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RESEARCH PAPER

Knowledge and attitude of hand washing practice and its associated factors among school children in a northeastern region of India

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ABSTRACT

***Background and aims**: Poor and insufficient hand-washing practices are global sources of diarrheal and respiratory illnesses, primarily among children. The present study investigates the knowledge and attitude of hand washing practice and its associated factors among school children in a northeastern region of India. **Methods:** The cross-sectional study was conducted randomly from Jun 20 2023, to Jul 15 2023, including 100 school children of upper primary level aged 7-10 years selected to assess their knowledge and attitude of hand washing practice and its associated factors. Prior consent from the participants was obtained before the collection of data. Data was collected on a pre-designed questionnaire. The data were entered into MS Excel. Descriptive analysis was used to analyse the data statistically. Data were presented as frequency and percentage of responses. **Results:** Among the 100 participants, 53% were male. Over 70% of the students have adequate knowledge about the importance of hand hygiene. Also, more than 60% of the participants responded positively towards various hand hygiene practices. Among the participants, 63% used soap for washing hands, and 77% opined that soap water was the best way to wash hands. Laziness (72%) was the primary reason for skipping hand washing. **Conclusion:** The level of knowledge and practice towards hand hygiene was pretty good among the primary students. Most of the participants used and advocated soap for hand washing. Parents and teachers were the significant sources of information. Laziness was the most common reason for skipping hand washing.*

***Keywords**: Knowledge; hand hygiene; primary school; diarrheal disease; respiratory illness.*

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INTRODUCTION

Hand washing with soap removes soil, dirt, bacteria and viruses from our hands. Hand washing is the easiest, least expensive, and most efficient measure for lessening the burden of many communicable diseases. Hand cleanliness is a necessary intervention to stop the spread of infectious agents. One can maintain their health and stop the spread of respiratory and diarrheal illnesses by washing their hands frequently.[1] Both surfaces and humans are susceptible to the spread of germs in various ways. Germs can spread by touching the eyes, mouth and nose with unwashed hands.[2]

Poor and insufficient hand washing practices are children's primary global source of diarrheal

and respiratory illnesses. These illnesses also affect academic and physical development, impairing cognitive function and limiting growth in children, making elementary school students particularly vulnerable. Disruptions in early development frequently cause a low quality of life as an adult.[1] It has been established that hand washing reduces upper respiratory infections by 24% and diarrhoea incidence by 42% to 48%.[3,4]

Improper hand hygiene is linked to faecal-oral transmission of diseases. Faecal orally transmitted parasites are parasitic illnesses with a direct life cycle, do not require an intermediary host to infect a new host, and are disseminated by faeces contaminating food and beverages.[5,6] According to previous studies, only 2% of people in India wash their hands after meeting faeces, compared to a global average of only 19%.[7] As per a recent study, spatial clustering and regional variation in hand-washing patterns exist among the populace across the nation, which can be linked to behavioural, cultural, and socioeconomic variations.[8]

Preparation and eating food with unwashed hands spread germs. Touching surfaces and objects containing germs makes hands contaminated. People often blow their nose, cough or sneeze on their hands. Droplets from the nose and mouth contain germs that eventually get into the hands. Therefore, hand-washing while preparing, before and after taking food, after using the toilet, after blowing nose, coughing, or sneezing are beneficial practices. During the spread of COVID-19, frequent hand washing for at least 20 seconds with soap and water was advocated as a mandatory practice. The present study investigates the knowledge and attitude of hand washing practice and its associated factors among school children in northeastern India.

MATERIALS AND METHODS

The present cross-sectional study was conducted from Jun 20 2022, to Jul 15 2023, to assess the knowledge and attitude of hand washing practice and its associated factors among school children studying at the upper primary level. The study included 100 school children of upper primary level aged 7-10 years randomly selected from primary schools. The students studying at different schools in the Kamrup (Metro) district of Assam, India, were included in the present study purposely for the convenience of data collection purposes. Prior consent from the participants was obtained before the collection of data. The participants were randomly selected.

Data was collected using a questionnaire from Almoslem et al.[9] The questionnaire was translated into Assamese to make it understandable to the participants. Assistance has been given to respondents to clarify the questions as well as fill out the questionnaires. The first part of the questionnaire consisted of questions on participants' demographic details and their parents' occupational and educational status. The second part of the questionnaire contained 11 statements on the student's perceived knowledge about hand hygiene. The third part consisted of seven statements regarding the hand washing practices among the students. The remaining questions included the source of information, participants' knowledge about various diseases and reasons for skipping hand-washing.

Inclusion and exclusion criteria: Students of upper primary levels studying in the selected schools aged 7-10 years were included. Those who have physical or cognitive disabilities were excluded. Also, students or their parents who did not consent to participate in the study were not included.

Statistical analysis: The data were entered into MS Excel. Descriptive analysis was used to analyse the data statistically. Data were presented as frequency and percentage of responses to each section. The distribution of the data was also presented using appropriate diagrams.

RESULTS

One hundred school children of primary level aged 7-10 years, were randomly selected from different primary schools in the Kamrup (Metro) district of Assam. Among the participants, 53.0% were male. The literacy status of the parents was over 70%. Only 35% of the fathers were govt service holders, while 29.0 were engaged in cultivation. The majority, 58.0% of the mothers, were homemakers. **Table 1** depicts the socio-demographic characteristics of the participants.

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Table 1 Socio-demographic characteristics of the participants

Variables	Categories	Frequency	Percent
Gender	Male	53	53.0
	Female	47	47.0
Age	7-8 years	47	47.0
	9-10 years	53	53.0
Father's education	Literate	77	77.0
	Illiterate	17	17.0
Mother's education	Literate	72	72.0
	Illiterate	22	22.0
Father's Occupation	Unemployed	9	9.0
	Govt service	35	35.0
	Business	16	16.0
	Labourer	11	11.0
	Cultivation	29	29.0
Mother's Occupation	Housewife	58	58.0
	Govt service	11	11.0
	Business	9	9.0
	Labourer	10	10.0
	Cultivation	12	12.0

Student's perceived knowledge about hand hygiene:

The questionnaire comprised 11 statements on the student's perceived knowledge about hand hygiene. **Figure 1** shows the student's responses to various knowledge statements.

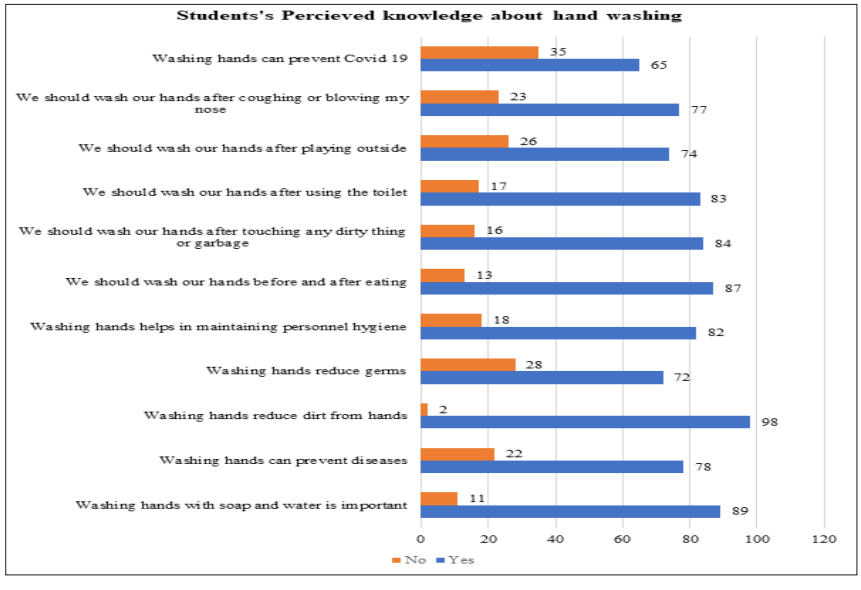

Figure 1 Student's perceived knowledge about hand hygiene

Out of the 100 participants, the majority, 89%, responded that washing hands with soap and water is essential, 98% opined that washing hands reduce dirt from hands, and 82% responded that it helps maintain personnel hygiene. Only 78% of the participants responded that washing hands can prevent diseases, and 72% said it reduces germs. Washing hands before and after eating and after touching any dirty thing or garbage was advocated by 87% and 84% of students, respectively. The majority, 83% of students, also responded that one should wash their hands after using the toilet. However, only 77% of students responded that one should wash hands after coughing or blowing his nose, and 74% agreed that one should wash their hands after playing outside. Only 65% of the primary-level students responded that washing hands can prevent Covid 19.

Student's practice towards hand hygiene:

The questionnaire consisted of seven statements on the student's practice towards hand hygiene. **Figure 2** shows the student's responses to various practice statements.

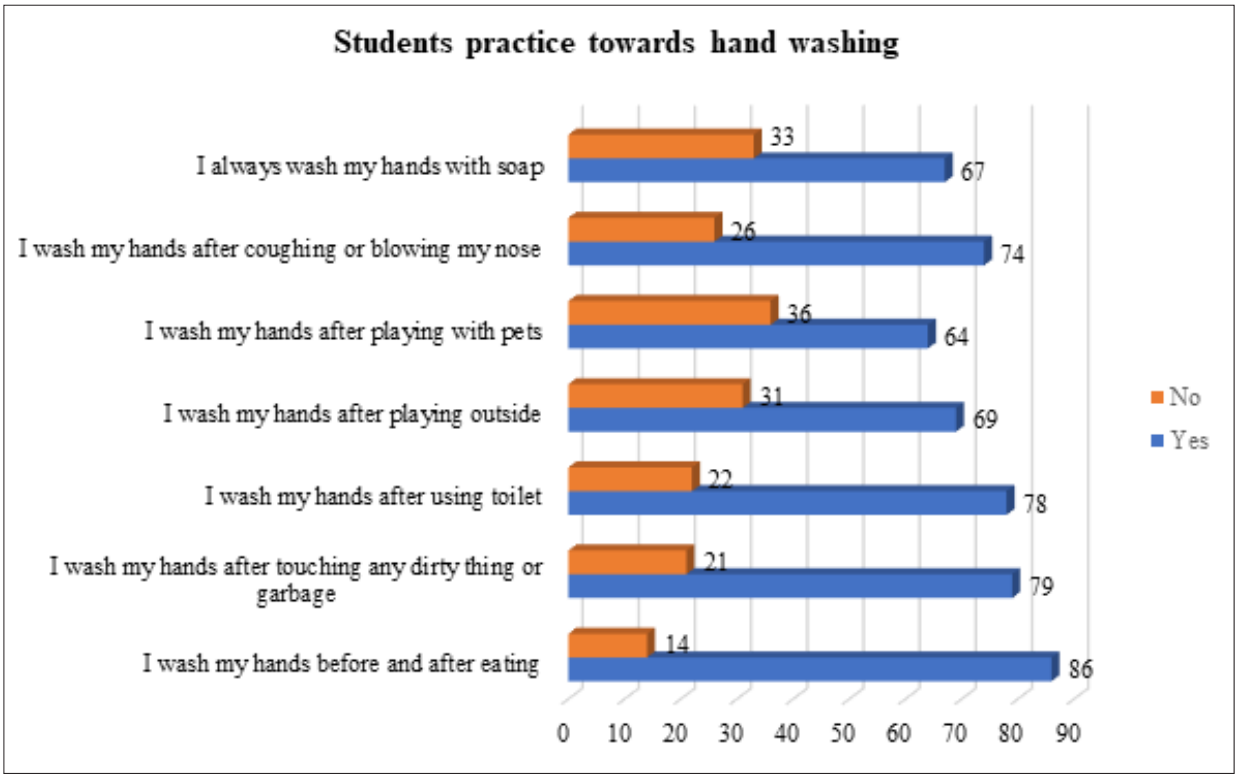

Figure 2 Student's practice of hand hygiene

The majority, 86% of students, wash their hands before and after eating, 79% wash their hands after touching any dirty thing or garbage, and 78% wash their hands after using the toilet. Only 69% of the participants wash their hands after playing outside, while only 64% wash their hands after playing with pets. Of the 100 participants, 74% washed their hands after coughing or blowing their nose. Only 67% of students use soap regularly to wash their hands.

Other hand hygiene-related factors:

The majority, 81% of the students, responded that they had been taught about the importance of hand hygiene (**Figure 3**).

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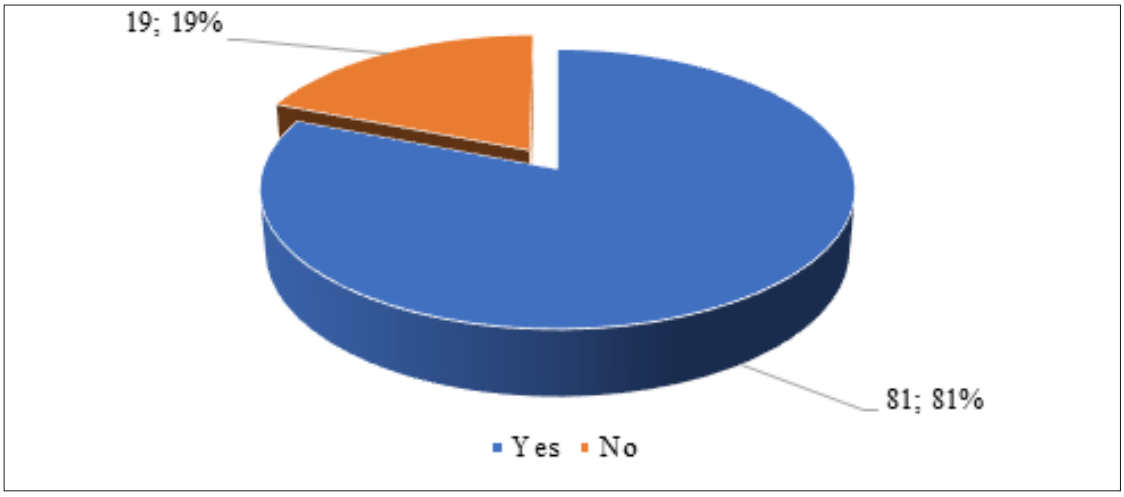

Figure 3 Ever been taught about hand hygiene

The majority, 67% of the students, were taught about the importance of hand hygiene by their parents, while teachers (11%), Health workers (5%) and others (4%) also taught some students. Only 13% of students have never been taught the importance of hand washing (**Figure 4**).

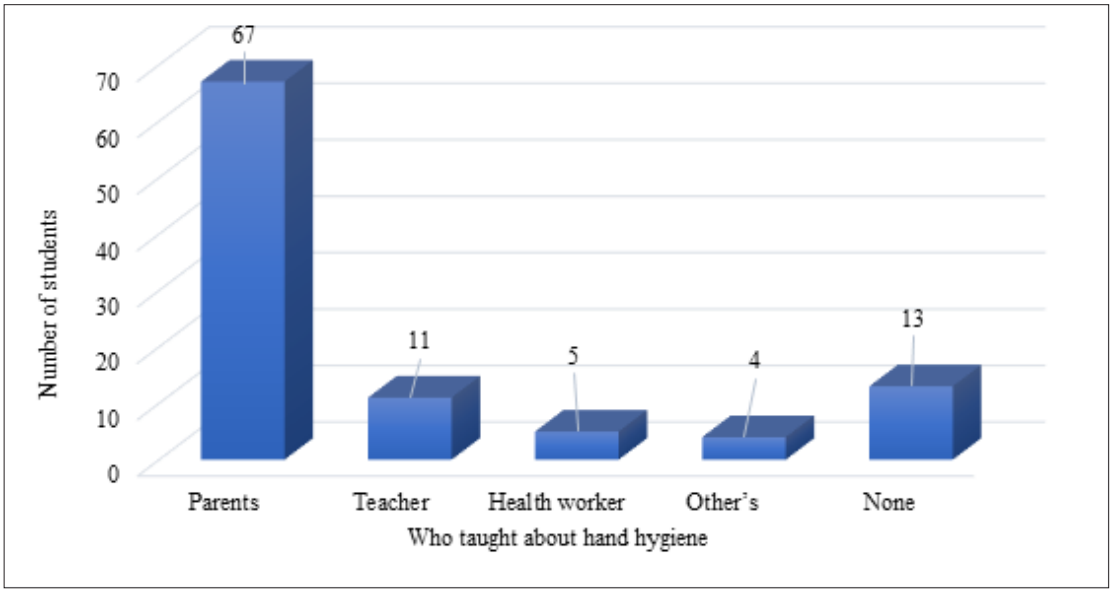

Figure 4 Who taught about the importance of hand-washing

Television (76%) was the source of information in most cases, followed by newspapers (4%), the Internet (5%), and others (1%). Only 14% of the students did not respond.

The majority, 46% of the students, responded that foodborne diseases are spread via hands, while 30% did not know about the diseases that spread via hands. Five out of 100 students think all diseases are spread via dirty hands (**Figure 5**).

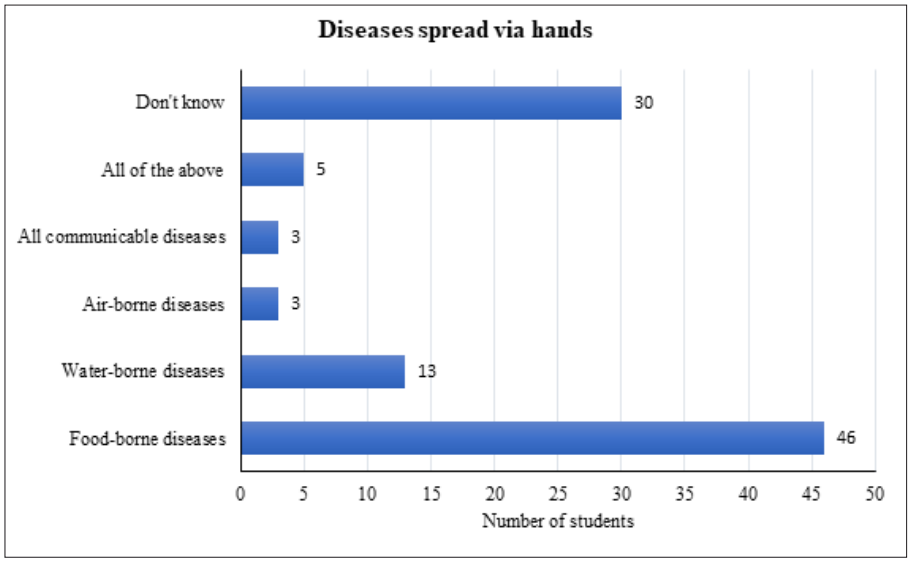

Figure 5 What type of diseases can spread via hands

Table 2 Which diseases can be prevented by maintaining proper hand hygiene

Diseases Type	Diseases	Yes	No	Don't know
Respiratory tract infections	Influenza	32	38	30
	Cold	52	28	20
	Tonsillitis	56	29	15
	Bronchitis	27	42	31
	Pneumonia	32	35	33
	Covid 19	62	18	20
Gastro-intestinal diseases	Indigestion	37	33	30
	Vomiting	32	38	30
	Acid reflux	36	30	34
	Abdominal pain	54	28	18
	Diarrhoea	57	31	12
Skin infections	Hand, foot, and mouth diseases	31	35	34
	Eczema	38	29	33
	Scabies	31	34	35
	Warts	37	31	32
Eye infection	Conjunctivitis	57	10	33
Other childhood diseases	Mumps	29	40	31
	Chickenpox	34	35	31
	Measles	36	33	31
	Rubella	28	47	25

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Among the various respiratory tract infections, most of the students responded that colds (52%), tonsilitis (56%), and COVID-19 (62%) can be prevented by maintaining proper hand hygiene. Also, among the gastro-intestinal diseases, students opined that diarrhoea (57%) and abdominal pain (54%) are primarily preventable by maintaining hand hygiene. More than 30% of the students agreed that various skin infections can be prevented by hand hygiene. The majority (57%) of students reported that conjunctivitis is preventable by hand hygiene. Almost one-third of the respondents also opined that other childhood diseases like chickenpox (34%) and measles (36%) can also be prevented by proper hand hygiene (**Table 2**).

Of the 100 participants, 63% washed their hands with soap and water, while 31% washed their hands with only water. Also, the majority of the participants, 77%, responded that the best way to wash hands is with soap and water. While 17% responded that only water is sufficient to wash hands. Six students needed to learn about the best way of hand washing.

As seen from **Table 3**, most (72%) participants responded that laziness was the reason for skipping hand washing, while 8 (8%) responded that they often forget to wash hands. Twelve out of 100 students skip hand washing as they don't think it necessary.

Table 3 Reason for skipping hand washing

Reason for skipping hand washing	Frequency	Percent
Shortage of water	2	2.0
Laziness	72	72.0
Shortage of soap	6	6.0
often forget	8	8.0
don't think it necessary	12	12.0
Total	100	100.0

DISCUSSION

Children need to practice good hand hygiene because they are more susceptible to illnesses spread by contaminated hands.[10] A total of 100 students at primary level schools were enrolled in the study to assess their knowledge and practice towards hand washing and related factors, of which 53% were male and 53% were 9-10 years old. Most of the parents were educated.

Out of the 100 participants, the majority responded that washing hands with soap and water is essential (89%); it reduces dirt (98%) from hands and helps maintain personnel hygiene (82%). However, students' knowledge of hand washing to prevent diseases (78%) and germs (72%) were relatively less reported. Students mainly advocated the importance of hand washing before and after meals (87%), after touching dirty things (84%) and after using toilets (83%). Only 77% of students opined washing hands after coughing or blowing their nose, and 65% responded that washing hands can prevent Covid 19. Over one-fourth of the students disagreed that one should wash hands after playing outside. The findings of our study are similar to various other studies.[10-12]

The students' hand-washing practice level was good, as almost 80% of them washed their hands regularly before and after eating, after touching dirty things, or after using the toilet. However, comparatively, a smaller number of students (almost 70%) usually wash their hands after playing outside or with their pets. Hand washing after blowing or sneezing was practised regularly by 74% of the students. However, using soap regularly to wash hands was reported by only 67% of the students. The findings agree with another similar study.[12] A study from Karnataka revealed a low level of knowledge and practice of hand hygiene among the primary level students.[13], Unlike our findings, the hand washing behaviour was reported to be very poor in a study from Ethiopia.[14]

The majority, 81% of the participants, reported being taught the importance of hand washing. Most of the students were taught about the importance of hand hygiene by their parents (67%), which agrees with another study.[9] Television (76%) was the information source in most cases. Like our findings, a previous study reported that media is vital in spreading awareness of preventive measures against infectious diseases.[15]

Most (46%) of the students responded that foodborne diseases are spread via hands, while 30% did not know about the diseases that spread via hands. Also, more than 50% of the participants knew the effectiveness of hand washing in preventing various diseases.

Hand-washing with soap is vital in preventing pneumonia and diarrheal infections by up to %50 and water- and foodborne diseases by fifty to seventy percent.[9] Among the participants, 63% reported using soap while washing hands. In comparison, 77% responded that soap water is the best way to wash hands. Out of the 100 participants, 72 (72%) responded that laziness was the reason for skipping hand washing, while 8% responded that they often forget to wash hands. At the same time, a study conducted among university students reported that a significant reason for skipping hand-washing was that they did not think it necessary.[16]

The recent COVID-19 prevention and awareness programmes advocating hand washing to control infections and disease transmission have helped spread knowledge about hand hygiene and its importance in the country. Yet, children must often be reminded of the need for good hand hygiene.

CONCLUSION

The present findings suggest that the level of knowledge and practice towards hand hygiene was pretty good among the primary students. Almost one-third of the participants used and advocated soap for hand washing. Parents and teachers were the significant sources of information. Laziness and forgetfulness were the most common reasons for hand washing.

Children are more susceptible to acquiring and spreading diseases. Diseases may hamper the quality of life and increase the number of missed school days of the students. Hand washing is an essential measure in controlling the spread of diseases. Home-based and institution-based measures are advocated for increasing awareness among little children about proper hand hygiene and its importance in maintaining good health.

Data availability: The data used to support the findings of this study are included in the article.

Conflicts of interest: None declared.

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Supplementary materials: Nil.

Ethical clearance: Taken.

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