Original Article

Personal Hygiene Among School-Going Children in Morang District, Eastern Nepal

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ABSTRACT

Background: Personal hygiene includes cleanliness of the body and proper maintenance of personal appearance. This study aimed to identify the existing knowledge and practice of personal hygiene among lower secondary level school-going children in Morang, province one, in Eastern-Nepal.

Methods: A quantitative, descriptive study was conducted in selected schools of Morang district, Eastern-Nepal comprising of 400 school children. Data was collected using a self-developed and validated structured questionnaire and observation checklist. Two schools from rural areas and two from urban areas were randomly selected and students from classes 6, 7 and 8 were also randomly selected for the study.

Result: The majority of the students were in the age group 10-15 years (55% in urban areas and 50% in rural areas). Proper handwashing technique was reported by 59.5% of the students from the urban areas and 48.5% from rural areas. The majority of the students used toothpaste for brushing teeth in urban (79%) and rural areas (76%) respectively. For hand washing, 52% used soap in the urban areas whereas only 26% used soap in the rural area. Although knowledge and practice of personal hygiene were adequate, a significant gap was noted between them in the urban and rural areas ($p<0.05$).

Conclusion: There was a significant gap between the knowledge and practice regarding the personal hygiene among the respondents both in the rural and in the urban areas. Adequate number of educational interventions has to be encompassed in the schools to increase the awareness among the students regarding this subject.

Keywords: hand disinfection, soaps, schools, students, toothpastes

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INTRODUCTION

Personal hygiene includes cleanliness of the body and proper maintenance of personal appearance including clothing.[1,2,3] During the school-going period, children learn to become productive members of the peer group.[4] Children do not naturally understand the importance of personal hygiene maintenance.[5] They learn about it from their family and school. They usually need help and support of their parents until they are old enough to maintain on their own.[6]

Good hygiene practices prevent or minimize infectious diseases and, parasitic infestations as well as teasing of kids by others[7,8,9] which may harm their self-esteem and make them even more negligent towards themselves.[10,11,12] A recent study conducted in India concluded that poor sanitary conditions and hygiene practices were also associated with the stunting.[13] Likewise morbidity and undernutrition were significantly higher in the group with poor personal hygiene in another study.[14] Cavities and gum diseases are caused by neglected oral hygiene, which can lead to premature loss of teeth as well.[15,16]

Children spend most of their time in school which is an ideal place for learning hygiene practices.[11,9,17] Children are likely to maintain and ensure its sustainability if implemented from the school.[9,11,13,18] But scanty information is available regarding the personal hygiene status of children on a national and provincial level in our country. This prompted the researcher to undertake the present study and to identify the gap between knowledge and practices in school-going children of Morang district, Province 1, Nepal.

MATERIAL AND METHODS

A descriptive, quantitative study was undertaken and approval for it was obtained from the Research center, Purbanchal University. This study was carried out from 2015 - 2016 in Morang district, Province 1, Nepal. Two resource centers (short Kendra) were randomly selected out of 17 resource centers of Morang district, Province 1. Resource centers are the local governing bodies for 5-7 government schools of the area where progress reports, problems and any other issues relating to the schools are discussed and addressed. Two schools from rural areas and 2 from urban areas were selected randomly from the selected resource centers (short Kendra). Random selection was done by using the lottery method. Thereafter**, s**tudents of classes 6,7 and 8 were selected for the study from all the schools randomly.

The sample size was calculated using formula n=z^2*p*q/d^2 where n is the minimum number of respondents, p is the estimated proportion of personal hygiene knowledge and practice from different studies expressed as a decimal which is considered 50%, hence p=0.5, q=1-p, i.e., 0.5, z is the standard variation corresponding to 95% confidence level which is 1.96 and d is the level of permissible error, i.e., 0.05. So, the total sample size calculated was 384 but considering non-response rate, 400 samples was considered as the final sample size. Two hundred students were selected from the rural areas and 200 students from the urban areas were selected. They were randomly selected using the roll numbers from the class. Informed consent was taken from the parents of each student. Formal permission for the study was taken from the respective class teacher and the principal of each school. From both the urban and the rural schools; 68 students from class 6, 66 students from class 7 and 8 each were taken randomly using the lottery method. Thus, there were total of 200 students, from each rural and urban area**.** A general assessment of personal hygiene was also made for other students studying in class 6,7 and 8 who were not included in the study.

The subjects were made to sit comfortably. A good rapport was established with the children. No prior information regarding the test was given to the subjects. A structured questionnaire for the assessment of knowledge level and an observational checklist to assess practice on personal hygiene were used. The knowledge questionnaire was given to the students for assessment of their knowledge regarding personal hygiene. The knowledge questionnaire consisted of 15 questions with responses either “Agree” or “disagree/ don’t know”. Each “Agree” response

was given score a "1" and disagree was given a score "0". Hence maximum score for knowledge was 15. When the knowledge score was less than 8 it was categorized as inadequate and above 8 as adequate. For assessment of the practice of personal hygiene, proforma developed by the researcher was used and assessment was done via checklist by the investigators.

There was total 7 categories for assessment of practice. A score of 4 or more was categorized as adequate whereas less than 4 was inadequate. However, for comparison of the gap between knowledge and practice, mean knowledge of only 7 categories similar to practice were taken into consideration and a score of 4 or more was categorized as adequate whereas less than 4 was inadequate. Both the knowledge and practice questionnaires were validated with the consultation of experts and pretested in 10% of the sample size for reliability and validity. The sample used for pretesting were excluded from the final study. Data were entered in Microsoft Excel and data analysis was done using descriptive and inferential statistics. Mean, percentages, standard deviation and student t-test were used for data analysis. SPSS 16.0 version was used for data analysis at $p<0.05$.

RESULTS

The majority of the respondents in both urban and rural areas (55% and 50%) were in the age group 10-15 years. Similarly, most of the participants in both the urban and rural areas were females (52% and 51%) (Table 1).

Only 27% of respondents from the urban areas and 17% from rural areas knew the importance of brushing teeth daily. The majority from urban areas (71%) knew trimming of nails whereas 52% from the rural areas knew about it. There were 7.5% of the respondents in the rural areas and 3% in urban areas who didn't know washing hands after defecation. The majority of the respondents from both areas reported that they knew washing hands before eating. The knowledge regarding the use of handkerchief to cover mouth while coughing or sneezing was present in 22.5% participants from urban areas and 19.0% participants from the rural areas (Table 2).

About four fifth (79%) of students in the urban areas and about three fourth (76%) of students in the rural areas used toothpaste for brushing teeth (Table 3). Use of finger to clean the teeth instead of toothbrush was found in 20% of the participants from the urban areas and 19.5% of the participants from the rural areas.

More than half of the participants in the urban area did not have sweat stink (51%) and had clean hands (51.5%) whereas this figure was lesser in the rural areas. Slightly less than one-third of the participants in urban areas had clean teeth (32%) whereas more than one-fourth of the participants from the rural areas had clean teeth (28%). Less than half of the participants from both urban and rural areas had the presence of trimmed nails, tidy hair, clean clothes and clean face. (Table 4)

Though there was adequate knowledge and practice in both the rural and urban areas regarding personal hygiene, there was a significant difference between knowledge and practice among students from both urban and rural areas at $p<0.05$ (Table 5).

Table 1: Demographic characteristics of respondents

Variables	Category	Urban Percentage (%)	Rural Percentage (%)
Age (in years)	<10	48 (24)	56 (28)
	10-15	110 (55)	100 (50)
	>15	42 (21)	44 (22)
Gender	Male	96 (48)	98 (49)
	female	104 (52)	102 (51)

Table 2: Knowledge regarding personal hygiene of the school-going children

	Response	**Urban**		**Rural**	
SN	Activities	Yes (%)	No (%)	Yes (%)	No (%)
1	Bathing daily	72 (36.0%)	128 (64.0%)	35 (17.5%)	165 (82.5%)
2	Brushing daily	54 (27.0%)	146 (73.0%)	34 (17.0%)	166 (83.0%)
3	Trimming of nails of hands and feet regularly	142 (71.0%)	58 (29.0%)	96 (48.0%)	104 (52.0%)
4	Hair cut regularly	150 (75.0%)	50 (25.0%)	130 (65.0%)	70 (35.0%)
5	Wash clothes regularly	148 (74.0%)	52 (26.0%)	105 (52.5%)	95 (47.5%)
6	Washing face daily	200 (100%)	0 (0.0%)	198 (99.0%)	2 (1.0%)
7	Washing of hands before eating	152 (76.0%)	48 (24.0%)	145 (72.5%)	55 (27.5%)
8	Washing of hands after defecation	194 (97.0%)	6 (3%)	185 (92.5%)	15 (7.5%)
9	Washing of undergarments daily	95 (47.5%)	105 (52.5%)	67 (33.5%)	133 (66.5%)
10	Sweeping of house daily	181 (90.5%)	19 (9.5%)	133 (66.5%)	67 (33.5%)
11	Eating fresh food	140 (70.0%)	60 (30%)	136 (68.0%)	64 (32.0%)
12	Covering of leftover food	95 (47.5%)	105 (52.5%)	55 (27.5%)	145 (72.5%)
13	Keeping handkerchief on mouth while coughing	45 (22.5%)	155 (77.5%)	38 (19.0%)	162 (81.0%)
14	Spit anywhere in the surroundings	84 (42.0%)	116 (58.0%)	105 (52.5%)	95 (47.5%)
15	Washing hands regularly	97 (48.5)	103 (51.5)	99 (49.5)	101 (50.5)

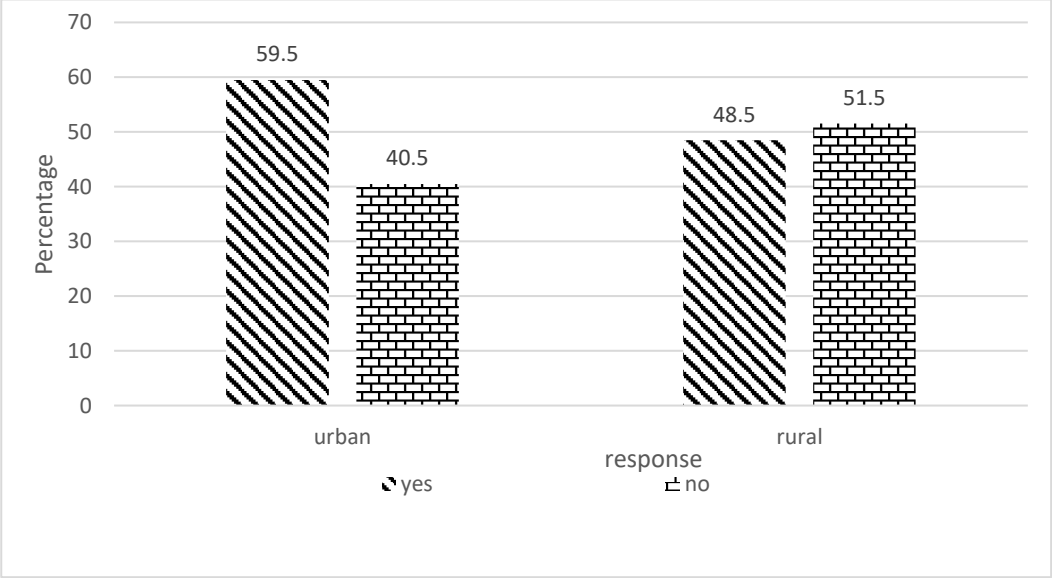

Fig 1: Knowledge regarding technique of hand washing (N=400)

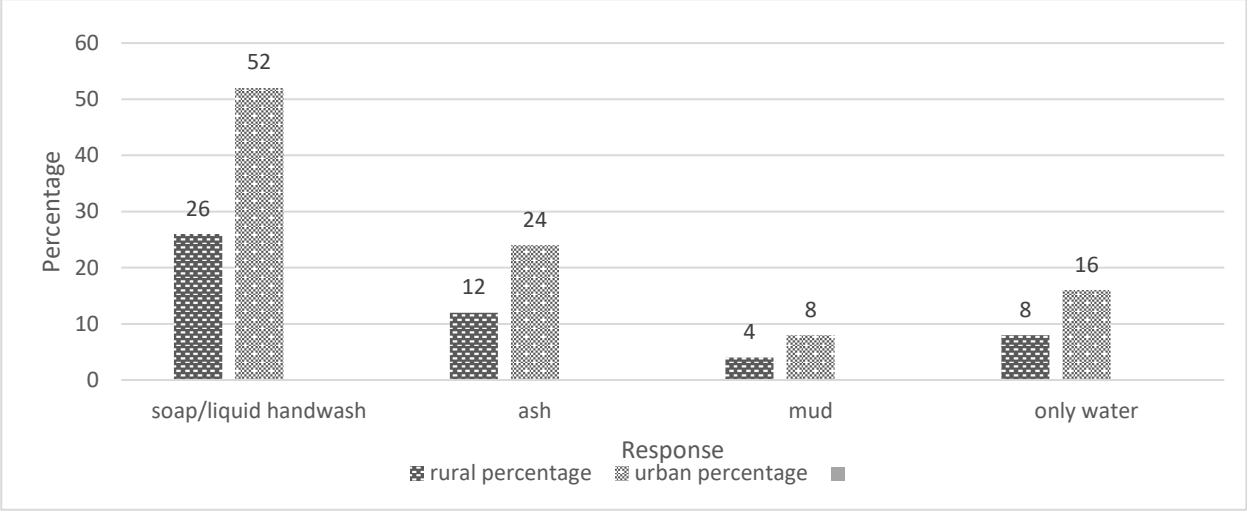

Fig 2: Means used for hand washing (N=400)

Table 3: Means of brushing teeth

SN	Means of brushing teeth	Urban schools Frequency (%)	Rural schools Frequency (%)
1	By finger	80 (20)	78 (19.5)
2	By toothpaste	316 (79)	304 (76)
3	By other means	4(1)	18 (4.5)

Table 4: Practice of personal hygiene among the school going children

SN	Activities	Urban		Rural	
		No. of students	Percentage	No. of students	Percentage
1	Trimmed nails	88	44	65	32.5
2	Clean teeth	64	32	56	28
3	Tidy hair	75	37.5	67	33.5
4	Absence of sweat stink	102	51	84	42
5	Clean clothes	96	48	63	31.5
6	Clean hands	103	51.5	93	46.5
7	Clean face	88	44	73	36.5

Table 5: Gap between knowledge and practice

Variables	Knowledge score Mean±SD	Practice score Mean±SD	p-value
Urban area	6.7±1.6	4.3±1.1	0.002*
Rural area	6.5±1.5	4.2±1.2	0.001*

*Independent t- test, *significant at p<0.05*

DISCUSSION

In the present study, the majority of the respondents were of the age group 10-15 years, whereas, 48% and 49% of the respondents were male in the urban and rural area respectively which is consistent with the findings of other studies conducted in different parts of Nepal and India.[1,5,4, 19,20] Thirty six percent of participants from the urban areas and around 17% of them from the rural area reported bathing regularly. Only 27% and

17% of students stated about brushing teeth daily which is very less in comparison to other studies conducted by Minamoto K, et and Ghanim M, et al al in Bangladesh.[17,19] About 71% and 52% of the respondents reported trimming of nails regularly in the urban and rural areas respectively which isn't consistent with the findings done in Rajasthan and Ethiopia.[1,21]

Similarly, in the present study, more than 70% of the respondents in the urban area reported washing clothes regularly which isn't consistent with the findings in India,[1,22] which might be because of the availability of adequate water in the Morang district Nepal. Only 52.5% of the respondents reported washing clothes regularly in the rural area. The majority of the respondents in both areas were aware of regular hair trimming. About 75% of the respondents from the urban area and 65% from the rural areas were aware of regular hair trimming. This indicates that the knowledge regarding the grooming of hair was adequate in the study population in both the urban and rural areas. Almost all of the respondents from the urban area reported washing face daily whereas, a negligent number i.e., 1% of the respondents from the rural areas reported not washing face at least once a day. These findings are consistent with other studies.

The majority of the respondents in the present study reported washing of hands before meals (76% in rural areas and 72.5% in urban areas) which is consistent with the studies from Ethiopia.[21] The considerably higher frequency of handwashing before meals among Nepalese children may be due to the Nepalese cultural tradition and ceremonial practice of washing hands before meals or the desire for clean, fresh hands before eating. However, only 52% and 26% of students from urban and rural areas who washed their hands reported using soap. This is similar to the study done in Colombia and Turkey.[23,24]

Washing hands after defecation is one of the most effective ways to prevent gastrointestinal parasitic infections.[7,21,12] In the present study, 92.5% and 97% of the respondents from rural and urban areas respectively reported hand washing after defecation which is a good aspect of this study. This finding is similar to the other studies conducted in India and Colombia.[5,23] Present study findings show that 52% of the respondents use soap/liquid handwash for washing hands in rural area. The low frequencies of handwashing with soap (26%) in rural area may be attributed to the lack of soap in school and at home. Soap, water and latrines are essential for proper hygiene practices in schools. Those that had soap and water were three times more likely to wash their hands before eating or after using the toilet.[23]

The actual practice of personal hygiene among the respondents was also assessed through observation. It was assessed in seven different parameters viz trimmed nails, clean teeth, tidy hair, the stink of sweat absent, clean clothes, clean hands and clean face. The majority of the respondents in the urban area had an absence of stink of sweat (51%), clean hands (51.5%) whereas other parameters of the practice of personal hygiene were still lacking in the rural area. This might be because of the lack of adequate resources needed for the maintenance of good hygiene and lack of knowledge among the family members regarding the importance of hygiene practices, although these aspects were not assessed in the present study.

To identify the gap between knowledge and practice, total mean scores of the same parameters that were used for assessment of practice were considered, hence the total score of knowledge was considered as 7 for comparison of scores of knowledges and practice. There was adequate knowledge as well as practice regarding maintenance of personal hygiene in both areas, although it is still lacking in many areas. The present study also concluded that there was a gap between knowledge and practice of maintenance of personal hygiene among the students, at $p<0.05$ in both urban and rural areas respectively. Proper knowledge is necessary for the practice of proper hygiene, but the students who reported good knowledge of personal hygiene had poor practice in comparison to the knowledge. This might be because of lack of motivation, supervision by the parents and teachers, inadequate knowledge regarding the importance of maintaining hygiene

and rush to play with friends. Overall, the study findings are consistent with the previous studies that have documented knowledge and practices of hygiene among school children in developing countries.[7,20,23]

CONCLUSION

Overall, the knowledge regarding personal hygiene among school children is adequate in both the urban areas and rural areas. Similarly, knowledge about the techniques and methods of hand hygiene is still lacking in both urban and rural areas. Although the parameters on knowledge and practice both are adequate, the observation of personal hygiene shows that the actual practice is lagging. There is a statistically significant gap between knowledge and actual practice of personal hygiene among the respondents in both areas.

Strengths of the study: Sufficiently larger sample size and simple random sampling has been used both for the selection of resource centers as well as the schools and students. Both rural and urban areas are compared. Knowledge as well as practice parameters are assessed. So, the research has greater applicability.

Limitations: Only two schools each from the rural and urban areas of Morang district of province no. 1 were taken and a few sociodemographic profiles of students were only considered. Hence association of those profiles with the knowledge and practice couldn't be assessed.

Implications for practice: The educational interventions in the schools regarding personal hygiene, proper instruction and strict assessment of personal hygiene by the school teachers have to be done in the schools. An adequate number of educational interventions has to be encompassed in the schools to increase the awareness of the school students regarding this aspect. The school teachers also have to be provided adequate training regarding the assessment of hygienic measures of the students and the importance of maintaining personal hygiene, so that the students will maintain hygiene measures because of the fear of teachers also. Personal hygiene assessment should also be a regular part of school activities, using the results from the research findings.

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