study. A semi-structured self-administered questionnaire consisting of demographic details, including parental education and occupation, awareness about diseases transmitted by poor personal hygiene and practices regarding personal hygiene was administered to the study participants in local language. The questionnaire also included the information regarding school absenteeism and academic performance. There were 10 points asked to assess the hygiene practices, which included (1) brushing teeth twice daily, (2) bathing at least once daily, (3) bathing with soap and water, (4) wearing clean clothes daily, (5) washing hands before and after eating and after defecation, (6) using soap and water for handwashing (7) trimming nails at least once a week, (8) drinking purified water always, (9) use of toilet at home, and (10) use of toilet at school. Correct answer for all these questions was given one mark each and score of 10 is considered as "good hygiene" practices. The data were entered into Microsoft Excel Spreadsheet and analyzed using SPSS v 17 (Trial version) software for frequencies, Chi-square test, and Fischer's exact test. $P < 0.05$ was considered statistically significant.

RESULTS

A total of 213 students participated in the study, of whom 108 (50.7%) were girls and 105 (49.3%) were boys. Their age ranged from 13 to 17 years with average of 14.68 ± 0.93 years. Nearly 80% were BPL card holders; however, about 13% of the students did not answer this question. Many students did not answer for other sociodemographic details such as parents' education and occupation. Table 1 summarizes the frequency distribution of answers to each variable of personal hygiene among the study participants. When asked about the hygiene at home, 155 (72.77%) reported cleaning the house everyday, 157 (73.70%) follow segregation of domestic waste and 99 (46.47%) disposed waste in big dustbin in the area and 97 (45.54%) disposed in a common pit in their area and others just threw outside the house.

Factors Associated with Practice Regarding Personal Hygiene

Girls comparatively had better hygiene practices than boys and higher maternal education ones had better hygiene practices; however, it was not statistically significant as explained in Table 2. No association was found with class of the child, father's education, or socioeconomic status.

Table 3 summarizes that students who had awareness regarding diseases transmitted by poor personal hygiene had better hygiene practices, especially who were aware of

Table 1: Practice of personal hygiene among study participants

Variable	Frequency		Percent
Daily brushing	Twice	163	76.53
	Once	50	23.47
Daily bathing	Once	182	85.45
	Twice	29	13.61
	Sometimes	2	0.94
Material used for bathing	Soap	206	96.71
	Only water	6	2.82
	Not answered	1	0.47
Wearing clean clothes	Daily	194	91.08
	2–3/weeks	13	6.10
	Sometimes	3	1.41
	Weekly once	2	0.94
	Not answered	1	0.47
Handwashing preference	Before food alone	24	11.26
	After defecation alone	11	5.16
	After food alone	4	1.88
	All three mentioned above	174	81.70
Material used for handwashing	Soap	195	91.55
	Only water	18	8.45
Trimming nails	Once weekly	143	67.14
	Within a week	61	28.64
	Sometimes	2	0.94
	More than a week	2	0.94
	Not answered	5	2.34
Use of toilet at home (those who have toilet)	Yes	186	87.32
	No	4	1.88
	Not answered	23	10.80
Use of toilet at school	Yes	202	94.83
	No	5	2.342.83
	Not answered	6	
Filtered/boiled water usage	Yes	149	69.96
	No	58	27.23
	Do not know	1	0.47
	Not answered	5	2.34

diseases transmitted by unclean hands ($P < 0.05$) compared to awareness regarding diseases transmitted by unclean dress, unclean drinking water, and unclean surroundings. About 51% were aware of at least one disease caused by unclean hands and the common correct responses were pain abdomen, vomiting, diarrhea, cholera, and respiratory infections; 57% were aware of at least one disease caused by unclean dress and the common correct response was skin diseases; 35% were aware of at least one disease caused by unclean drinking water and common correct responses were cholera, vomiting, and diarrhea; and 40% reported diseases caused by unclean surroundings such as dengue, malaria, cholera, and respiratory infections. Students having good hygiene practices had comparatively less school absenteeism in the previous month and better scholastic performance in the last academic year or vice versa. The difference in scholastic performance and practice of personal hygiene was statistically significant.

DISCUSSION

Overall, practices regarding personal hygiene and knowledge about ill effects of poor personal hygiene were fairly good in the present study, but complete practices (for all 10 items) were followed by less than half of the students. The present study showed that only 90 (42.3%) students in government high schools of Lokikere PHC area followed good hygiene practices. The proportion of girls and boys was equally distributed in the present study unlike many studies where boys constituted slightly higher than girls.[14,15] Girls had better hygiene practices than boys and students who had awareness regarding diseases transmitted by poor personal hygiene had better hygiene practices. Students with their mothers having better education had relatively better hygiene practices in the present study, however, it was not statistically significant, and the reverse association was found with father's education, proving that maternal education has direct effect on the child's health. Nematian *et al*. conducted study on primary school students[16] and revealed that an illiterate or uneducated mother may be less knowledgeable about teaching her children proper hygiene practices, subsequently leading to increased rates of infection and disease among her children.[16]

A study conducted among high schoolchildren in Mumbai[14] showed that almost 81% students used to take bath regularly, and only 3% students used to take bath every alternate days, which is almost similar to the present study. This study had 89% of students taking bath with soap and water which was less compared to the present study (97%). 31% students brushed twice daily, while the same in our study was 76%. In the same study, 95% used paste for brushing while it was 99% in the present study, 98% washed hands before and after meals and it was around 94% in the present study. Vivas *et al*. study on schoolchildren revealed that 99% of students washed their hands before meal.[17] Most importantly washing hands with soap and water was found in about 87% of students in the present study which was 98% in Ansari and Warbhe study[14] and only 15% in Vivas *et al*. study.[17] Material used for handwashing was soap in only 78% in Ansari and Warbhe study[14] while this was 92% in the present study. However,

Table 2: Association of hygiene practices with sociodemographic factors

Variable	Hygiene		Total (%)	*P* value
	Poor (%)	Good (%)		
Gender				
Girls	59 (54.6)	49 (45.4)	108 (100)	0.350
Boys	64 (61.0)	41 (39.0)	105 (100)	
Total	123 (57.7)	90 (42.3)	213 (100)	
Class				
8	36 (57.1)	27 (42.9)	63 (100)	0.446
9	42 (53.2)	37 (46.8)	79 (100)	
10	45 (63.4)	26 (36.6)	71 (100)	
Total	123 (57.7)	90 (42.3)	213 (100)	
Mother's education				
Up to 10th std	32 (52.5)	29 (47.5)	61 (100)	0.427*
Beyond 10th std	2 (33.3)	4 (66.7)	6 (100)	
Total	34 (50.7)	44 (49.3)	67 (100)	
Father's education				
Up to 10th std	37 (56.9)	28 (43.1)	65 (100)	0.429
Beyond 10th std	14 (66.7)	7 (33.3)	21 (100)	
Total	51 (59.3)	35 (40.7)	86 (100)	

*Fischer's exact test

Table 3: Association of hygiene practices with scholastic performance and knowledge about hygiene-related diseases

Variable	Hygiene practices		Total	*P* value
	Poor (%)	Good (%)		
Knowledge about diseases spread by hygiene				
Absent	114 (59.7)	77 (40.3)	191 (100)	0.091
Present	9 (40.9)	13 (59.1)	22 (100)	
Scholastic performance				
≤70%	50 (71.4)	20 (28.6)	70 (100)	0.005*
>70%	73 (51.0)	70 (49.0)	143 (100)	
School absenteeism in one last month				
No	60 (55.0)	49 (45.0)	109 (100)	0.414
Yes	63 (60.6)	41 (30.4)	104 (100)	
Total	123 (57.7)	90 (42.3)	213 (100)	

*Statistically significant

the score for handwashing was given if the student answered yes for washing hands before food and after defecation in the present study. 91% students said they wore clean clothes everyday and this was 96% in Ansari and Warbhe study.[14] The study conducted in Jammu and Kashmir revealed that only 53% of the students washed hands before eating always, while 94% washed hands after using the toilet always and 94% used soap to wash hands always.[18] Another study among schoolchildren in Rajasthan[19] showed fairly good awareness and practice regarding personal hygiene. It used detailed evaluation of the personal hygiene on a 20 item questionnaire which included details of brushing, bathing, separate soap, separate towel, and cleaning of nails overall percentages were higher compared to the present study for individual variables of personal hygiene.

Some other variables considered as personal hygiene were observed in the present study like 87% of the students used toilet facility at home and 95% used toilet at schools, and 70% used filtered/boiled water for drinking. Toilets were present in both the schools but were not well maintained and no soap availability in the schools, however, continuous water supply was available in the present study. Improving these facilities and continuous education and monitoring by school teachers may improve hygiene practices. Impact of school water, sanitation, and hygiene interventions on school-going children was examined in Kenya. The children who were given interventions regarding hygiene practices had much lesser chances of having infectious diseases in comparison to those who did not receive intervention.[20] The present study revealed 35% students being aware of diseases caused by unclean drinking water while this was 76% in a study by Sibiya *et al*. in South Africa.[21] Most of the students reported cholera, diarrhea, and vomiting in the present study while the other study showed cholera, diarrhea, and typhoid fever. This study had 100% availability of toilets in the schools comparable to the present study, but a study by Noi showed that only 73% of the schools had access to latrines,[22] however, some students were not using toilet at school because they thought toilets were not clean enough which was comparable to the present study. Only 29% of the students followed handwashing practices after using toilet and before eating in rural schools[21] which was much less compared to the present study and handwashing was not associated with gender. Sibiya *et al*.[21] also revealed that 100% of the schools had handwashing facilities in the school, but there was no soap available anywhere comparable to the present study. Two dustbins were available in both the schools and none in the toilet for girls, and the toilets were poorly maintained, which was again comparable with the South African study.[21]

Limitations

The limitations of this study need to be considered. Only two schools were included in the study, the results of which may not be generalizable to whole of rural Karnataka. Since the questions were related to the behavioral aspects, there might be possibilities of social desirability bias since students may

not like to confess not brushing or bathing every day. There might be recall bias with respect to scores of previous academic year or school absenteeism. We analyzed cross-sectional data, so a causal association between improved sanitation and hygiene practices and reduced likelihood infections cannot be established. However, a closed observation periodically and interventions to improve hygiene like health education or appointing separate person to look after hygiene done on a larger population may yield a better research results.

CONCLUSION

Good hygiene practices were followed by less than half of the students in government high schools of Lokikere PHC area in Davangere. Good number of students followed regular hygiene practices correctly like bathing everyday, brushing teeth, and wearing clean clothes, but other aspects of hygiene such as brushing twice daily, drinking clean water, and usage of toilets at home and schools were not satisfactory. Teachers can be used for improving hygiene among schoolchildren by motivating and repeated health education, the efficiency of which has been proved earlier also.[23,24] Health education sessions were given by our team in both the schools at the end of the study.

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