

Original Article

Knowledge & Practice about Personal Hygiene among Primary School Students in Rural Chattogram, Bangladesh

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Abstract: Personal hygiene aids in the disease prevention and health promotion. It is vital in every phase of life, but good cleanliness behavior starts in childhood. Poor hand cleanliness consistently causes gastrointestinal infections. Health education promotes hand washing, which reduces communicable diseases among schoolchildren. This study evaluated the level of knowledge and practices of the personal hygiene and also to assess the association between proper knowledge and practice of personal hygiene among primary school children in rural Chattogram. The study followed the cross-sectional descriptive study design and primary data collection technique has been used to collect the data by using an interviewer-administered questionnaire. The questionnaire consisted of both open and close-ended questions. This study was conducted among the primary school students of two primary schools located at Chadanaish Upazila, Chattogram, Pathandandi Government Primary School & East Chandanaish Government Primary School from October 2022 to April 2023. The study included N=250 primary school children. Most of them were females 129 (51.6%), and all of them were rural resident with their age ranged between 6-10 years and median age 8 years. More than three quarters of the children knew the importance of hand washing (81.2%), cleaning ear (84.3%) and importance of hand washing with soap (85.6%). On the other hand more than half of them had a special towel and comb. About two thirds of children (65.6%) had well to moderate knowledge with more than half (55.2%) had good practice. Male children had a better knowledge and practice than female ones. Residence had no significant effect on children knowledge and practice. Primary school student's knowledge and practices about personal hygiene were deficient in some aspects.

Keywords: hygiene, knowledge, practice, primary school students.

1. INTRODUCTION

Hygeia, the ancient Greek goddess of good living, inspired cleanliness. "Hygiene is the science of health and includes all factors that promote healthful living." Personal hygiene encompasses variables that affect health and wellbeing and improves health [1]. Daily personal hygiene includes bathing and washing the body, washing clothes, brushing teeth, trimming nails and hair, washing hands before meals and after using the toilet, and more. Poor personal hygiene causes high rates of communicable infections, which harms children's development [2]. Linear personal hygiene prevents disease and promotes health. Social, familial, and individual influences, as well as children's hygiene knowledge and attitudes, influence cleanliness behaviours [3]. A study found that stubbornness (not wanting to follow adults), laziness, the rush to go to breaks, the time it takes away from playing, and the grime and smell of restrooms were reasons for not washing hands. Poor hand cleanliness consistently causes gastrointestinal infections [4]. Health education promotes hand washing, which reduces communicable diseases among schoolchildren. Private hygiene helps reduce the spread of respiratory illnesses, helminthiasis, skin infections, eye infections, food-borne diseases, and novel pathogens in epidemics. In Africa and Southeast Asia, infectious illness kills 62% and 31% of people [5]. This tendency is especially noticeable in developing nations where acute respiratory and intestinal illnesses kill most young children. In Bangladesh, diarrheal illnesses still cause 6% of fatalities in children under 5 years old, despite recent reductions in mortality rates [6]. In poorer countries, poor sanitation and hygiene practices exacerbate communicable disease. Good personal hygiene involves cleaning and maintaining all external body components. Maintenance of physical and mental health is crucial [7]. Poor personal cleanliness creates an excellent setting for bacteria, making the body susceptible to sickness. Poor personal hygiene may lead to social isolation and loneliness. Personal hygiene is one of the best strategies to prevent illness [5-9]. This includes handwashing and body washing. It involves not coughing or sneezing on others, cleaning objects you touch if you're sick, throwing away tissues and other germ items, and using gloves or condoms when you're at risk of infection. Culture heavily influences personal hygiene like bathing. Some cultures require daily body washing and deodorant use. Different cultures demand different things [8]. Practice good dental hygiene by brushing and flossing. Infections in the mouth, gums, and teeth can produce bad breath. Because saliva doesn't form while you sleep, most people have terrible breath in the morning. Garlic and onion can produce bad breath. Mouth washes, mouth sprays, and flavoured gum can temporarily improve your breath, but if you have a mouth problem, contact a dentist [9]. Good hand hygiene is a cost-efficient public health intervention and essential to safe and effective health treatment. It prevents COVID-19 and other outbreak-related diseases and protects against many diseases. This is particularly important for fighting AMR, childhood sets the stage for lifelong personal hygiene responsibility, which is crucial for a healthy childhood, adulthood, and the development of positive health values and health service utilisation [10]. Not knowing the health benefits of personal cleanliness causes poor health in schoolchildren. Developing countries have more communicable diseases due to poor hygiene and sanitation [11]. Southeast Asia has 31% of all deaths from infectious diseases, notably in underdeveloped nations where severe respiratory and intestinal infections kill young infants [12]. Many hand hygiene studies found that children who wash their hands have less gastrointestinal and respiratory complaints. Hand washing with soap decreases diarrheal disease morbidity by 44% and respiratory infections by 23%, according to previous studies. The World Health Organisation states that 3.8 million under-5s die from acute diarrheal and respiratory tract illnesses each year. Poor water, sanitation, and hygiene cause 88% of diarrheal fatalities worldwide [13]. Hygiene is the science of health, covering personal and environmental variables that promote healthy life. It promotes personal hygiene in the home, including bathing,

dressings, handwashing, nail, foot, and tooth care. Poor environmental circumstances and poor personal hygiene increase diarrhoea, worm infestation, respiratory infections, malnutrition, anaemia, vitamin insufficiency, and other morbidities [14]. The teen years are about growth and development, the period will pass on habits, as adolescent girls become mothers. Adulthood cements habits. Schools can promote healthy habits [15]. Several global studies have examined elementary school children's personal hygiene knowledge and practice. These research illuminated this population's personal hygiene prevalence and factors. Personal hygiene is important throughout life, but excellent hygiene habits begin in childhood. Learning what it is and how to practise proper hygiene usually sticks with kids. This prompted this investigation. Although a significant proportion of primary school kids had appropriate knowledge of fundamental personal hygiene, their behaviours were inadequate. Personal hygiene has been the focus of most research. Few research have examined primary school children's personal hygiene knowledge and practices. [16] This study examined primary school children's personal hygiene knowledge and habits in grades 1–5. The study would be helpful to identify factors affecting primary school children's personal hygiene behaviour and eliminate barriers to knowledge and practice.

2. MATERIALS AND METHODS

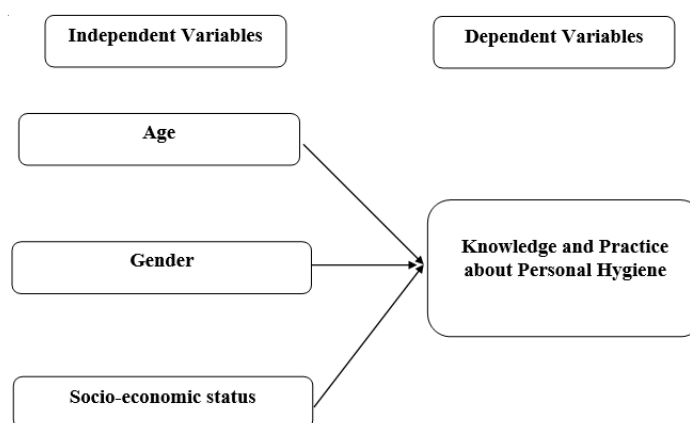


Figure 01: Conceptual framework of study

This study utilized a cross-sectional and descriptive research design to assess the knowledge and practice of personal hygiene among primary school students in selected schools at Chandanaish Upazila, Chattogram. A convenience sampling technique was used to select the participants. Sample size of the study was calculated using the following formula to be enrolled in the study:

$$n = z^2 pq/d^2$$

I used this formula to determine the sample size:

$$n = z^2 pqd^2$$

Where,

n = desired sample size

z = standard normal variation

For 5% type I error and alpha error (0.05), the standard normal variation is 1.96 (based on a 95% confidence interval).

p = Prevalence among community people, 20% = 0.20.

$q = (1-p)$

= $1.0 - 0.20$

= 0.80

d = Margin of error considered as 0.05

So, here,

$$(1.96) \div 0.05 \times \sqrt{0.20 \times 0.80}$$

$n = (0.05)^{-2}$

= 245.86

A total of $N=250$ primary school students were included in the study. The sample size was determined based on feasibility and resource availability. Data were collected using an interviewer-administered questionnaire, questionnaire consisted of both open and close-ended questions. This study was conducted among the primary school students of two primary schools located at Chadanaish Upazila, Chattogram, Pathandandi Government Primary School & East Chandanaish Government Primary School. This study started from October, 2022 and continued for a period of 7 months till April, 2023. The data were analyzed by using by Excel Spreadsheet.

3. RESULTS AND DISCUSSION

3.1 Results & Interpretation

Table 01: Distribution of the age of the respondents

Age (in years)	Frequency	Percentage
06	36	14.4
07	42	16.8
08	55	22
09	59	23.6
10	58	23.2
Total	250	100

Table 01 shows the distribution of the age of the respondents. The findings show that highest respondents were in the age group of 9 years (23.6%) and lowest respondents were in the age group of 6 years (14.4%)

Table 02: Grade or Class of the students

Grade or Class	Frequency	Percentage
Two	12	4.8
Three	53	21.2
Four	110	43.9
Five	75	30.1
Total	250	100

Table 2 shows the distribution of the Grade or Class of the respondents. The findings show that most of the respondents (43.9%) were in the class four

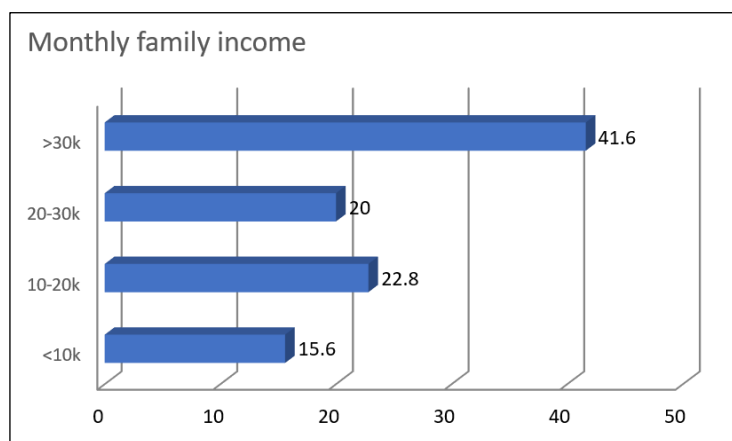


Figure 02: Bar chart showing the distribution of highest monthly family income status 41.06% of >30k & Lowest 15.6% monthly family income status <10k

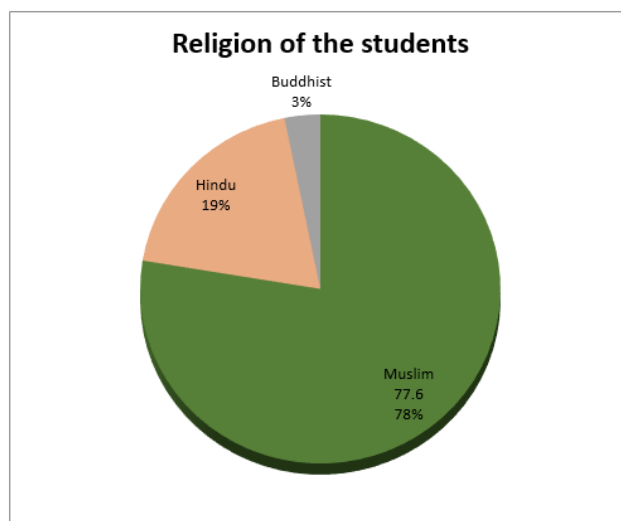


Figure 03: Pie chart showing the distribution of highest religion status 77.6% of Muslim and Lowest 3.2% religion status of Buddhist

Table 03: Number of Family Members

No. of family members	Frequency	Percentage
3 Persons	108	43.2
4 Persons	48	19.2
5 Persons	49	19.6
6 Persons	39	15.6
7 Persons	6	2.4
Total	250	100

Table 03 shows the distribution of the number of family members of the respondents. The findings show that highest number of family member's status 43.2% of 3 persons. Frequency distribution of the study subjects according to their knowledge towards personal hygiene

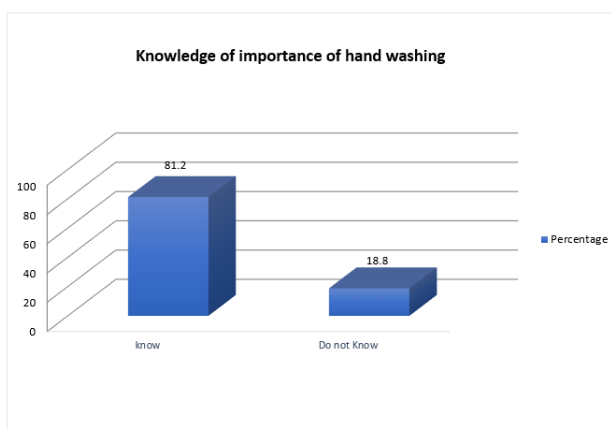


Figure 04: Bar chart showing the distribution of importance of hand washing- most of the students (81.2%) students know the importance of hand washing.

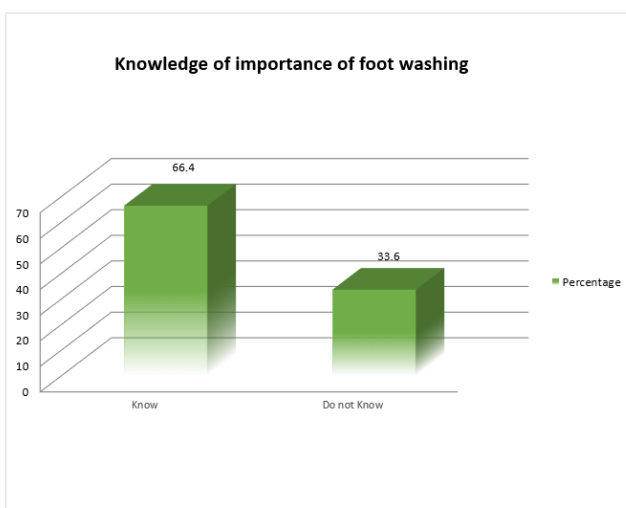


Figure 05: Bar chart showing the distribution of Importance of foot washing-most of the students (66.4%) students knows the importance

Table 04: Knowledge about importance of cleaning ear among students

Particular	Frequency	Percentage
Know	210	84
Do not Know	40	16
Total	250	100

Table 4 shows the frequency distribution of the students about having knowledge of importance of cleaning ear, where most of the students know the importance of cleaning ear (84%)

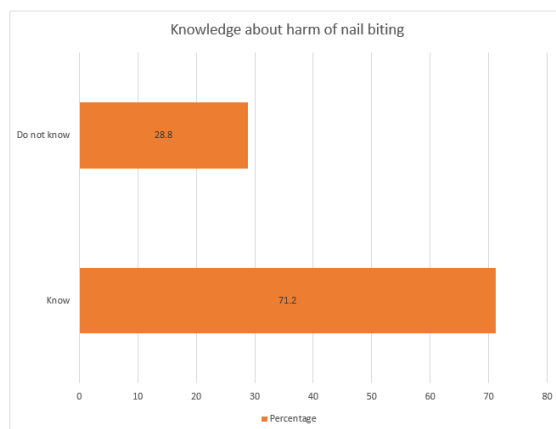
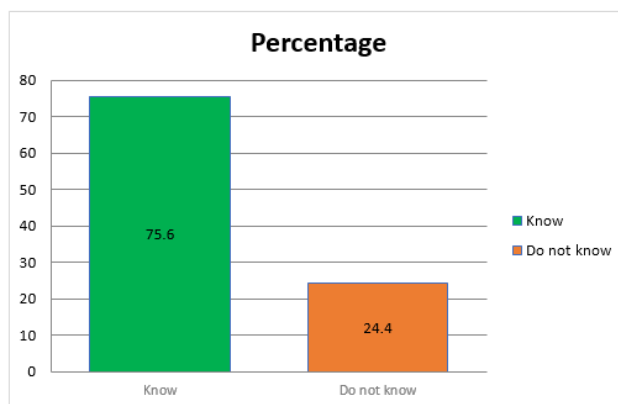
**Figure 06:** Bar chart showing the distribution of knowledge about harm of nail biting on health- most of the students (71.2%) know the harm of nail biting**Figure 07:** Bar chart showing the distribution of knowledge about the harm of poor personal hygiene on health- most of the students (75.6%) knows the harm of poor personal hygiene

Table 05: Knowledge of tooth brushing time per day

Particular	Frequency	Percentage
Know	195	78
Do not know	55	22
Total	250	100

Table 05 shows the frequency distribution of the students about having knowledge of tooth brushing time per day, where most of the students know about tooth brushing time per day (78%), but rests (22%) do not know the difference

Table 06: Knowledge of importance of hand washing with soap

Particular	Frequency	Percentage
Know	214	85.6
Do not know	36	14.4
Total	250	100

Table 06 shows the frequency distribution of the students about having Knowledge of importance of hand washing with soap, where most of the students have the Knowledge of importance of hand washing with soap (85.6%), but rests (14.4%) do not have

Table 07: Knowledge about bathing times per week among students

Particular	Frequency	Percentage
Know	137	54.8
Do not know	113	45.2
Total	250	100

Table 07 shows the frequency distribution of the students about having Knowledge about bathing times per week, where most of the students have the Knowledge about bathing times per week (54.8%), but rests (45.2%) do not have the knowledge Frequency distribution of the study subjects according to their Practice of personal hygiene

Table 08: Washing face in the morning

Particular	Frequency	Percentage
Yes (Practice)	218	87.2
No (Do not Practice)	32	12.8
Total	250	100

Table 08 shows the frequency distribution of the students about practice of washing face in the morning, where most of the students wash face in the morning (87.2%), but rests (12.8%) do not

Table 09: Brushing tooth twice per day

Particular	Frequency	Percentage
Yes (Practice)	106	42.4
No (Do not Practice)	144	57.6
Total	250	100

Table 10: Take bath once a day

Particular	Frequency	Percentage
Yes (Practice)	203	81.2
No (Do not Practice)	47	18.8
Total	250	100

Table 10 shows the frequency distributions of the students about practice of bathing once per day, where most of the students have the practice of bathing once per day (81.2%), but rests (18.8%) do not

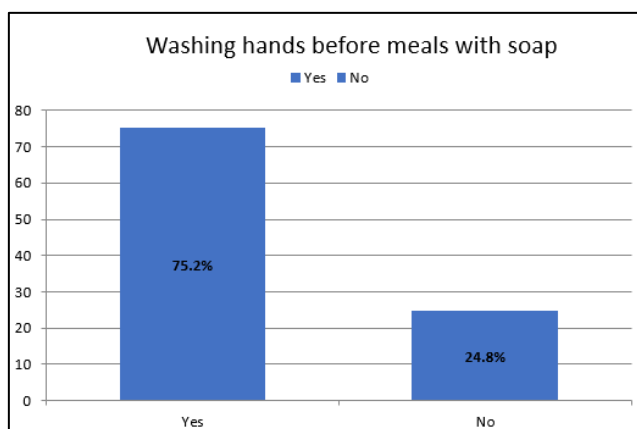


Figure 08: Bar chart showing the distribution of Practice about washing hands before meals – 75.2% students answered yes & 24.8% do not practice

Table 11: Does mother or caretaker cut nails at least once a week

Particular	Frequency	Percentage
Yes	197	78.8
No	53	21.2
Total	250	100

Table 11 shows the frequency distributions of the students about cutting nails once a week, where most of the students responded with yes (78.8%), rest (21.2%) said they do not cut nail at least once a week

Table 12: Wash School dress every day after school

Particular	Frequency	Percentage
Yes	178	71.2
No	72	28.8
Total	250	100

Table 12 shows the frequency distributions of the students who wear washed clean clothes every day, most of the students (71.2%) responded that they use washed clothes, rest (28.8%) said they do not

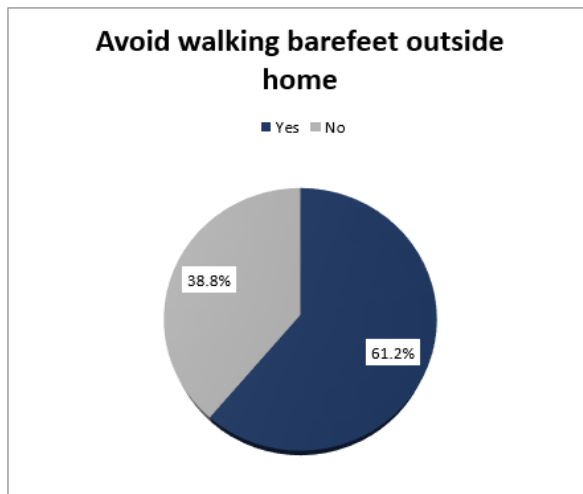


Figure 09: shows the distribution of avoiding walking bare feet outside home – most of the students avoid walking bare feet outside home (61.2%)

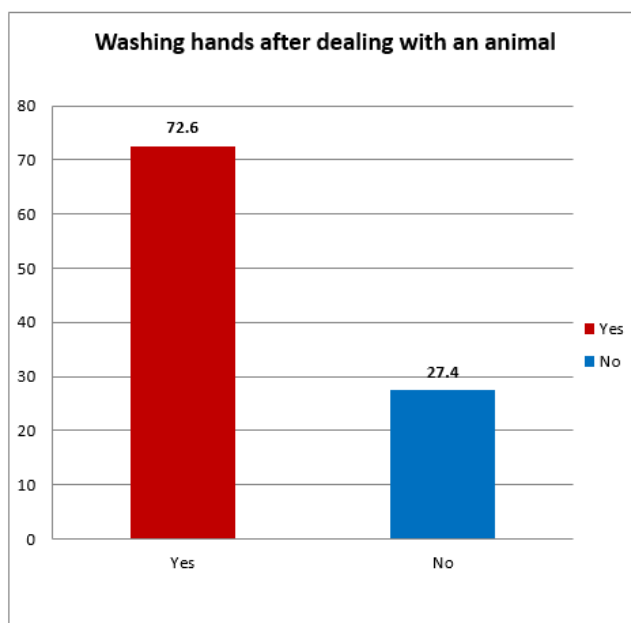


Figure 10: shows the distribution of Practice of washing hands after dealing with animal– most of the students (72.8%) students said they wash their hands after dealing with an animal

Table 13: Use of handkerchief during sneezing

Particular	Frequency	Percentage
Yes	177	70.8
No	73	29.2

Total	250	100
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Table 13 shows the frequency distributions of the students who use handkerchief during sneezing, most of the students (70.8%) responded yes, rest (29.2%) said they do not use handkerchief during sneezing

Table 14: Washing of hands and feet after playing outside

Particular	Frequency	Percentage
Yes	198	79.2
No	52	20.8
Total	250	100

Table 14 shows the frequency distributions of the students who wash of hands and feet after playing outside, most of the students (79.2%) said they wash their hands and feet after playing outside. This study included 250 primary school students, more than half of them were females 129 (51.6%). The all of the participants were rural resident with their age ranged between 6-10 years and their median age was 8 years.

Table 15: Frequency distribution of the study subjects according to their Knowledge towards personal hygiene

Knowledge Questions	Know		Do not know	
	No.	%	No.	%
1. know the importance of hand washing	203	81.2	47	18.8
2. know the importance of foot washing?	166	66.4	84	33.6
3. know the importance of cleaning ear	210	84	40	16
4. knowledge about the importance of tooth washing	226	90.4	24	9.6
5. know the difference between personal and general hygiene requirements	26	10.4	224	89.6
6. know the harm of nail biting on health	178	71.2	72	28.8
7. knowledge about the harm of poor personal hygiene on health	189	75.6	61	24.4
8. knowledge about the times tooth brushing per day	195	78	55	22
9. know the importance of hand washing with soap	214	85.6	36	14.4
10. know what you should do during sneezing	63	25.2	187	74.8
11. knowledge about times bathing per week	137	54.8	113	45.2
12. Towel as a personal hygiene instrument	199	79.6	51	20.4

Table 15 shows frequency distribution of the study subjects according to their Knowledge towards personal hygiene; 77.6% of children knew the requirement of personal hygiene. The best questions answered were the 1st, 3rd, 4th and 9th (the importance of washing hands, cleaning ear, teeth brushing and using soap in cleaning hand) as they were 81.2% for 3rd, 84% for 5th and 85.6% and 90.4% for the 9th and 4th questions respectively. Regarding the Difference between general and personal hygiene and knowledge about what to do during sneezing, 5th and 10th questions respectively, about one-third of the students answered it correctly.

Table 16: Frequency distribution of the study subjects according to their Practice of personal hygiene

Practice Questions	Practice(yes)		Do not Practice(No)	
	No.	%	No.	%
1. Wash face in the morning	218	87.2	32	12.8
2. Brush tooth twice per day	106	42.4	47	144

3. Take bath once per day	203	81.2	47	18.8
4. Mother/Caretaker clean your ear after bathing	156	62.4	94	37.6
5. Wash hands with soap before meals	188	75.2	62	24.8
6. Wash hands with soap after a toilet	195	78	55	22
7. Comb hair after a bath	215	86	35	14
8. Mother cut your nails at least once a week	197	78.8	53	21.2
9. Use toothpaste after meals in cleaning teeth	214	85.6	36	14.4
10. Avoid walking with bare feet	153	61.2	97	38.8
11. Wear clean washed clothes everyday in school	178	71.2	72	28.8
12. Wash hands after dealing with an animal	182	72.8	68	27.2
13. Eat from street vendors	113	45.2	137	54.8
14. Wash your hands and feet after playing outside	198	79.2	52	20.8

Table 16 shows frequency distribution of the study subjects according to their Practice of personal hygiene. More than 80% of children practiced face washing in the morning, bathing at least once a day and combing their hair after bath. On the other hand almost half of the students (42.4%) do not brush their teeth twice a day and eat food from street vendors (45.2%). Out of 250 students, 86 students (34.4%) had poor knowledge, 110 students (44%) had moderate knowledge and 54 students (21.6%) had good knowledge about personal hygiene. On the other hand 20 students (8%) had poor practices, but most of them had moderate to good practices, which is about 36.8% and 55.4% respectively.

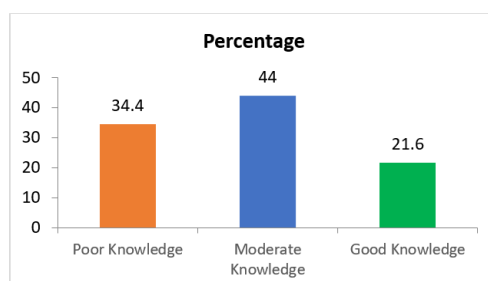


Figure 11: shows the distribution of the study children according to their level of knowledge.

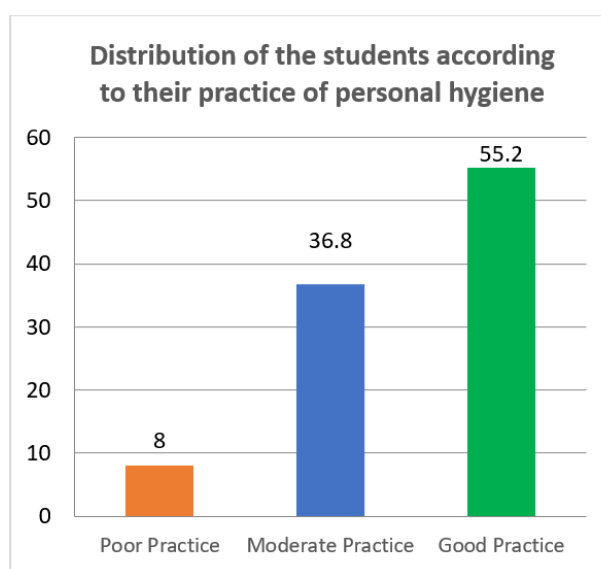


Figure 12: shows the distribution of the study children according to their practice of personal hygiene

Table 17: Relationship between student's knowledge score with their practice scores

Practice		Knowledge						Significance Test
		Poor Knowledge (<50%) (N = 86)		Moderate Knowledge (50 - 75%) (N = 110)		Good Knowledge (>75%) (N = 54)		
		No	%	No	%	No	%	
Poor	(<50%) (N = 20)	13	65.0	6	30.0	1	5.0	X ² = 36.65 P = 0.001
Moderate	(50 - 75%) (N = 92)	48	52.2	34	36.9	10	10.9	
Good	(>75%) (N = 138)	25	18.1	70	50.7	43	31.2	

Table 17 shows the relationship between children's knowledge with their practices. It reveals that most of those with good practice had a moderate and good knowledge (50.7% and 31.2% respectively) and more than half of those with poor practice had a poor knowledge (65%)

Table 18: Relationship between children's knowledge with their Gender

Gender		Knowledge						Significance test
		Poor Knowledge (<50%) (N = 86)		Moderate Knowledge (50 - 70%) (N = 110)		Good Knowledge (>70%) (N = 54)		
		No	%	No	%	No	%	
Male	(N = 121)	23	19.0	62	51.3	36	29.7	X ² = 18.62 P = 0.001
Female	(N = 129)	63	48.8	48	37.3	18	13.9	

Table 18 shows the relationship between student's knowledge with their gender or sex. Regarding gender males and older children had better knowledge than female students. More than three quarter (81%) male students had moderate to good knowledge about personal hygiene, whereas about half of the female students (48.8%) had poor knowledge about personal hygiene

Table 19: Relationship between children's Practice with their Gender

Gender		Practice						Significance test
		Poor Practice (<50%) (N = 20)		Moderate Practice (50 - 70%) (N = 92)		Good Practice (>70%) (N = 138)		
		No	%	No	%	No	%	
Male	(N = 121)	7	5.7	36	29.9	78	64.4	X ² = 7.209 P = 0.027
Female	(N = 129)	13	10.1	56	43.4	60	46.5	

Table 19 shows the relationship between children's Practices of personal hygiene with their Gender. Concerning practice 64.4% of male children had a good practice compared to 46.5% of females. Overall combining moderate to good practices, male students had better practices of personal hygiene (94.4%) compared to female students (89.9%)

3.2 Discussion

The current research found that children had a high degree of understanding on the necessity of maintaining personal hygiene, as well as the significance of brushing their teeth, washing their hands, and using soaps to clean their hands. Another study that was conducted among primary school children found that 85.4% of pupils are aware of the significance of washing their hands before meals [17]. This finding was in agreement with the findings of that study. Primary school pupils said that the majority of students (94%) were aware of the necessity of maintaining personal cleanliness, and the majority of them (83%) were aware of the significance of washing their hands [18]. On the other hand, youngsters were not aware of the health risks associated with biting their nails, taking a large number of baths each week, or not practicing proper personal hygiene [19]. It is possible that this is because of the age gap that exists within the study population, as the children who participated in the current study were younger. One hundred and seventy-two percent of the children who participated in this study washed their faces first thing in the morning, used soap to wash their bodies and hair, combed their hair, and washed their hands with soap both before and after meals. According to the findings of other research [20,21] these high numbers were in line with what was known. On the other hand, it is greater than what was reported in other studies conducted, where 85.4% and 46.9% of students, respectively, reported washing their hands before meals, and 45.12% and 42.4%, respectively, reported using soap [22]. Eighty-one point two percent of the students who participated in this survey actually took a bath on a daily basis. However, a smaller percentage of people (42.4%) used a toothbrush twice a day [23]. A study said that 81% of children took a bath every day, and 31% of children brushed their teeth twice a day. These data are in agreement with those findings. According to the findings of the survey, more than seventy-five percent of children in Switzerland, Sweden, the Netherlands, Germany, Denmark, and Norway cleaned their teeth more than once per day. On the other hand, in Finland, Romania, Greece, Lithuania, Turkey, and Malta, less than forty-six percent of children brushed their teeth more than once per day [24]. A study has been found that only 22% of children washed their teeth twice a day, which led to lower proportions of children brushing their teeth. The differences in socioeconomic class and living situations among the people who participated in the study could be the reason for this, as could the fact that parents have varying degrees of awareness [25]. The findings of the current research, three quarters of the children who had good practice had significantly intermediate and good knowledge. According to the findings of the current research, male youngsters had significantly higher levels of knowledge and practice than their female counterparts. Females had higher knowledge, attitude, and practice scores than males in relation to oral health. This finding contradicts the findings of the aforementioned researchers. On the other hand, males had demonstrated significantly higher scores in comparison to females in another study. It's possible that the cultural and societal variances are to blame for this disparity in the outcomes [26]. When compared to younger children, older children in this study possessed much more knowledge and practice than the younger children.

4. CONCLUSIONS

Within the context of the Chandanaish Upazila in Chattogram, the purpose of this study was to investigate the level of knowledge and practice on personal hygiene among primary school pupils in a selection of schools. Among the primary school kids in the area under investigation, the findings of this study shed light on the existing situation of personal hygiene and provide crucial insights for improving the hygiene practices of these pupils. According to the findings of the study, a sizeable percentage of children in primary school had inadequate awareness of personal hygiene methods and did not apply

them regularly. This demonstrates the importance of implementing treatments and educational programs that are geared toward this population in order to improve their awareness of personal hygiene and encourage them to engage in more effective hygiene practices. The results of this study are in line with those of other studies that were carried out in a variety of contexts. These earlier studies have also brought to light the knowledge gaps and below-average personal hygiene habits that are prevalent among children in elementary school. These findings highlight the significance of addressing the issue of personal hygiene instruction for children at a young age and within the context of the educational setting. There are a number of factors that can have an effect on the personal hygiene habits of elementary school pupils, including age, gender, and socio-economic level. It is essential to acknowledge this fact. As a result, interventions must to be specific in order to take into account these aspects, and they ought to be inclusive and considerate of the various requirements and histories of the pupils.

5. RECOMMENDATIONS

Based on the findings, several recommendations can be made such as teachers in elementary schools should receive training on what constitutes proper personal hygiene habits, and they should also actively promote and reinforce these behaviors among their students. The second step is to develop and implement health education programs in primary schools in order to improve students' awareness and knowledge of the need of maintaining personal hygiene. These programs ought to be suitable for users of a certain age range, interactive, and culturally pertinent. As an additional point of interest, parents and guardians play a significant part in the formation of personal hygiene practices. In light of this, it is essential to educate parents and involve them in the process of encouraging their children to engage in habits that promote personal hygiene. Students in primary school can benefit from a supportive environment that encourages them to develop healthy habits about personal hygiene if schools, parents, and the community work together to create such an environment. In conclusion, this study emphasizes the importance of making concentrated efforts to promote the knowledge and practice of personal hygiene among primary school pupils in chosen schools located in the Chandanaish Upazila of Chattogram. We are able to enable students in elementary school to adopt and maintain healthy personal hygiene practices by addressing the information gaps, implementing focused interventions, and cultivating an environment that is supportive. For the kids and the community as a whole, the good effects of such interventions will have far-reaching advantages, adding to the overall health and well-being of the community as a whole.

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