ORIGINAL ARTICLE

A Study on Personal Hygiene Practices among Children in Selected Schools of Singur block, Hooghly District

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CITATION
Shaw S, Basu R, Harikrishna BN, Paul B. A Study on Personal Hygiene Practices among Children in Selected Schools of Singur block, Hooghly District. Indian J Comm Health. 2025;37(5):750-755.
https://doi.org/10.47203/IJCH.2025.v37i05.018

ARTICLE CYCLE
Received: 31/07/2025; Accepted: 20/09/2025; Published: 31/10/2025

ABSTRACT

Context: Good personal hygiene practices play an essential role in reducing the transmission of infectious diseases in school children. Poor hygiene can lead to increased morbidity, absenteeism, and decreased educational productivity. **Aims:** To find out Personal Hygiene Practices and associated factors among Children in Selected Schools of Singur block, Hooghly District. **Settings and Design:** An institutional based observational study was carried out among 156 Middle School-going children of age group of 11 to 15 years in Selected Schools of Singur block, Hooghly District, West Bengal from March 2024 to August 2024. **Methods and Material:** 156 study participants were selected using the stratified random method and Pre-tested, self-administered questionnaire was applied to collect data on demographic characteristics, hand-washing frequency, and other hygiene practices. **Statistical analysis used**: Descriptive statistical methods, as well as Univariate and Multivariable logistic regression analyses, were applied using MS Excel 2021 and SPSS 16. **Results:** The median age among the study participants was 13 years (IQR: 12- 14). The study finding showed that 32% of participants reported acute illness in the past fortnight. Hand washing frequency was satisfactory, with 71% of children washing their hands at least 3-4 times a day. Statistically Significant association was found with Overcrowding, Mother's Educational level and acute illness. **Conclusion:** While hand washing frequency was relatively high, overall personal hygiene practices among children attending school were suboptimal.

KEYWORDS

Personal Hygiene; School Children; Hand Washing; Acute Illness

INTRODUCTION

Personal hygiene refers to the habits and actions taken to maintain cleanliness and support overall body health. It involves practices that encourage sanitary living and good health. These practices, which may be inherited or consciously learned throughout different stages of life, form an important part of an individual's routine. People typically adopt hygiene standards either through instruction or personal experience. The main goal of maintaining personal hygiene is to limit and manage the transmission of infections. Good hygiene habits are essential for building a Physically healthy community. The timeless saying, "Health is Wealth," holds true only when individuals, families, and larger community groups consistently practice proper personal hygiene(1).

Infectious diseases result from harmful microorganisms like bacteria, viruses, parasites, and fungi are capable of spreading from person to person through both direct and indirect means. These diseases are generally grouped into three categories: ones causing high death rates; ones leading to considerable disability in populations; and ones capable of rapid, unpredictable spread with significant global effects (2).

Growing evidence suggests that practicing good hygiene at home and in schools plays a vital role for

limiting the spread of infectious disease. According to the World Health Organization (WHO), Optimization of safe water, sanitation, and hygiene (WASH) practices might prevent close to 9.1% of diseases globally and 6.3% of deaths (3).

Health problems in school children often result from limited knowledge about the importance of maintaining personal hygiene. Common health issues associated with poor hygiene practices include Diarrheal and Skin related infections, Intestinal worm infections, and Oral problems. Infections are a significant problem affecting school children, primarily caused by contaminated water, inadequate sanitation, and unhygienic practices. Poor personal hygiene combined with unsanitary conditions greatly increases the risk of infections spreading from person to person(4).

Aims: To find out Personal Hygiene Practices and associated factors among Children in Selected Schools of Singur block, Hooghly District.

Objectives: To assess Personal Hygiene Practices among school children.

To identify the factors associated with Personal Hygiene Practices among school children.

MATERIAL & METHODS

Study Type: Observational Cross-sectional Study

Study Setting: Institution based, Selected schools (four schools) located in Singur Block under the field training area of AIIHPH Kolkata of Hooghly district in West Bengal.

Study Population: School Children of class 6 to 8.

Study period: March 2024- July 2024.

Inclusion Criteria: Students who have given informed consent to participate in the study.

Exclusion Criteria: Students who were absent and critically ill.

Sampling Methods: Out of all schools in the Singur block, four schools were selected using Simple random sampling. In this survey, **proportionate stratified sampling** was used so that the sample accurately represented the student population across different class levels. After obtaining the complete class lists from each selected school, students were categorized into distinct strata based on their current class enrollment (Class 6, 7, and 8). Within each stratum, a number of students were randomly selected **proportional to the total number of students** in that specific class. This method made sure that students from each class level were fairly represented in the study, so that no class had too many or too few students compared to their actual numbers. Only the students who agreed to take part by giving their informed consent were included, making sure that the study followed proper ethical guidelines.

Sample Size Calculation: Using Cochran's formula; $N=Z^2pq/d^2$, sample size was calculated, where N= Sample size, Z= 1.96, p=54.9% (prevalence; considering, a previous study done in Nigeria where Basic Personal hygiene Practice is 54.9% of the study participants)(5), q= 45.1% and d=10% (absolute error), taking 10% non-response rate, total sample size was estimated to be 156. At the time of calculation, no recent Indian study reporting prevalence of Personal hygiene practices among this age group was available. Therefore, the Nigerian study was used as a reference for prevalence to calculate the sample size. Using a 10% absolute error may reduce the precision of the study; however due to feasibility constraints 10% was chosen.

Data collection procedure: Data were collected through **interviews with children** and **observations of personal hygiene practices among school children.** A pre-designed, pretested, and structured questionnaire, administered by the interviewer, was utilized for this purpose. The survey instrument included sections on **Socio- demographic characteristics**, as well as **environmental and health-related factors**. Hygiene practices were assessed using a three point **Likert scale**, adapted from the **Global School Health Survey Questionnaire**, which included **8 items**. Each items offered three response options: never, sometimes, and always. During analysis, responses were scored as follows: never = 0, sometimes = 1, and always = 2. Consequently, the total score on the scale ranged from a minimum of 0 to a maximum of 16. Before beginning the study, the survey instrument adapted from the Global School Health Survey (GSHS), was translated into Bengali and pretested on 15 students to check comprehension and feasibility. Based on this, necessary modifications were made, and the tool was validated for use in the study.

Data Analysis: Collected data were compiled using MS Excel 2019 and tabulated accordingly. Software like IBM (SPSS) statistics software (version 16) was used to perform analysis for quantitative data. Descriptive statistics, univariate and multivariable logistic regression were performed.

Ethical Issues& informed Consent: This study was approved by the Institutional Ethics Committee of All India Institute of Hygiene and Public Health (AIIH&PH), Kolkata, West Bengal, India (Protocol ID: IEC/2024(2)/73, dated 26/03/2024).

Written permission was obtained from the school authorities before the study. Informed assent was obtained from all participating children, and written informed consent was obtained from their parents/guardians.

Operational Definition: Good personal hygiene refers to regularly washing hands, particularly after

using the toilet or handling potentially contaminated items; bathing consistently; covering the mouth and nose while coughing or sneezing; properly disposing of tissues and items contaminated with body fluids; routinely washing clothes, especially undergarments; and taking protective measures, such as using gloves, when there is a risk of infection(6).

Improved Sanitation: Improved sanitation facilities are those designed to hygienically separate human waste from direct human contact. This includes systems like flush or pour-flush toilets connected to a piped sewer system, septic tanks, ventilated improved pit latrines, pit latrines with slabs, or composting toilets(7).

Improved drinking water sources are defined as those that are typically protected from external contamination, particularly from fecal matter. These include household connections, public standpipes, boreholes, protected dug wells, protected springs, and rainwater collection systems(8).

RESULTS

Socio-demographic characteristics: The study participants age varied between 11 and 15yrs, the median age was 13yrs and an interquartile range (IQR) of 12–14 years. Of the 156 children studied, 81 (52%) were male and 75 (48%) were female. The majority of the participants were Hindu by religion (86.5%), while the remaining belonged to other religions. In terms of caste distribution, 117 (75%) belonged to the General Caste category, while the rest were SC/ST/OBC. With respect to socio-economic classification (as per Modified BG Prasad 2024)(9), 54.5% of the participants were from the lower-middle class. A slightly higher proportion of students (54%) lived in nuclear families. Mother's educational level was secondary level or above in 34.6% of cases, and father's educational level was secondary level or above in 45.5%.

Environmental Characteristics: As shown in *Table 1*, a large proportion of students resided in pucca houses (81%). Sanitation and water conditions were mostly satisfactory, with 90% of homes and 75% of schools having improved sanitation. The availability of improved drinking water sources was 96% at home and 86% at school. However, overcrowding was observed in 83% of households.

Acute illness: Among the participants, 50 students (32%) reported experiencing some form of acute illness in the preceding 15 days. Common ailments reported included upper respiratory tract infections (41.8%), skin infections (11.9%), diarrheal episodes (13.4%), and Others (7.5%). These morbidities may reflect underlying gaps in hygiene or environmental conditions.(*Table2*)

Personal Hygiene Practices: The mean hygiene score among study participants was **14.4 ± 2.9.** Based on the scoring system, it was observed that **119 students (76.3%)** demonstrated good personal hygiene practices (score ≥12), while **37 students (23.7%)** had poor hygiene practices (score <12) Individual hygiene indicators were also examined (*Table 3*). Practices like washing hands after using the toilet **(91.0%)**, brushing teeth regularly (**87.8%**)**,** and bathing at least five times a week (**82.7%**) were followed by the majority of students. However, practices such as regular use of footwear (**55.1%**) and nail cutting atleast once in 2 weeks (**66.7%**) were comparatively less frequently practiced.*(Table 3*)

Predictors of Poor Personal Hygiene: In this study, Bivariate analysis revealed significant associations between poor hygiene practices and key variables including lower maternal education, overcrowding in the household, and the presence of acute illness within the past 15 days. These variables were subjected to logistic regression to assess their independent effects on hygiene behavior.

On univariate logistic regression, children whose mothers had lower education levels had significantly increased likelihood of poor hygiene practices (UOR: 4.21; 95% CI: 2.87–17.91; p = 0.010). Overcrowding in the household was significantly associated with lower odds of good hygiene (UOR: 0.26; 95% CI: 0.11–0.63; p = 0.003), and the presence of acute illness in the past 15 days also showed a strong negative association with hygiene scores (UOR: 0.14; 95% CI: 0.064–0.309; p = 0.002).

Following adjustment for potential confounding factors in the multivariable logistic regression model, all three variables remained statistically significant. Children with less educated mothers had 4.10 times the odds of poor hygiene (AOR: 4.10; 95% CI: 2.08–15.64; p = 0.009). Overcrowding was associated with a significantly reduced likelihood of good hygiene (AOR = 0.28; 95% CI = 0.12–0.69; p = 0.006), and acute illness continued to show a strong inverse association with good hygiene practices (AOR = 0.14; 95% CI = 0.063–3.14; p < 0.001) (*Table 4*).

These findings underscore the critical influence of the home environment—particularly maternal education and overcrowding—on personal hygiene practices of school children. The inverse association between recent acute illness and good hygiene may also suggest reverse causality, where poor hygiene could be a contributing factor to recent morbidity.

***Table 1*. Socio-demographic & Environmental characteristics of the study participant (n=156)**

Variables	No. (%),	Descriptive statistics Median (IQR)
Age(in completed years)		
11	13(8.3)	
12	52(33.3)	
13	39(25)	**13(12-14)**
14	42(26.9)	
15	10(6.4)	
Religion		
Hindu	135(86.5)	
Muslim	21(13.5)	
Gender		
Male	81(52)	
Female	75(48)	
Caste		
SC/ST/OBC	39(25)	
General	117(75)	
Class		
Class 6	61(39.1)	
Class 7	43(27.6)	
Class 8	52(33.3)	
Per capita income		
Class I (Upper)	5(3.2)	Mean Per Capita
Class II (Upper middle)	9(5.8)	Income: 2431.93
Class III (Middle)	18(11.5)	SD: 2088.31
Class IV (Lower middle)	85(54.5)	Median(IQR)=
Class V (Lower)	39(25)	1666.67(1287-2500) Range:333.33-15000
Father's Educational Level		
Above Secondary Level	69(44.2)	
Below Secondary Level	87(55.8)	
Mother's Educational Level		
Above Secondary Level	32(20.5)	
Below Secondary Level	124(79.5)	
Type of family		
Nuclear	84(54)	
Joint	72(46)	
Type of House		
Kutcha	30(19)	
Pucca	126(81)	
Sanitation facility at home		
Improved	140(90)	
Unimproved	16(10)	
Sanitation facility at School		
Improved	117(75)	
Unimproved	39(25)	
Drinking Water Source at home		
Improved	150(96)	
Unimproved	6(4)	
Drinking Water Source at School		
Improved	134(86)	
Unimproved	22(14)	
Overcrowding		
Present	130(83)	
Absent	26(17)	

***Table 2*. Acute Illnesses among Study Participants (n=156):**

Variables	Number (%),	Descriptive statistics Median (IQR)
Acute Illness		
Present	50(32)	
Absent	106(68)	
Type of Acute Illness		
Fever	17(25.4)	
URTI	28(41.8)	
Diarrhoea	9(13.4)	
Skin Infection	8(11.9)	
Others	5(7.5)	

***Table 3*. Personal Hygiene Practices among Study Participants:**

Variables	Number (%),		
Personal Hygiene Practices	Always n (%)	Sometimes n (%)	Never n (%)
Hand washing before eating	123 (78.8)	28 (17.9)	5 (3.2)
Washing hands after toilet use	142 (91.0)	12 (7.7)	2 (1.3)
Using soap while washing hands	137 (87.8)	15 (9.6)	4 (2.6)
Brushing teeth regularly	129 (82.7)	23 (14.7)	4 (2.6)
Bathing at least 5 times a week	110 (70.5)	34 (21.8)	12 (7.7)
Washing hair at least twice a week	104 (66.7)	40 (25.6)	12 (7.7)
Cutting nails atleast once in 2 weeks	86 (55.1)	52 (33.3)	18 (11.5)
Wearing footwear regularly	120 (76.9)	28 (17.9)	8 (5.1)

***Table 4*: Logistic regression of different factors associated Personal Hygiene Practices among Study Participants (n=156)**

Factors	Unadjusted Odds Ratio (95% CI)	p-value	Adjusted Odds Ratio (95% CI)	p-value
Mother's Educational Level	4.208(2.87-17.91)	0.010	4.102(2.08-15.64)	.009
Overcrowding	0.262(.109-.631)	0.003	0.282(.115-.694)	0.006
Acute Illness	0.140(.064-.309)	0.002	0.141(.063-3.14)	0.000

DISCUSSION

In this study, the average hygiene score was 14.4 ± 2.9, with the majority (76.3%) of children having good hygiene practices, though a notable proportion (23.7%) still practiced poor hygiene. Most children reported regularly washing hands after toilet use (91.0%), practicing regular tooth brushing (87.8%), and bathing at least five times a week (82.7%). However, only 55.1% wore shoes regularly, 66.7% trimmed their nails consistently, and 70.5% washed their hair twice weekly. These gaps indicate that although general hygiene awareness might be present, certain important daily hygiene habits are still being neglected.

In a recent study by Maji et al.(10) among primary school students 87.7% reported daily bathing, 77.3% of participants applied soap just once weekly. About 93% brushed teeth daily, yet half washed their mouths after meals. Open defecation was reported by 59%, and 29% experienced common illnesses during the preceding 15 days. Poor hygiene was significantly associated with recent illness and lower maternal education. Children with hygiene scores ≤75% were 4.06 times more likely to have morbidities, while children of illiterate mothers were 2.18 times more at risk. According to the study of Dongre et al.(11) in rural Maharashtra, where initially only 27.6% of children displayed clean and neatly combed hair, while 29.7% had clean, cut nails, 42.8% wore clean garments, and 33.8% had clean teeth. A study by Vivas et al.(12) reported that among Ethiopian children 669 elementary school students (mean age 10.8 years), 92% reported washing their hands the day before the survey, but only 36.2% used soap, and only 15% washed hands after using the toilet. Notably, 21% had not washed their hair and 12% had not changed clothes in the last 14 days.

CONCLUSION

Most children followed good personal hygiene habits, but some important practices like wearing clean clothes and trimming nails were not followed by many. Children with less educated mothers, overcrowded homes, and recent illnesses had poorer hygiene. Just knowing about hygiene was

not enough to ensure good habits. Parents, especially mothers, play an important role. Hygiene education in schools should be made stronger to keep children healthy.

Recommendation

Interventions should target households with overcrowding and low maternal education to improve children's hygiene. Reducing acute illness requires strengthening hygiene education both at school and family levels.

Limitation of the Study

Being a cross-sectional study, causal relationships between hygiene practices and morbidity could not be determined. Self-reported responses may be influenced by recall or social desirability bias. The findings are based on a limited geographic area, which may affect generalizability.

Relevance of the Study

This study provides current data on Personal Hygiene Practices among children in selected schools of Singur block, Hooghly District. It identifies factors associated with hygiene, which can guide targeted health education and school-based interventions

Authors Contribution

SS: Conceptualized and designed the study, collected data, performed data analysis, and drafted the manuscript. RB**:** Provided guidance throughout the study, supervised data collection, and contributed to manuscript drafting and revisions. HBN**:** Assisted in study design, supervised methodology, and critically reviewed the manuscript. BP**:** Provided overall guidance, critically reviewed the manuscript, and approved the final version for submission.

Financial Support and Sponsorship

Nil

Conflict of Interest

None

Acknowledgement

We sincerely acknowledge the support and cooperation of the school authorities, teachers, and staff for allowing us to conduct this study. We are especially grateful to the students who participated enthusiastically. Their involvement and honest responses were invaluable to the success of this research. This study would not have been possible without their active participation and willingness to contribute.

Declaration of Generative AI and AI Assisted Technologies in the Writing Process

During the preparation of this work, I used Grammarly in order to improve language, grammar, and clarity of the manuscript. After using this tool, I reviewed and edited the content as needed and take full responsibility for the content of the publication.

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