

Personal Hygiene Practices among School Children Residing In Urban Slums: A Cross-Sectional Study

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Abstract:

Personal hygiene is a major factor in children's health and an important tool in the prevention of communicable diseases, especially in urban slum communities where poor sanitation and overcrowding create health risks. The present community-based cross-sectional study was undertaken to analyse the personal hygiene habits among 210 schoolchildren aged 11-16 living in selected urban slums and to find the socio-demographic correlates of personal hygiene practices. Data were collected using a pretested structured questionnaire on hygiene behaviors and socio-demographic variables, followed by a physical examination. Data were analysed by SPSS version 26.0. Associations between variables were determined by chi-square testing. The results demonstrated that most participants had satisfactory hygiene behaviors such as handwashing after toilet use (74.3%), daily bathing (70.5%), regular hair washing (66.7%), nail clipping (65.2%) and consistent usage of footwear outdoors (80.5%). However, relatively lesser adherence was reported for handwashing with soap before meals (56.2%), brushing teeth twice daily (59.0%), wearing clean socks (45.2%), and using a handkerchief while coughing or sneezing (52.9%). Overall hygiene behaviors were substantially associated with parental education and children's age ($p < 0.05$), while gender was not significantly connected to hygiene behaviors. The study shows the positive role of parents' education on children's cleanliness behaviors and stresses the need to expand school-based health education, improve water, sanitation and hygiene (WASH) facilities and promote active parental participation. These treatments have the potential to increase healthy behaviors, avoidable illnesses, and general well-being of children living in underserved urban neighborhoods.

I. Introduction

Personal hygiene is the practice of cleaning and grooming parts of the body to preserve health and well-being. Good hygiene practices such as frequent hand washing, bathing, oral hygiene, nail cutting and wearing clean clothes are vital to prevent communicable infections in children. These practices are really crucial to have healthier growth, higher school attendance and better quality of life.

Children in urban slums are especially prone to poor hygiene conditions because of overcrowding, lack of sanitation facilities, unsafe water supply and lack of health awareness. These environmental and socio-economic factors increase the risk of diarrhoeal disorders, respiratory infections, skin problems, intestinal parasite infections and other preventable diseases.

Schools can educate about appropriate hygiene habits. Teachers, parents and health specialists can assist build healthy practices for life. Therefore, information on existing standards of hygiene practices among school students is very important for planning targeted health education initiatives.

This study was an attempt to examine the personal hygiene habits among school pupils living in urban slum communities and to find out the association of socio-demographic characteristics with personal hygiene practices.

II. Review of Literature

Personal hygiene is well known to be a basic component of child health and an important factor in the prevention of communicable diseases in school-age children. Studies in India and other developing nations have shown the importance of hygiene habits, parental education, school health activities and environmental circumstances for the health of children.

Ranga and Majra (2020) conducted a comprehensive community-based cross-sectional study on 1462 school pupils of Haryana. The study showed that cleanliness practices improved with increasing age, female gender, better parental education and higher socioeconomic level. The youngsters from underprivileged families showed a significant deficiency in hand washing with soap, oral care and nail care. The authors emphasized the need for comprehensive school health programming and the involvement of parents in the promotion of hygiene.

Mahajan et al. (2020) evaluated hygienic practices among school students living in an urban slum of Pune. Most of the respondents had ordinary cleanliness practices and a tiny percentage exhibited good hygiene behavior. The desired levels of daily bathing, hand washing with soap and oral hygiene behaviors were not achieved. Parental education was statistically significantly associated with hygiene behaviors, suggesting that parents play a crucial role in molding children's health behaviors.

Khawa et al. (2021) investigated knowledge and practices about personal hygiene among students of primary school and found that whereas the level of awareness was usually adequate, there were still relevant gaps in regular handwashing, oral hygiene and nail care. The authors proposed to strengthen school health teaching, improve WASH (Water, Sanitation and Hygiene) infrastructure and active involvement of the parents in promoting hygiene behaviors among school children.

Shaw et al. (2025) conducted a study on personal hygiene behaviors among school children in West Bengal. They found that frequent handwashing, availability of sanitation facilities and parental supervision were important factors influencing hygiene behavior. School children in superior hygiene facilities were better at hygienic behaviors than children in resource-poor settings.

Rajagopal et al. (2026) evaluated personal hygiene knowledge, attitude and practices among urban and rural school pupils of Mysore. The study indicated that urban students had higher understanding and practices of hygiene compared to the rural students, mainly due to better access to sanitation facilities and health education. The authors stressed the need to expand school health programs and behavioral interventions in underprivileged communities.

III. Materials and Methods

A community based cross-sectional study was conducted among 210 school pupils of 11-16 years of age dwelling in selected urban slum regions. After gaining clearance from the Institutional Ethics Committee and the pertinent school authorities, the study was conducted for a period of three months. Written informed consent was obtained from the parents or guardians of the participating children and assent was sought from the children prior to data collection.

The study subjects were picked by simple random sampling technique from the government and aided schools in the selected metropolitan slums. All children present at the time of data collection and willing

to participate were included in the study. Seriously ill children who were missing during the survey were omitted.

A standardized and pre-tested interviewer delivered questionnaire was used for data collection after studying the relevant literature. The questionnaire was divided into three sections: socio-demographic characteristics; personal hygiene practices and; physical examination findings. Socio-demographic data collected were age, gender, religion and parents' educational position. Personal hygiene behaviors were examined by questions about washing hands before meals and after using the bathroom, usage of soap, bathing, hair washing, wearing clean clothes and socks, brushing teeth, nail trimming, and hair grooming. All practices were recorded on four response categories: Always, Frequently, Sometimes and Occasionally. A composite hygiene score was computed based on the replies and categorized as extremely poor, poor, average and good hygiene habits.

Trained investigators physically examined each subject to assess the cleanliness of hair, nails, face, ears, eyes, clothing and general appearance using a standardized observation checklist. After the survey, the students and teachers were provided with relevant health education on personal cleanliness.

The obtained data were coded and imported into Microsoft Excel and analyses using Statistical Package for Social Sciences (SPSS) version 26.0. Descriptive statistics like frequencies, percentages, means and standard deviations were employed to summaries the data. The associations between cleanliness practices and socio-demographic characteristics were assessed using chi-square test. Statistical significance was established at p-value < 0.05.

Table 1. Socio-demographic Characteristics of Participants (n = 210)

Characteristic	Category	Frequency	Percentage
Age (years)	11–13	112	53.3
	14–16	98	46.7
Gender	Male	118	56.2
	Female	92	43.8
Religion	Hindu	184	87.6
	Muslim	26	12.4
Father's Education	Illiterate	24	11.4
	Primary	58	27.6
	Secondary	76	36.2
	Higher Secondary & Above	52	24.8
Mother's Education	Illiterate	30	14.3
	Primary	66	31.4
	Secondary	70	33.3
	Higher Secondary & Above	44	21

Interpretation of Table 1

Table 1 shows the socio-demographic characteristics of the 210 school children enrolled in the study. 112 (53.3%) were between 11-13 years of age and 98 (46.7%) were between 14-16 years of age. The participants were equally distributed in both age groups with a little majority of younger teenagers.

Of the total participants, 118 (56.2%) were male and 92 (43.8%) were female. There was a somewhat higher number of boys than girls in the study.

The bulk of the study participants were Hindus (87.6%, n=184) followed by Muslims (12.4%, n=26) which was a reflection of the study location.

The analysis of the educational status of the fathers found that 76 (36.2%) had completed secondary education followed by 58 (27.6%) who had completed primary education. Moreover, 52 (24.8%) were of higher secondary education and above, while 24 (11.4%) were illiterate. These results indicate that the majority of fathers had at least some level of formal education.

Similarly, education status of women revealed that 70(33.3%) completed secondary education, 66(31.4%) completed primary education and 44(21.0%) completed higher secondary education or above. Illiteracy was found among just 30 moms (14.3%). Overall, the data point out that most of the parents had primary or secondary education which may favorably influence knowledge and adoption of healthy hygiene habits among their children.

Table 2. Personal Hygiene Practices among School Children (n = 210)

Personal Hygiene Practice	Always n (%)	Frequently n (%)	Sometimes n (%)	Occasionally n (%)
i. Wash hands before meals	129 (61.4)	48 (22.9)	21 (10.0)	12 (5.7)
ii. Wash hands with soap before meals	118 (56.2)	52 (24.8)	26 (12.4)	14 (6.7)
iii. Wash hands after using the toilet	156 (74.3)	34 (16.2)	13 (6.2)	7 (3.3)
iv. Take a bath daily	148 (70.5)	39 (18.6)	16 (7.6)	7 (3.3)
v. Wash hair regularly	140 (66.7)	42 (20.0)	22 (10.5)	6 (2.8)
vi. Wear clean clothes daily	132 (62.9)	46 (21.9)	24 (11.4)	8 (3.8)
vii. Wear clean socks daily	95 (45.2)	56 (26.7)	41 (19.5)	18 (8.6)
viii. Brush teeth twice daily	124 (59.0)	43 (20.5)	27 (12.9)	16 (7.6)
ix. Trim nails regularly	137 (65.2)	38 (18.1)	24 (11.4)	11 (5.2)
x. Comb hair daily	151 (71.9)	36 (17.1)	17 (8.1)	6 (2.9)
xi. Use footwear while going outdoors	169 (80.5)	24 (11.4)	10 (4.8)	7 (3.3)
xii. Use a handkerchief while coughing/sneezing	111 (52.9)	45 (21.4)	35 (16.7)	19 (9.0)

Table 2 shows the personal hygiene practices of the 210 participating school children. The majority of children (61.4%) said they always washed their hands before meals and 56.2% of children always used soap while washing their hands. More than three-fourths (74.3%) always cleaned their hands after using toilet, suggesting satisfactory understanding regarding sanitation habits.

The individuals reported daily bathing (70.5%) and regular hair washing (66.7%). Approximately 62.9% of the students wore clean clothes every day and 45.2% wore clean socks regularly. In terms of dental hygiene, 59.0% of the youngsters washed their teeth twice a day and 65.2% said that they kept their nails trimmed regularly. The majority of the students (71.9%) brushed their hair every day, and 80.5% always wore shoes when going outside, thus minimizing the risk of parasite and skin diseases. However, just 52.9% always used a handkerchief when coughing or sneezing, showing room for improvement in respiratory hygiene practices.

Overall, the results indicate that although most school students exercised appropriate personal hygiene behaviors, a large proportion of them practiced these behaviors at times or inconsistently. These observations necessitate the continuation of school-based health education, parental guidance and regular hygiene awareness programming to further promote healthy hygiene practice among the youngsters.

Table 3. Association between Selected Socio-demographic Variables and Overall Hygiene Practices among School Children (n = 210)

Variable	Category	Adequate Hygiene Practice n (%)	Inadequate Hygiene Practice n (%)	χ^2 value	p value
Mother's Education	Illiterate	20 (66.7)	10 (33.3)	12.84	0.002*
	Primary	57 (86.4)	9 (13.6)		
	Secondary	65 (92.9)	5 (7.1)		
	Higher Secondary & Above	42 (95.5)	2 (4.5)		
Father's Education	Illiterate	16 (66.7)	8 (33.3)	10.67	0.005*
	Primary	48 (82.8)	10 (17.2)		
	Secondary	69 (90.8)	7 (9.2)		
	Higher Secondary & Above	51 (98.1)	1 (1.9)		
Age (Years)	11–13	92 (82.1)	20 (17.9)	4.76	0.029*
	14–16	92 (93.9)	6 (6.1)		
Gender	Male	100 (84.7)	18 (15.3)	1.52	0.217
	Female	84 (91.3)	8 (8.7)		

* Statistically significant at $p < 0.05$

Overall Hygiene Practices among the Study Participants Table 4 presents the association between selected socio-demographic factors and overall hygiene practices among the 210 study participants. Mother's education was found to be statistically significantly associated with hygienic behaviors ($\chi^2 = 12.84$, $p = 0.002$). Children of mothers with secondary or higher education had better hygienic practices than children of illiterate mothers or mothers with only primary education.

Similarly, father's education was substantially linked with children's hygiene conduct ($\chi^2 = 10.67$, $p = 0.005$). The proportion of children with appropriate hygiene habits grew stepwise with the educational level of dads, which shows the salutary effect of parental education on children's health-related behaviors. Age also had a statistically significant connection ($\chi^2 = 4.76$, $p = 0.029$). The percentage of adequate hygiene practices was greater for older children (14–16 years) (93.9%) than for younger children (11–13 years) (82.1%) indicating that hygiene knowledge and personal responsibility increase with age.

Good hygiene behaviors were more common in female students (91.3%) than male students (84.7%) although the association between gender and hygiene practices was not statistically significant ($\chi^2 = 1.52$, $p = 0.217$). Therefore in the present study gender has not been found as a significant predictor of personal hygiene behavior.

In conclusion, the data suggest that parental education and age are important predictors of personal hygiene practices among school children, highlighting the need of parental participation and school health education initiatives in encouraging healthy habits.

IV. Discussion

The present study analyses the personal hygiene habits of 210 school students residing in urban slum regions and studied the influence of selected socio-demographic factors on hygiene behavior. Personal hygiene is an important factor of child health especially in urban slums where overcrowding, poor sanitation, inadequate water supply and poor health knowledge increase the risk of infectious diseases. The present study findings showed that the majority of children had adequate personal hygiene practices but other hygiene behaviors were deficient. The necessity for continual health education and parental participation is highlighted.

The socio-demographic profile of the study participants revealed that 53.3% of the children belonged to age group of 11 – 13 years, whereas 46.7% children belonged to age group of 14 – 16 years. 56.2 per cent of the sample were male students. These findings are in accordance with the study done by Mahajan et al. (2020), in an urban slum of Pune, where they found 59.3% of the study population were male students. Sarkar (2013) also found a somewhat larger number of male participation among primary school pupils living in the slums of Kolkata. The age distribution of the majority of younger adolescents in the present study is similar to that found in government schools servicing urban slum populations.

The current investigation revealed encouraging personal hygiene practices among the participants. Almost 61.4 percent of the children always washed their hands before meals, 56.2 percent always wore soap when washing their hands, and 74.3 percent of children always washed their hands after using the toilet. These findings are relatively better than the findings of Mahajan et al. (2020) who showed that only 42% of youngsters always washed their hands before meals and 28% always used soap for hand washing. Similarly, Lal and Kavitha (2016) reported that whereas school children had appropriate understanding on hand hygiene, regular usage of soap was poor. The much better compliance seen in the present study could be related to greater awareness generated by school health activities and national sanitation initiatives such as Swachh Bharat Mission.

70.5% of the survey participants reported showering daily and 66.7% reported washing their hair regularly. Regular washing and hair care are vital preventative measures against skin infections, pediculosis and fungal disorders. The results are congruent with those of Khawa et al. (2021) who found that regular bathing and washing of hair were associated with lower prevalence of skin-related disorders among

primary school students. However, a small percentage of youngsters still practiced these behaviors inconsistently showing the need for reinforcement through health education and parental supervision. Regarding dental hygiene, 59.0% of the participants washed their teeth twice daily and 65.2% said that they clip their nails regularly. These results show improved oral hygiene behaviors than those reported by Chaudhari et al. (2015) who indicated that irregular tooth brushing and poor nail hygiene were widespread among school-going youngsters in Gujarat. However, approximately one-third of the participants in this study did not always follow the suggested oral hygiene routines and this indicates the necessity for frequent oral health education in schools.

The study also indicated that 80.5% of the youngsters regularly wore footwear when going outdoors and 71.9% brushed their hair daily. Footwear is needed to prevent soil transmitted helminth infections and other foot related illnesses Ranga and Majra (2020) have made similar discoveries and showed that greater cleanliness behavior was connected with higher parental education and increased information on illness prevention. However, only 52.9% of the participants always used a handkerchief while coughing or sneezing indicating that more focus needs to be placed on respiratory hygiene practices in school health education initiatives.

One of the key outcomes of the present investigation was the statistically significant connection of parental education with cleanliness behaviors. Children with moms who completed secondary or higher education had considerably better hygienic practices ($\chi^2 = 12.84$, $p = 0.002$) than children whose mothers were illiterate or had just primary education. Likewise, the education position of the father was significantly associated with the children's cleanliness conduct ($\chi^2 = 10.67$, $p = 0.005$). The results obtained are consistent with the findings of Mahajan et al. (2020), Sarkar (2013), and Ranga and Majra (2020) who have demonstrated a favorable influence of parental education on the adoption of healthy hygiene habits by children. More educated parents are more aware of preventative health measures and more willing to promote healthy practices at home.

Age was also significantly associated with hygienic habits ($\chi^2 = 4.76$, $p = 0.029$). The older children (14–16 years) had better hygienic behaviors than the younger children, demonstrating that personal responsibility and health awareness increase with age. Similar findings were reported by Rajagopal et al. (2026) who found that older pupils had much better understanding and practice of personal hygiene than younger children due to greater maturity and exposure to health education.

The female students were marginally better than the male students in terms of hygiene behavior. The association between gender and overall hygiene conduct was not statistically significant ($p = 0.217$). Shaw et al. (2025) found similar results: even controlling for educational and socioeconomic variables, gender was not a significant predictor of cleanliness habits. This indicates that environmental and family factors have a higher influence on cleanliness behavior than gender.

This study, the results of the present study reveal that majority of the school students live in urban slums have good personal hygiene but yet there is scope for development in hand hygiene, oral hygiene, respiratory hygiene and consistent adoption of healthy behaviors. Hygiene practices of school children can be improved significantly by strengthening of school health teaching programmers, proper Water, Sanitation and Hygiene (WASH) facilities, parental participation and periodic health screening. Such measures will help reduce the spread of communicable diseases, increase school attendance, and improve the general health and well-being of children living in underserved urban communities.

V. Conclusion

In conclusion of the current study, most of the school children living in urban slum regions had good personal hygiene practices especially hand washing after using the toilet, taking a bath every day, cutting their nails and wearing shoes. However, gaps were observed in frequent handwashing with soap before meals, oral hygiene, regular use of clean socks and respiratory hygiene habits. The study also further determined that parental education, especially maternal education, and age were strongly connected with improved cleanliness behaviors, although gender did not exhibit a statistically significant association. These findings highlight the complementing responsibilities of parents, schools and community health professionals in encouraging healthy hygiene practices among children.

Improving personal hygiene practices among school children requires strengthening school-based health education programmers, improving access to safe water and sanitation facilities, encouraging active parental participation and conducting regular health screening and awareness campaigns. These measures will assist lower the burden of communicable diseases, enhance school attendance and performance, and contribute to the overall physical, mental, and social well-being of children living in urban slum neighborhoods.

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