

Knowledge and practice of COVID-19 prevention

An assessment of Knowledge and Practice of COVID-19
Preventive Measures: A Cross-sectional Study Among Junior
Secondary Education Students in Cox's Bazar districts, Bangladesh

A Summative Learning Project Report
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Abstract

Introduction: After reopening of schools and religious educational places, these gathering places become potential places for the outbreak and transmission of COVID-19 infection. The intervention like BRAC CST projects, recruitment of the change agents among the vulnerable people and dissemination of COVID-19 information can enhance the public awareness and application of proper preventive methods among the secondary school students. The ultimate aim of this study is to assess the knowledge and practice of COVID-19 prevention among the grades 6 and 7 schools and equivalent Grades Level of Students from Madrasas in Cox's Bazar district, Bangladesh.

Methodology: The primary data set of cross-sectional study using self-administered questionnaire was exploited in this study which was conducted between the end of 2022 and early 2023 on the grades 6 and 7 students of schools and equivalent grades level of students from madrasas in Cox's Bazar district, Bangladesh.

Results: Among 1223 students, 75.31% of the students had adequate knowledge (71.57% from class 6 and 79.19% from class 7). There was a statistically significant association between the knowledge level of students in both classes and their location ($p < 0.05$), type of institutions in class 6 ($p < 0.05$) and gender in only class 7 ($p < 0.05$). The logistic regression showed that the students from Pekua upazila had lesser odds of having adequate knowledge (AOR: 0.39, 95% CI: 0.28-0.53, $p < 0.05$). In addition, the female students had higher odds of having adequate knowledge (AOR: 1.49, 95% CI: 1.13-1.96, $p < 0.05$). Moreover, the students from class 7 of both institutions had higher odds of having adequate knowledge (AOR: 1.69, 95% CI: 1.28-2.24, $p < 0.001$). Based on practice level, 87.82% of students had adequate practice (86.45% from class 6 and 88.95% from class 7). In class 6, there was a statistically significant association between practice level of students and their location ($p < 0.05$) and only gender from class 7 ($p < 0.05$). There was no statistically association between adequate practice of students and their socio-demographic characteristic while we calculated the logistic regression.

Conclusion: This study illustrated that most of the students from class 6 and 7 had adequate knowledge and adequate practice on COVID-19 prevention. The health information session about COVID-19 prevention should more focus in the rural area.

1.Introduction

1.1 Background

The novel coronavirus was described as a Public Health Emergency of International Concern (PHEIC) by World Health Organization (WHO) on 11th March 2020 due to its high transmission rate (WHO, 2020). Globally, an estimated 640 million people were suffering from COVID-19, among them, approximately 6 million were died (Worldometers, 2022). According to the COVID-19 Dynamic Dashboard for Bangladesh, 2 million cases were confirmed and more than 29,000 were died by October 2022 (DGHS, BD, 2022). The inception of the COVID-19 vaccination program and scaling up of the program have reduced of severity and mortality of COVID-19 (Watson et al, 2022). Additionally, sanitary behaviors such as appropriate hand washing remain essential in preventing COVID-19 (Feleke et al, 2022).

Knowledge, attitude and practice (KAP) is a significant credible method in public health especially in preventive measures that can appraise the effectiveness of existing programs and strategies within the communities (Getawa et al, 2022). The lack of understanding or the misinterpretation of the majority of medically connected opinions may carry a risk in various situations (Zhou et al, 2020). No effective antiviral therapy has been documented thus far. Nevertheless, a variety of vaccines are now accessible, notwithstanding the vaccine's inequitable distribution to developing nations. Because of this, the most crucial action is to use preventative measures to limit COVID-19 infection (Baloch et al, 2020).

As per WHO COVID-19 prevention guidelines, maintaining social distancing, proper hand hygiene and wearing masks are the basic pillars of minimizing transmission (WHO, 2022). Precautions are obligatory to prevent the potential spread of infection on school premises, and academic realm should sustain protective measures unless the threat is gone (UNICEF, 2020). The high density of population in Bangladesh has faced several challenges during pandemic such insufficient handwashing infrastructures, lack of maintaining social distancing and financial constraints (Rahman et al, 2021). The government of Bangladesh decided to reopen the school and provide COVID-19 vaccination in February 2022. School children were receiving COVID-19 vaccination in Bangladesh before they could go to school again (Sakib, 2022). Moreover, students are not primarily participating in COVID-19 prevention, hence, they can play

as information contributors about COVID-19 safety messages within communities (Banna et al, 2022).

Since fragile health systems are present in low- and middle-income nations, there are urgent questions concerning how to respond to a pandemic effectively and be prepared for one (Asmelash et al, 2020). The awareness and applicable methods related with COVID-19 prevention to the large numbers of community members can be enhanced through the religious leaders and traditional healers among the highest populous nations like Bangladesh (The Daily Star, 2023). The religious leaders can influence on the people with lower education status, residing at the rural areas, perception on COVID-19 prevention and can release the constrain of vaccine hesitancy especially in LMICs (Prabhu et al., 2022).

Every day, more than 12 million children attend school around the world, where they typically spend nine months of the year (UNICEF, 2022). More than 8.9 million students were attending in the secondary schools of Bangladesh (Bangladesh Education Statistics, 2021). During the implementation of stringent preventative measures, students are now being returned to their classrooms to restart the prohibited education. The long-term success of the ongoing fight against COVID-19 in schools depends on students' participation in these preventive activities. Therefore, the basic hygienic principles and precautionary measures are crucial parts for COVID-19 prevention (Ajilore et al., 2017).

With financial support from UNFPA and the World Bank, BRAC has been implementing the 2nd phase of the Community Support Team (CST) Cox's Bazar project starting from May 2022 - December 2022. There are 5 interventions of mask distribution, Social and behavior change communication (SBCC) Activities/IPT, school management committee meetings, information sessions for students at schools and madrasas, and the establishment of handwashing stations (BRAC, 2022). Schools can be the hotspot area for COVID-19 outbreak which can lead to a negative impact on COVID-19 safety precautions, and enhance the infection spread (Bartram et al., 2009).

This study aimed to access the knowledge and practice of COVID-19 prevention among students of secondary education in Cox's Bazar district.

1.2 Justification of the study

Empowering of students as change agents would have positive outcomes and creating of peer network to endorse the productive knowledge among them for changing of practices (Handebo et al, 2021). Children are future change makers, capitalizing on them for proper knowledge and practice of behavior change intervention would receive better return-on-investment than utilization of resources in other sectors. Children are less susceptible to COVID-19 but they can be asymptomatic carriers for transmission of infection to neighbors and family members. Students' extensive awareness into existing COVID-19 preventive knowledge and healthy practices may significantly impact on the breaking of transmission chain in the community.

1.3 Objectives of the study

1.3.1 General objective

- To determine the knowledge and practice of COVID-19 safety measures among students of Grades 6 and 7 schools and equivalent Grades Level of Students from Madrasas in Cox's Bazar district

1.3.2 Specific objectives

- To determine the knowledge level of COVID-19 prevention among students of Grades 6 and 7 schools and equivalent Grades Level of Students from Madrasas in Cox's Bazar district
- To access the practice of COVID-19 safety measures among students of Grades 6 and 7 schools and equivalent Grades Level of Students from Madrasas in Cox's Bazar district
- To compare the knowledge and practice of COVID-19 prevention between schools and madrasas of Grades 6 and 7 in Cox's Bazar district

1.4 Operational Definitions

1.4.1 Knowledge of COVID-19 Safety Measures

The Knowledge of Covid safety measures (regarding the handwashing, wearing mask, social distancing, vaccination and avoid crowded places) was measured through their responses on what is needed to maintain for COVID-19 prevention.

1.4.2 Practice on COVID-19 Safety Measures

Practice of the COVID-19 preventive measures was defined with materials which they used during handwashing i.e soap and water, hand sanitizer, frequency and duration of handwashing practice.

2. Conceptual Framework

The knowledge of COVID-19 preventive measures and self-reported practice of these guidelines of students among 6th and 7th Grades of selected schools and equivalent Grades level of selected Madrasas in the two Cox's Bazar districts (Sadar and Pekua), is the dependent variable of this study. The assessment of knowledge of COVID-19 preventive measures was determined, which are mode of transmission of COVID-19, mindful about signs, symptoms and precautionary measures. The assessment of proper handwashing practice and proper mask wearing was measured as self-reported practice of safety guidelines. In addition, socio-demographic characteristics of respondents such as age, gender, type of institution, source of information, household members, upazila level and class grades are considered as independent variables to elaborate the association with knowledge and practice of COVID-19 prevention among students.

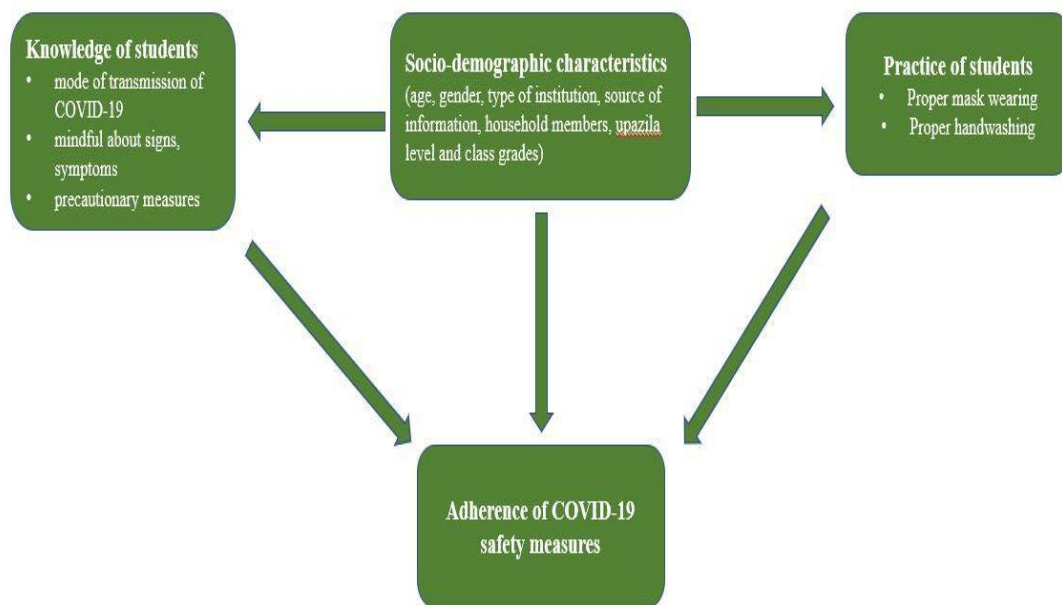


Figure 1: Conceptual Framework

3. Methodology of the study

3.1 Study duration and design

The primary data were collected through a cross-sectional survey conducted by BRAC James P Grants School of Public Health, BRAC University in mid-November to early December 2022 in Cox's Bazar Sadar and Pekua Upazila, Bangladesh. A cross-sectional quantitative study with self-administered structured questionnaires written in both English and local languages was conducted, and data was collected by face-to-face interviews to assess the status of COVID-19 safety measures of students. Informed consent and assent were taken before the interview.

3.2 Study site

Bangladesh is one of the South Asia countries with six administrative divisions and sixty-four districts (UNICEF, 2022). Based on Worldometer report 2022, it has over 168 million of population, among them, there are more than two hundred fifty-three thousand population in the Cox's Bazar District (Worldometer, 2022). The two upazilas were selected as our study sites (Cox's Bazar Sadar and Pekua) in Cox's Bazar district under BRAC CST implementation areas. According to ACAPS analysis hub, Cox's Bazar Sadar is the most notorious urban municipality in Cox's Bazar district and also a famous tourism site. Regarding District Statistics 2011 report, the Cox's Bazar Sadar has 459,082 total population, among them, more than 241 thousand population were male and over 217 thousand were female (District Statistics, 2011). Nearly 50% of the population were educated and one of the highest dense populations among the Cox's Bazar upazilas (District Statistics, 2011).

Pekua is one of the another upazilas in Cox's Bazar district with over 171 thousand population, 52.6% of male and 47.4% of female, and 35.3% literacy rate (District Statistics, 2011).

The 12 institutes of two upazilas (Cox's bazar sadar and Pekua) in Cox's Bazar district under BRAC CST implementation areas were chosen as study sites.

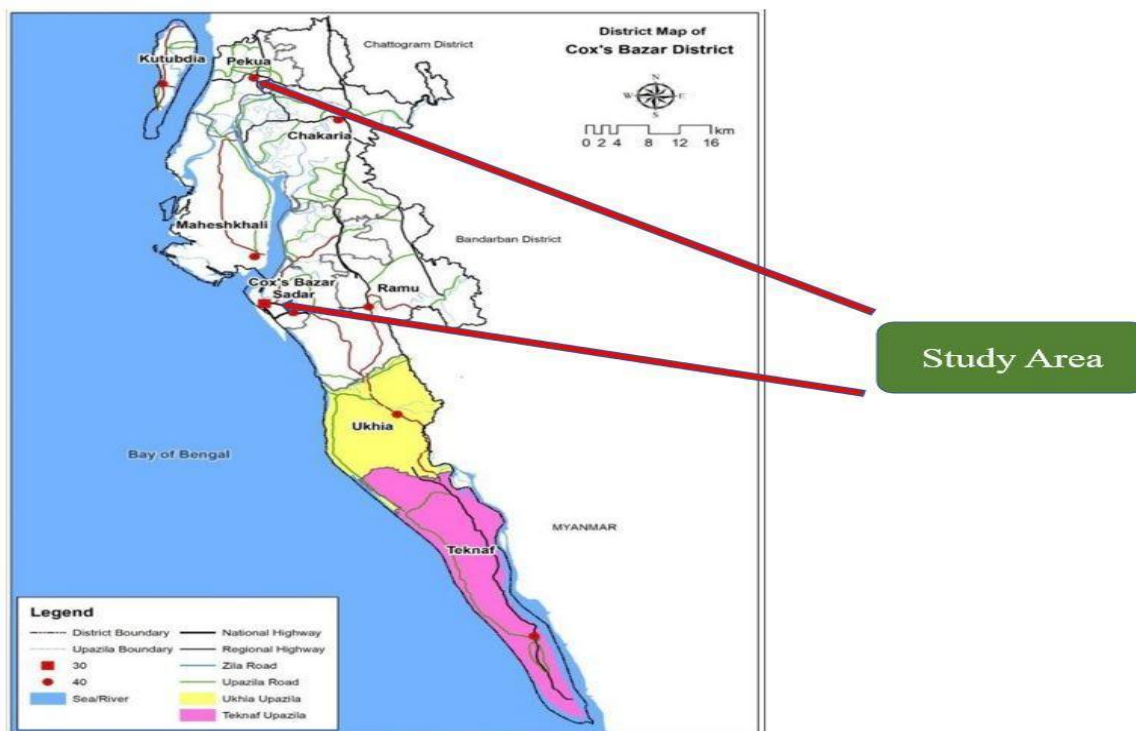


Figure 2: Map showing Cox's Bazar Sadar and Pekua upazilas, Bangladesh (Environmental Screening Report, 2020)

3.3 Study population

We selected all students from Grades 6 and 7 of randomly chosen 6 schools and 6 madrasas from selected 2 upazillas in Cox's Bazar district under BRAC CST intervention area as our study population. The equivalent level of grades of all students from madrasas were be identified as our study population. The students from Grade 1 to 5 were not be chosen because they did not have capacity to make their own decision. The absent students during this survey period were be excluded from the study.

3.4 Sampling Technique

The convenient sampling method was used. Under the BRAC CST project implementation sites, we randomly selected 2 out of 6 upazillas. From these, we chose 12 institutions randomly. From each upazilla, we randomly selected 3 schools and 3 madrasas. And then, we took all students from Grades 6 and 7. Therefore, all students from 12 institutions of 2 Cox's Bazar upazillas within Grades 6 and 7 under the BRAC CST project were be enrolled in this study. The sample size was obtained by using prevalence-based sample size calculation at 95% confidence level,

5% margin of error and assumed prevalence of masks wearing of 88% from the baseline survey of the BRAC CST project. According to this formula, $n = Z^2 \frac{P(1-P)}{e^2}$, 163 was calculated as our sample size. But we adjusted the design effect of the sample design, gender categorization and adjusted for the anticipated 20% non-response rate, so $n=163*1.5*2= 489 \div 0.8= 611$ as our final sample size. Hence, the survey conducted to all of the students who attended during this day. Therefore, all of the students from the Grades 6 and 7 of schools, and equivalent level of grades from madrasas were enrolled as our sample size.

In our study, we consolidated the two grades (6th and 7th) strata because the objective of our study was to compare the knowledge and practice of COVID-19 prevention between Grades 6th and 7th of schools and madrasas from Sadar and Pekua.

3.5 Study Tools

After exploring a comprehensive literature review, we developed a structured questionnaire that were adopted from WHO COVID-19 guidelines and following CST Project interventions, and data collection tools such as surveyCTO platform was used. Socio-demographic characteristics, source of information, assess their handwashing knowledge, mask wearing practice for COVID-19 preventive measures were added to assess their knowledge and practice COVID-19 prevention.

3.6 Outcome Variables

The knowledge of COVID-19 preventive measures and the self-reported practice of these guidelines were the outcome variables. The knowledge of COVID-19 safety measures regarding hygienic management and wearing of masks were measured through their response.

3.7 Independent Variables

Name of the Upazilas, type of institution, age, gender, education level and household size were the socio-demographic factors that were be considered independent variables in our study. Vaccination status, source of information, and getting information sessions provided by the CST project were be considered as other independent variables.

3.8 Data Collection Procedure

The self-administered structured questionnaires included selected socio-demographic characteristics, knowledge, and practice of COVID-19 safety measures, together with the informed consent form. The approval was requested from the authorities before conducting this survey. We shared our consent form and questionnaire and took their responses on a hard copy of the questionnaire. Before these procedures, the approval from school authorities and teachers was requested. The two BRAC JPGSPH research coordinators were appointed for data collection in the selected areas. These two research coordinators were trained by BRAC JPGSPH team in accordance with questionnaires and detail data collection procedures. And the collected data were entered into surveyCTO. The data were extracted from this application and was entered into STATA. Before that activity, the data cleaning, filtering and cross-checking of both soft and paper-based documents were done. The research team and research supervisor verified the hard and soft documents for maintaining the quality of data.

3.9 Data Analysis

Data collected using the self-administered questionnaire was first entered into SurveyCTO for better management. Later data was cleaned and analyzed in STATA® SE 17 after extraction. The analysis involved descriptive statistics (mean, median, frequency, and percentage) in summarizing the variables. By doing chi square test and multiple logistic regression, we could see if there was any association between the explanatory and outcome variables, and to compare difference between Grades 6th and 7th. P-value less than 0.05 was setted as statistical significance at 95% confidence interval.

Firstly, Chi-squared was operated to determine the association between the knowledge and practice level with each independent variable. Then bivariate logistic regression analysis was performed to assess the association between knowledge, practice and each independent variable. Knowledge and practice of COVID-19 preventive measures with socio-demographic factors were the incorporated factors in bivariate analysis. After that, all the variables were utilized to perform the unadjusted and adjusted logistic regression with *p*-value of less than 5% was considered as statistically significant. Lastly, the crude odd ratio (COR) and adjusted odd ratio (AOR) were mentioned together with knowledge and practice level of COVID-19 safety measures under 95% confidence interval and *p*-value.

In the knowledge section, there were four questions regarding COVID-19 preventive measures. We calculated composite scoring and scale range from 0 to 12, with a combined greater score indicated more accurate knowledge. We set a cut off level of ≥ 7 for “adequate knowledge” and < 7 indicated that the students had “inadequate knowledge”.

The practice section included five question concerning COVID-19 safety measures. And its total score ranges from 0 to 9 with combined greater score revealing more common practices about COVID-19 prevention. We set a cut off level of ≥ 5 for “adequate practice” and < 5 illustrated that the students had “inadequate practice”. The above operational definitions were used in this study which were adopted the scoring method used by Ferdous et al. (2020) in study about Knowledge, attitude, and practice regarding COVID-19 outbreak in Bangladesh: An online-based cross-sectional study (Ferdous et al, 2020).

3.10 Ethical Consideration

We got approval from the Ethical Review Board of BRAC-JPGSPH. In addition, the age of students of Grades 6 and 7 would be under the legal age (< 18 years). Therefore, we took informed consent from the school authorities or teachers. For the respondents, we explained our study objectives throughout the survey activity and take assent from each participant.

4. Results

The total number of respondents 1594 were involved with a response rate of 1223 (76.73%) which was calculated according to educational level of students.

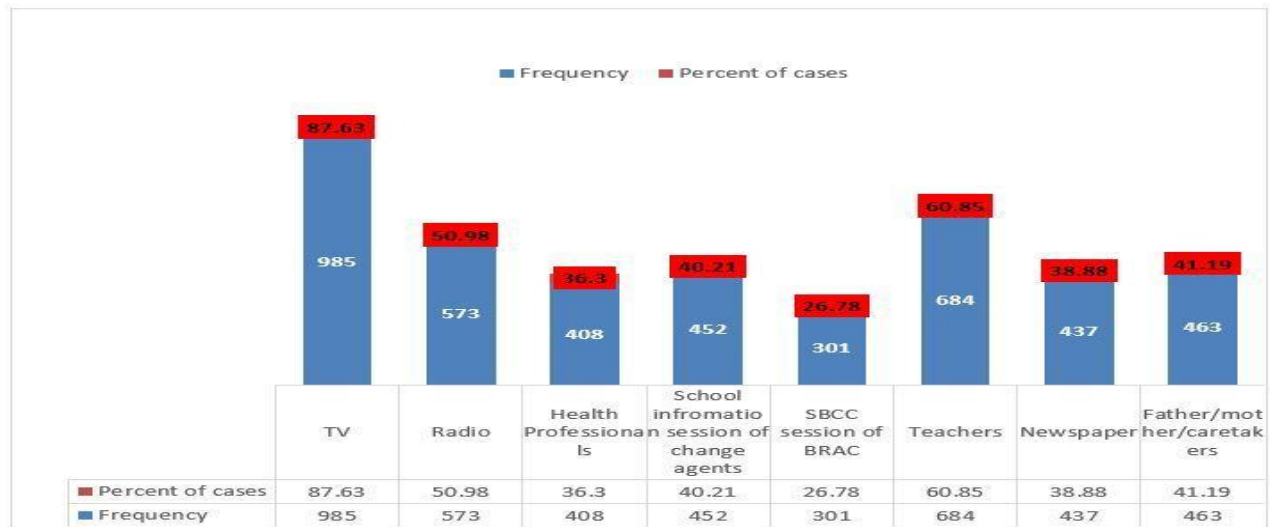
4.1 Sociodemographic characteristics of the students

The total number of students from class 6 of both schools and madrasas were 598, among them, 256 (42.81%) of students were participated from Cox’s Bazar Sadar and 342 (57.19%) from Pekua. Out of 615 students from class 7 of both institutions, 223 (36.26%) from Cox’s Bazar Sadar and 392 (63.74%) from Pekua respectively. The mean age of the students was 12.88 with 95% confidence interval (12.82-12.95). 499 (38.59%) of male were selected, among them, 239 (37.05%) from class 6 and 260 (40.12%) from class 7 of both institutions were involved. Among 794 (61.41%) of total female, 406 (62.95%) from class 6 and 388 (59.88%) from class 7 of both schools and madrasas were participated in this study (Annex Table 1).

4.2 Source of information about COVID-19 prevention

In this study, 985 (87.63%) of students had information about COVID-19, its transmission ways and preventive measures from TV, 573 (50.98%) from radio and 684 (60.85%) from teachers respectively. The remaining sources of information were less than 50%. However, only 301 (26.78%) of students got the information about COVID-19 safety measures from the SBCC session of BRAC CST project (Figure 3).

Figure 3: Source of information for students about COVID-19 prevention



4.3 Assessment of knowledge of Students about COVID-19 safety measures

The knowledge of the students was compiled four compositions concerning COVID-19 safety measures, which are- (1) mode of transmission, (2) precaution measures, (3) handwashing behavior and (4) duration of handwashing.

4.3.1 Knowledge about mode of transmission

505 (84.45%) of students from class 6 and 533 (86.67%) from class 7 of both institutions knew that COVID-19 can transmit through sneezing, coughing and contact of infected person (Annex Table 2).

4.3.2 Knowledge about COVID-19 precaution methods

Mask wearing was mentioned by 498 (86.01%), 467 (80.66) and 446 (77.03%) of students identified the handwashing precaution and maintain social distancing respectively. The

remaining responses such as avoid crowded place and vaccination were mentioned by 180 (31.09%) and 258 (44.56%) respectively from class 6 of both institutions. On the other hand, 537 (90.56%) disclosed the wearing mask and 488 (82.29%) chose the handwashing measurement. In addition, more than 70% of responses were identified as maintain social distancing. Moreover, half (52.11%) of the students mentioned vaccination can prevent COVID-19 and the remaining 35.58% described that avoid crowded place can prevent COVID-19 infection from grade 7 of both schools and madrasas (Annex Table 2).

4.3.3 Knowledge on handwashing behavior

Nine-tenths of the students described after coming back from school 986 (86.72%) and among them, 484 (86.58%) of students from class 6 and 502 (86.85%) from class 7 mentioned that response (Table 2). Moreover, more than four-fifths of the students revealed that they wash their hand before having meal 939 (82.59%). Out of that, 461 (82.47%) of grade 6 and 478 (82.70%) of class 7 pointed out that behavior. Concurrently, more than seven-tenths indicated that they wash their hand after using latrine 863 (75.9%), 410 (73.35%) from class 6 and 453 (78.37%) from class 7 respectively. Half (52.86%) of the responses were identified as the students wash their hands after having meal and students from both class 6 and 7 were answered in the same proportional responses. Nearly three-fifths of the responses were after playing, 333 (59.57%) from class 6 and 361 (62.46%) from class 7 mentioned that response respectively (Annex Table 2).

4.3.4 Knowledge on duration of handwashing

More than four-fifths of the responses were referred that they wash their hands 20 seconds or more duration. 480 (80.27%) of class 6 and 546 (88.78%) of class 7 described that response. Only few proportions, 165 (13.6%) of students mentioned that they wash their hands less than 20 seconds duration (Annex Table 2).

4.4 Assessment of practice of Students about COVID-19 safety measures

The practice of the students was organized five compositions concerning COVID-19 safety measures, which are- (1) handwashing behavior, (2) duration of handwashing, (3) frequency of handwashing each day, (4) mask wearing behavior and (5) mask wearing behavior during special occasion.

4.4.1 Practice on daily handwashing habits

Total of 774 (63.81%) students frequently cleansed their hands. 393 (65.72%) of the class 6 participants and 381 (61.95%) of the class 7 participants both brought up the practice. Less than three-tenths of the participants mentioned that they wash their hands when needed. Out of that, 144 (24.08%) of class 6 and 185 (30.08%) of class 7 expressed that habit. Only 110 (9.07%), 61 (10.20%) from class 6 and 49 (7.95%) from class 7 responded that sometimes they wash their hands respectively (Annex Table 3).

4.4.2 Practice on handwashing duration

481 (60.43%) pupils in grade 6 and 530 (86.18%) children in grade 7 had washed their hands for 20 seconds or longer as of the handwashing duration. Among the pupils, fewer than one-fifth said they washed their hands for less than 20 seconds (Annex Table 3)

4.4.3 Practice on frequency of handwashing each day

One-fifths of the students in both classes reported washing their hands fewer than five times each day, compared to nearly four-fifths of the students in both classes who said they did so. As a consequence, 963 pupils (79.39%) reported washing their hands five or more times every day (Annex Table 3).

4.4.4 Practice on mask wearing habits

Nearly four-fifths of the students answered that they wear mask regularly, 455 (76.09%) from class 6 and 472 (76.75%) from class 7 respectively. Out of 228 (18.8%), 104 (17.39%) and 124 (20.16%) from class 6 and 7 mentioned that they did not wear mask regularly but they wear mask sometimes. Only 30 (2.47%) from both classes revealed that they did not wear the masks all the time (Annex Table 3).

4.4.5 Practice on mask wearing behavior during special occasion

Roughly 1035 kids (90%) wore them when they had to leave their homes, including 507 students from grades 6 and 7 (88.64% and 89.49% respectively). In addition, 347 (60.66%) of the class of 6 and 312 (52.88%) of the class of 7 out of 659 (56.71%) individuals indicated wearing the mask while conversing with others. 171 (29.90%) and 187 (31.69%) students from classes 6 and 7

respectively mentioned that they used masks when they felt like it, or about 30% of each class (Annex Table 3).

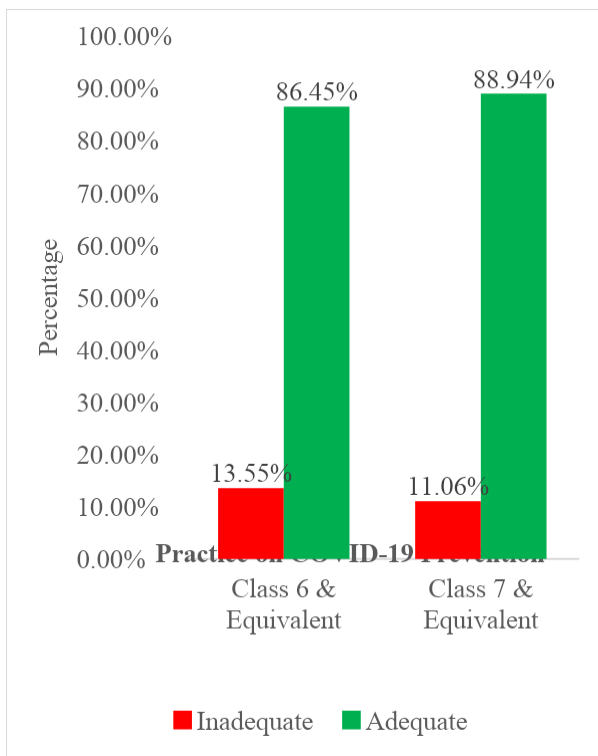
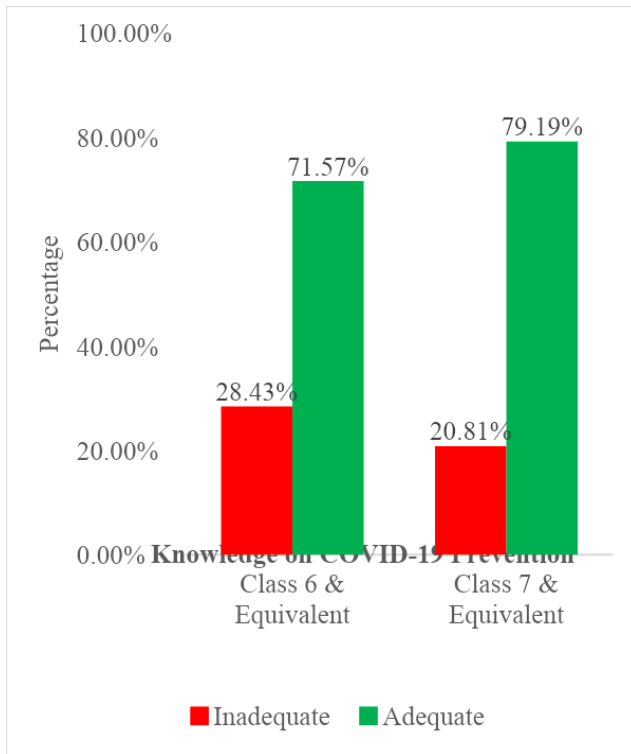
4.5 Level of students' knowledge on COVID-19 prevention

The level of students' knowledge on COVID-19 prevention was presented in Figure 4. Figure 4 showed that most of the students (71.57% and 79.19%) from class 6 and 7 had adequate level of knowledge regarding COVID-19 prevention. Less than 30% from both classes had inadequate knowledge level of COVID-19 prevention.

4.6 Level of students' practice on COVID-19 prevention

Figure 5 displayed that over 85% (86.45% from class 6 and 88.94% from class 7) had adequate practice level regarding COVID-19 safety measures. Moreover, less than 15% of students from both grades had inadequate practice level of COVID-19 safety measures.

Figure 4: Percentage of students by COVID-19 prevention knowledge and practice score level



4.7 Association between knowledge on COVID-19 prevention and background characteristics (Bivariate Analyses)

Among 598 students from class 6, 428 students had the adequate knowledge. On the other hand, out of 615 students from class 7, 487 students had adequate knowledge. We calculated the association between the COVID-19 preventive knowledge and their background characteristics.

In Cox's Bazar Sadar, nearly four-fifths of the students belong to adequate knowledge (76.69%) whereas three-fifths of the students from Pekua belonged to the adequate knowledge (65.50%) in the class 6 of both schools and madrasas. In addition, nine-tenths (91.02%) of the students from Cox's Bazar Sadar had adequate knowledge while seven-tenths of the students (72.45%) had adequate knowledge in the class 7 of both institutions. In both classes, the knowledge level of students was found to have a statistically significant association ($p < .001$) with their location status (Table 1).

In the class 6 of both institutions, there was a statistically significant difference ($p=0.029$) between the students having adequate knowledge in terms of the type of institution. However, p-value for class 7 was more than 0.05 which meant that there was no statistically significant between the knowledge level of class 7 and their type of institutions.

In the class 7 of both male and female, there was a statistically significant difference ($p=0.015$) between the students having adequate knowledge in terms of the gender difference (74.29% of male had adequate knowledge and 82.43% of female had adequate knowledge in class 7). However, the p-value for class 6 was more than 0.05 meant to be no statistically significant between the knowledge level of class 6 and their gender differences.

The remaining background characteristics such as age and family member, there were no statistically significant ($p\text{-value}>0.05$) (Table 1).

Table 1: Association between knowledge level of the students and their background characteristics (results from bivariate analyses)

Background characteristics	Class 6 & Equivalent (N = 598)		P-value (*)	Class 7 & Equivalent (N = 615)		P-value (*)
	Inadequate knowledge	Adequate knowledge		Inadequate knowledge	Adequate knowledge	
		N = 170	N = 428		N = 128	N = 487

Name of Upazila					
Cox's Bazar Sadar	52 (20.31)	204 (79.69)	<0.001	20 (8.97)	203 (91.03)
Pekua	118 (34.50)	224 (65.50)		108 (27.55)	284 (72.45)
Type of institution			0.029		
School	108 (31.95)	230 (68.05)		92 (22.28)	321 (77.72)
Madrasa	61 (23.85)	198 (76.15)		36 (17.82)	166 (82.18)
Age			0.317		
< 15 years	162 (28.08)	415 (71.92)		110 (20.45)	428 (79.55)
>= 15 years	8 (38.10)	13 (61.90)		18 (23.38)	59 (76.62)
Gender			0.072		
Male	73 (32.74)	150 (67.26)		63 (25.71)	182 (74.29)
Female	97 (25.87)	278 (74.13)		65 (17.57)	305 (82.43)
Total number of family number			0.527		
<5	22 (25.58)	64 (74.42)		23 (25)	69 (75)
5+	148 (28.91)	364 (71.09)		105 (20.08)	418 (79.92)

Notes: * = p-value was calculated by using Chi-squared test

4.8 Association between practice on COVID-19 prevention and background characteristics (Bivariate Analyses)

In this section, this study explored the association between practice on COVID-19 prevention and their background characteristics (location, type of institutions, age, gender and family member). Out of 598 students from class 6, 517 students had adequate practice. In class 7, 547 students out of 615 students had adequate practice (Table 2).

Most respondents from class 6 in both Cox's Bazar Sadar (89.84%) and Pekua (83.92%) had adequate practice and its p-value is 0.036. Nearly nine-tenths of students from class 7 of both locations (90.13% from Sadar and 88.27% from Pekua) had adequate practice. However, the p-value was more than 0.05 and there was no statistically significant between class 7's practice level and location.

This study resulted that there was a significant association ($p=0.008$, $p<0.05$) between practice of class 7 students and their gender difference. 228 (93.06%) of male and 319 (86.22%) of female from class 7 had adequate practice on COVID-19 safety measure. (Table 2).

The rest of the background characteristics such as type of institution, age and family number, there was no statistically significant between practice level of COVID-19 safety measures from both classes and its remaining characteristics.

Table 2: Association between practice level of the students and their background characteristics (results from bivariate analyses)

Background characteristics	Class 6 & Equivalent (N = 598)		P-value (*)	Class 7 & Equivalent (N = 615)		P-value (*)
	Inadequate practice	Adequate practice		Inadequate practice	Adequate practice	
	N = 81	N = 517		N = 68	N = 547	
Name of Upazila						
Cox's Bazar		230	0.036		201	0.477
Sadar	26 (10.16)	(89.84)		22 (9.87)	(90.13)	
Pekua	55 (16.08)	287 (83.92)		46 (11.73)	346 (88.27)	
Type of institution						
School		285	0.082		370	0.466
Madrasa	53 (15.68)	(84.32)		43 (10.41)	(89.59)	
	28 (10.77)	232 (89.23)		25 (12.38)	177 (87.62)	
Age						
< 15 years		500	0.453		477	0.556
>= 15 years	77 (13.34)	(86.66)		61 (11.34)	(88.66)	
	4 (19.05)	17 (80.95)		7 (9.09)	70 (70)	
Gender						
Male		189	0.348		228	0.008
	34 (15.25)	(84.75)		17 (6.94)	(93.06)	
Female		328		51 (13.78)	319 (86.22)	
	47 (12.53)	(87.47)				

Total number of family number						
<5	16 (18.60)	70 (81.40)	0.138	6 (6.52)	86 (93.48)	0.133
5+	65 (12.70)	447 (87.30)		62 (11.85)	461 (88.15)	

Notes: * = p-value was calculated by using Chi-squared test

4.9 Association between knowledge on COVID-19 prevention and background characteristics (Multivariate logistic regression)

Upazila: The odds of the adequate knowledge on COVID-19 prevention of students who belonged to the Pekua upazila had $(1-0.39) * 100\% = 61\%$ higher odds of having adequate knowledge on COVID-19 safety measures of students who lived in Cox's Bazar Sadar (AOR = 0.39, 95% CI: 0.28-0.53, p-value:<0.001) while providing the other factors remained constant (Table 3).

Gender: The model predicted that for gender of adequate knowledge of student, the odds of having adequate knowledge of female students was expected to increase by 1.49 times as the previous odds (AOR = 1.49, 95% CI: 1.13-1.96, p-value: 0.005), while the effects of other variables remained constant (Table 3).

Class Grade: The odds of the adequate knowledge of students from class 7 of both schools and madrasas was 1.69 times higher than the odds of having adequate knowledge of students from class 6 of both institutions (AOR = 1.69, 95% CI: 1.28-2.24, p-value:<0.001), when the rest of the variables remained constant. (Table 3).

Table 3: Association between knowledge level of the students and their background characteristics (results from multivariable analyses)

Background characteristics	COR	P-value	AOR	P-value
	(95% CI)		(95% CI)	
Name of Upazila				
Cox's Bazar Sadar	1.00	<0.001	1.00	
Pekua	0.39 (0.29,0.53)		0.39 (0.28,0.53)	<0.001
Type of institution				
School	1.00	0.05	1.00	
Madrasa	1.31 (0.99,1.72)		1.05 (0.77,1.42)	0.75

Age				
< 15 years	1.00	0.431	1.00	0.47
>= 15 years	0.83 (0.53,1.31)		0.83 (0.51,1.36)	
Gender				
Male	1.00	0.006	1.00	0.005
Female	1.45 (1.11,1.88)		1.49 (1.13, 1.96)	
Class Grade				
Class 6 and equivalent	1.00	0.002	1.00	<0.001
Class 7 and equivalent	1.51 (1.16, 1.97)		1.69 (1.28, 2.24)	
Total number of family member				
<5	1.00	0.88	1.00	0.93
5+	1.03 (0.71,1.48)		0.98 (0.67,1.43)	

4.10 Association between practice on COVID-19 prevention and background characteristics (Multivariate logistic regression)

Upazila: The odds of the adequate practice on COVID-19 prevention of students who belonged to the Pekua upazila was 0.70 times less than odds of the adequate practice on COVID-19 safety measures of students who lived in Cox’s Bazar Sadar (AOR = 0.70, 95% CI: 0.48-1.03, p-value: 0.068) while providing the other factors remained constant (Table 4)

Gender: The model predicted that for gender of adequate practice of student, the odds of having adequate practice of female students was expected to increase by 0.79 times as the previous odds (AOR = 0.79, 95% CI: 0.55-1.15, p-value: 0.22), while the effects of other variables remained constant (Table 4).

Class Grade: The odds of the adequate practice of students from class 7 of both schools and madrasas was 1.29 times higher than the odds of having adequate practice of students from class 6 of both institutions (AOR = 1.29, 95% CI: 0.90-1.84, p-value: 0.15), when the rest of the variables remained constant (Table 4).

Table 4: Association between practice level of the students and their background characteristics (results from multivariable analyses)

Background characteristics	COR	P-value	AOR	P-value
	(95% CI)		(95% CI)	
Name of Upazila				
Cox's Bazar Sadar	1.00	0.065	1.00	

Pekua	0.71 (0.49,1.02)		0.70 (0.48,1.03)	0.068
Type of institution				
School	1.00		1.00	
Madrasa	1.14 (0.79,1.62)	0.48	1.09 (0.75,1.61)	0.64
Age				
< 15 years	1.00		1.00	
>= 15 years	1.19 (0.62, 2.28)	0.6	1.01 (0.51,1.97)	0.98
Gender				
Male	1.00		1.00	
Female	0.80 (0.56,1.15)	0.235	0.79 (0.55,1.15)	0.22
Class Grade				
Class 6 and equivalent	1.00		1.00	
Class 7 and equivalent	1.26 (0.89,1.78)	0.188	1.29 (0.90,1.84)	0.15
Total number of family number				
<5	1.00		1.00	
5+	1.01 (0.62, 1.64)	0.96	1.01 (0.62,1.65)	0.97

5. Discussion

This study was explored junior secondary education students at Cox's Bazar Sadar and Pekua upazilas, Bangladesh about the knowledge and practice on COVID-19 preventive measures. According to population census, the Cox's Bazar Sadar has four-time higher population than the Pekua upazila. However, the study participants in this study from Pekua was two times more participated than Cox's Bazar Sadar (Bangladesh Bureau of Statistics, 2019). The findings of this study were consistent with those of Idris et al, 2022 who found that the preponderance of students heard about COVID-19 safety measures through mass media (television and radio).

As a consequence, the findings of this study declared that most of the students from both classes and institutions had adequate knowledge on COVID-19 prevention. In comparison with other study, the findings of knowledge and practice of our study were significantly higher than those of the survey that was conducted among secondary (grade 6 to 10), higher-Secondary (grade 11 to 12), and tertiary (Undergraduate and Master's) levels in Bangladesh (Kumar et al, 2021). Regarding the practice level of COVID-19 prevention on this study, most of the students from both classes had adequate practice. In contrast with other study, the results of this survey were higher than those of the study which was done among college students in Bule Hora University

of southern Ethiopia (Asefa et al, 2021). The divergences in the knowledge and practice level of the students had been subjected to fluctuations in the cut-off values (Kassa et al, 2020). On the other hand, one study found that the students had adequate attitude and practice on prevention methods whereas the knowledge level was scarcely adequate (Umeizudike et al, 2022). Moreover, one study described that the secondary school students had sufficient and positive understanding of COVID-19 preventive methods but usage on these guidelines had extremely deprived (Idris et al, 2022). The practice of the youth population was very scarcity among the male, low socio-economic status and less education (Feyisa, 2021). However, when the community engagement intervention was conducted in accordance with contextualized setting, both knowledge and practice level of COVID-19 prevention were increased (Questa et al, 2020).

The students from this study had better understanding about transmission of COVID-19 through sneezing, coughing and contact of infected person than the one survey which was conducted among students in Debre Berhan University, Ethiopia (Aynalem et al, 2021). Furthermore, the study among students in Dessie city revealed that the majority of the students assumed that proper handwashing, wearing mask and maintaining social distancing might prevent the COVID-19 infection which were the same results with this current study (Alemu et al, 2021).

In this study, the odds of both adequate knowledge and practice on COVID-19 prevention were lesser among the Pekua upazila compared with Cox's Bazar Sadar. This finding was different results to the study conducted in the Pakistan which meant that the knowledge level was higher in urban area than the rural residents and also their practice behavior was better than the rural population (Haq, 2020). In another study in Bangladesh, the rural people had significantly inadequate knowledge as well as practice level due to more accessible of higher education and less information gap (Ripon et al, 2021).

The adequate knowledge and practice level of students in this study were positive association with the religious institutions (Madrasas) in this study. With the factual contemporaneousness of numerous religious and materialist education system, the belief and literacy are absolutely extraordinary and distinctive in Bangladesh whereas the role of the madrasa is a crucial component of education system in Bangladesh (Roy et al, 2020). Not only the governmental organization but also the local organization and international organization such as ICRC,

UNICEF, WHO are planning to implement the intervention through the religious leaders for service delivery of COVID-19 prevention because of their influential factors (UNICEF, 2020). Cox's Bazar is one of the most vulnerable areas for COVID-19 infection in Bangladesh due to its huge migration influx and numerous refugee camps, therefore, timely intervention and publishing of COVID-19 information, preventive methods through religious leaders by non-governmental organization like ICRC were practical (ICRC, 2020). In other study, the significant influence by religious leaders on health-related activities could enhance the dissemination of COVID-19 prevention in their assemblage (Bopp et al, 2013).

This study found a positive correlation between female students and having appropriate awareness of COVID-19 safety measures, but it found no such association for having adequate practice. In compare with other study, the use of COVID-19 preventive strategies and gender were substantially correlated (Dashti et al, 2022). Furthermore, compared to young men in Egypt, young women were better knowledgeable of COVID-19 prevention and more able to adhere to protective measures (Maher et al, 2021). Another study carried out in Saudi Arabia found that participants who were female had more knowledge and experience with COVID-19 preventive procedures than participants who were male (Alshammary, 2021). In contrast, the female is more aware of COVID-19 safety and precaution methods, and male can get COVID-19 infection due to occupation, behavior and cultural aspect (Walter & McGregor, 2020).

Class 7 students' knowledge of COVID-19 prevention was positively correlated and statistically significant; however, class 7 students' practice of COVID-19 prevention was positively correlated but not statistically significant. There were several studies regarding secondary school students (class 8 and 9) on COVID-19 safety measures which indicated that most of the students from class 8 and 9 had good knowledge and practice on COVID-19 prevention in Nepal (Subedi et al, 2020). In addition, one study indicated that the primary and middle school students had both adequate knowledge and practice in China (Yangmei et al, 2021).

6. Strength of the study

The study was conducted in both highly dense population (Cox's Bazar Sadar) and rural area (Pekua upazila), and all the students from selected 12 institutions were participated with the response rate (76.73%), however, the numbers of participants were still exceeded than the

sample size calculation. Moreover, madrasa institution was included and could revealed the importance of religious leaders for COVID-19 prevention that could lead to good communication with residents' population. There are numerous studies for secondary school students mostly among the grades 8 and 9 about COVID-19 prevention. This study was focused on class 6 and 7 students; therefore, the results can help the health authorities to modify the preventive strategies against COVID-19.

7.Limitation of the study

The self-administered questionnaire for assessing knowledge and practice of COVID-19 prevention was used for this study that might lead to reporting bias. Moreover, the focuses areas and population were only in the BRAC CST project implementation sites; therefore, this sample might not be represented the general population in Cox's Bazar district. The time constraints and logistical issues were our limitation while we conducted our study. Our study did not explore the attitudinal factors concerning with COVID-19 safety measures such as communication barriers or perceived obstacles that might influence on students' knowledge and practice against COVID-19 (Lee et al, 2021). There were fewer demographic characteristics that could be one of the limitations in this study.

8.Conclusion

Both students from class 6 and 7 had adequate knowledge (75.31%) and practice (87.82%) on COVID-19 prevention. Regarding their location, compared to Cox's Bazar Sadar students, Pekua upazila students had inadequate knowledge and practice. The students from madrasas had more adequate knowledge and practice than the school students. Furthermore, based on gender aspect, while female students had more adequate knowledge than male students did, they had less adequate practice. Regarding their grades, the students from class 7 of both schools and madrasas had better knowledge and practice than that of class 6 of both institutions.

9.Implication and Recommendation

The more students from madrasa were involved in this study and had more knowledge and practice on COVID-19 safety measures which indicate that the importance of role of religious leaders in disease prevention is a crucial component and we should focus on their involvement for future implementation. The knowledge and practice level on COVID-19 precaution were

acquired by the students through mass media (TV, radio) and teachers even they are young students. Therefore, we would like to recommend that the government should disseminate the COVID-19 preventive information through the mass media. Hence, the people from the rural area like Pekua upazila have inadequate knowledge and practice on COVID-19 prevention. Therefore, the implementing organizations should expand the activities especially in the rural area. The knowledge of the teachers plays an important session to deliver the information to the students. For this reason, using the teachers as change agent in preventive procedures should be expanded in program implementation activities.

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11. Annex:

11.1 Final Questionnaire

An assessment of Knowledge and Practice of COVID-19 Preventive Measures: A Cross-sectional Study Among 6th and 7th standards Students of selected schools and equivalent Grades Level of Students from Madrasas in Cox's Bazar district, Bangladesh

Objective:

To determine the knowledge and practice of COVID-19 safety measures among students of schools and madrasas (Grades 6 and 7) in Cox's Bazar district

Participant ID _____			
Interviewer ID _____			
Name of Upazila _____			
Type of Institution _____			
Date: _____			
Socio-demographic Characteristics			
Sr No.	Questions	Response	Comment
1	What is your age?	_____ Years	
2	What is your gender?	1. Male 2. Female	
3	What is your class grade?	1. Grade 6 2. Grade 7	
4	How many people live in your house?	_____	
5	How many times did you get the vaccination?	1. Never 2. 1 time 3. 2 times 4. 3 times 5. More than 3 times	
6	Have you heard about the COVID-19?	1. Yes	

		2. No	
7	Where did you hear about COVID-19?	<ol style="list-style-type: none"> 1. Father/Mother/Care Takers 2. Teachers 3. SBCC Session of BRAC 4. School information session of change agents 5. Facebook 6. TV 7. Newspaper 8. Radio 9. Health Professional 10. Other (Please specify) _____ 	
Knowledge on COVID-19 Prevention			
8	Do you know COVID-19 can transmit through sneezing, coughing and contact of infected person?	<ol style="list-style-type: none"> 1. Yes 2. No 	
9	What are the COVID-19 safety measures? (Multiple answers possible)	<ol style="list-style-type: none"> 1. Wearing mask 2. Handwashing 3. Maintain social distancing 4. Vaccination 5. Avoid crowded places 	
Handwashing			

10	In your opinion, when should we wash hands?	<ol style="list-style-type: none"> 1. Before having meal 2. After having meal 3. After using latrine 4. After playing 5. After coming back from school 	
11	Do you know how many seconds you should take to wash your hand?	<ol style="list-style-type: none"> 1. More than 20 seconds 2. 20 seconds 3. Less than 20 seconds 	
12	How long do you wash your hands for?	<ol style="list-style-type: none"> 1. More than 20 seconds 2. 20 seconds 3. Less than 20 seconds 4. Not sure 	
13	Do you always get access to water at the school when you wash hands?	<ol style="list-style-type: none"> 1. Yes 2. No 3. I do not wash hand at school 	
14	Do you always get access to soap/hand washing liquid at the school when you wash hands?	<ol style="list-style-type: none"> 1. Yes 2. No 3. I do not wash hand at school 	
	How many times do you wash your hands each day with soap and water?	<ol style="list-style-type: none"> 1. Less than 5 times 2. 5 times 3. More than 5 times 4. Not sure 	
Mask Wearing			
16	Do you wear mask while you are at school or outside?	<ol style="list-style-type: none"> 1. I wear it all the time 	

- | | | | |
|--|--|--|--|
| | | 2. I wear it most of the time | |
| | | 3. I only wear it when I enter the class | |
| | | 4. I rarely wear it | |
| | | 5. I don't wear it | |

11.2 Consent Form

Informed Consent Form

Study Title:

An assessment of Knowledge and Practice of COVID-19 Preventive Measures: A Cross-sectional Study Among 6th and 7th standards Students of selected schools and equivalent Grades Level of Students from Madrasas in Cox's Bazar district, Bangladesh

Investigator's Name:

Dr. Lin Thiha Aung, student from BRAC James P Grants, School of Public Health, BRAC University. (Tel: 01894758793, Email: linthihaaung1702@gmail.com)

Organization:

BRAC James P Grants, School of Public Health, BRAC University, Bangladesh

Purpose of Research:

First of all, we would like to thank you for taking time with us. BRAC CST project has been implementing to prevent COVID-19 within the schools and madrasas. Regarding COVID-19 preventive measures, knowledge and practices can prevent from COVID-19 transmission within the community. Empowering of students as change agents would have positive outcomes and creating of peer network to endorse the productive knowledge among them for changing of practices. Students' extensive awareness into existing COVID-19 preventive knowledge and healthy practices may significantly impact on the breaking of transmission chain in the community. Ultimately, I would like to express my gratitude for your kind contribution of providing consent for this study.

Why are we inviting students to participate in the study?

In this study, we would like to assess knowledge and practice of COVID-19 safety measures among the students of Grades 6 and 7 of both school and equivalent level of madrasas of Sadar and Pekua Upazillas of Cox's Bazar for the purpose I mentioned above. We need your approval because students are under 18 years of age and you are the responsible person for this class/school. If you give your consent for this study, it will be very useful for us. The study duration will take 10-15 minutes.

Risks:

There could be few questions, which might make the students feel uncomfortable when asked. Furthermore, it will take some time from students' schedule. There is no other potential risk.

Benefits:

It is possible that this study may not provide a direct benefit to both you and students. Taking part in this study may help us to better understand knowledge and practice of COVID-19 safety measures. Your participation and giving consent in this study will benefit us to explore the existing knowledge about this disease and practice of the students, which may encourage future us to work on to know more about this study.

Privacy, anonymity & confidentiality:

All the information collected in this study will be coded with a number and will be kept confidential. All the information will be saved in a different encrypted file where only authorized person will have access. Both you and students' name and any other privacy related information will not appear in any publication or results from the study. The Institutional Review Board of BRAC James P Grants School of Public Health, BRAC University in Bangladesh has the authority to access all the research records. The students can withdraw from the study anytime.

Compensation:

There will be no any compensation for participation of you and students in the interview.

Answering your questions/ Contact person:

If you have any query about this research project, please contact Avijit Saha (+8801986791581).

For your further information, please contact Institutional Review Board (IRB) by BRAC James P Grants School of Public Health, 6th floor, Medona Tower, 28 Mohakhali Commercial Area, Bir Uttom A K Khandakar Road, Dhaka-1213, Bangladesh. Phone: 01993379512, 880-2-48812213-18. www.bracjgsph.org/research-irb.

If you agree to take part in our study, please indicate that by putting your signature or your left thumb impression at the specific space below.

Thank you for your cooperation.

Name of Teacher:	Name of the interviewer:
Signature:	Signature:
Date:	Date:

11.3 Assent Form

Participant Information Sheet and Assent Form

Study Title	An assessment of Knowledge and Practice of COVID-19 Preventive Measures: A Cross-sectional Study Among 6th and 7th standards Students of selected schools and equivalent Grades Level of Students from Madrasas in Cox’s Bazar district, Bangladesh
Investigator	Dr. Lin Thiha Aung (18 th Cohort Student), BRAC James P Grants School of Public Health, Bangladesh. Tel: 01894758793

Greetings,

My name is, we are interviewers from BRAC-James P. Grant School of Public Health, BRAC University. We are conducting a research study on measuring the knowledge and practice of COVID-19 safety measures among students of Grades 6 and 7 of

schools and equivalent level of madrasas in Cox’s bazar Sadar and Pekua. The purpose of the study is that BRAC CST project has been implementing to prevent COVID-19 within the schools and madrasas. Regarding COVID-19 preventive measures, knowledge and practices can prevent from COVID-19 transmission within the community. Empowering of students as change agents would have positive outcomes and creating of peer network to endorse the productive knowledge among them for changing of practices. Students’ extensive awareness into existing COVID-19 preventive knowledge and healthy practices may significantly impact on the breaking of transmission chain in the community. For this purpose, I am talking to the students from Grades 6 and 7 and live in Sadar and Pekua. The information you will provide is valuable to us. It will take around 10-15 minutes. However, there will be no direct benefit for you for the participating in study and you will not receive any compensation. Your participation is completely voluntary and you can withdraw yourself from the interview/discussion at any moment if you want to, even after signing this consent form. There is no known risk in answering our questions. The information collected from this study will be kept covert by the research group of this study.

Do you agree with the interview or discussion? Yes No

Do you have any questions on this? Yes No

If yes, please
specify.....

If no, should I proceed? Yes No

	Name	Signature	Phone Number
Participant			
Data Collector			

You can keep a signed copy of the Written Informed Consent for your own records and give another copy to the interviewer.

Identification of Investigator/Interviewer

For your further information, please contact

Institutional Review Board (IRB) by BRAC James P Grants School of Public Health

6th floor, Medona Tower, 28 Mohakhali Commercial Area, Bir Uttom A K Khandakar Road, Dhaka-1213, Bangladesh.

Phone: 01993379512, 880-2-48812213-18. www.bracjgsph.org/research-irb.

If you have any question, the responsible person of this study:

Name: **Dr. Lin Thiha Aung**

Tel: 01894758793

Address: BRAC James P Grants School of Public Health, BRAC University, Dhaka-1212, Bangladesh

11.4 Finding Tables

Table 1. Socio-demographic characteristics of respondents

Variable Name	Categories	Class 6 and Equivalent	Class 7 and Equivalent	Total
		n (%)	n (%)	n (%)
		N = 598	N = 615	N = 1213
Name of Upazila	Cox's Bazar Sadar	256 (42.81)	223 (36.26)	479 (39.49)
	Pekua	342 (57.19)	392 (63.74)	734 (60.51)
Type of institution	School	338 (56.52)	413 (67.15)	751 (62)
	Madrasa	260 (43.48)	202 (32.85)	462 (38.09)
Age	< 15 years	577 (96.49)	538 (87.48)	1115 (91.92)
	>= 15 years	21 (3.51)	77 (12.52)	98 (8.08)

Gender	Male	239 (37.05)	260 (40.12)	499 (38.59)
	Female	406 (62.95)	388 (59.88)	794 (61.41)
Total number of family number	<5	86 (14.38)	92 (14.96)	178 (14.67)
	5+	512 (85.62)	523 (85.04)	1035 (85.33)

Table 2. Scoring the knowledge of the students about COVID-19 safety measures

Variables	Class 6 & Equivalent	Class 7 & Equivalent	Total
	n (%)	n (%)	N (%)
Knowledge on mode of transmission			
Yes	505 (84.45)	533 (86.67)	1038 (85.57)
No	93 (15.55)	82 (13.33)	175 (14.43)
Knowledge on COVID-19 precaution methods ^(b)			
Wearing mask	498 (86.01)	537 (90.56)	1035 (88)
Handwashing	467 (80.66)	488 (82.29)	955 (81)
Maintain social distancing	446 (77.03)	474 (79.93)	920 (78.5)
Avoid crowded place	180 (31.09)	211 (35.58)	391 (33.36)
Vaccination	258 (44.56)	309 (52.11)	567 (48.38)
Knowledge on handwashing behavior ^(b)			
After coming back from school	484 (86.58)	502 (86.85)	986 (86.72)
Before having meal	461 (82.47)	478 (82.70)	939 (82.59)
After using latrine	410 (73.35)	453 (78.37)	863 (75.9)
After having meal	289 (51.34)	314 (54.33)	601 (52.86)
After playing	333 (59.57)	361 (62.46)	694 (61.04)
Knowledge on duration of handwashing ⁽¹⁾			
Less than 20 seconds	110 (18.39)	55 (8.94)	165 (13.6)
20 seconds or more	480 (80.27)	546 (88.78)	1026 (84.58)

Notes:¹ = regarding knowledge on duration of handwashing, 22 (1.8%) of students did not respond this question.

^b = Multiple response questions

Table 3. Scoring the practice of the students about COVID-19 safety measures

Variables	Class 6 & Equivalent	Class 7 & Equivalent	Total
	n (%)	n (%)	N (%)
Practice on handwashing behavior within a day			
Frequently	393 (65.72)	381 (61.95)	774 (63.81)
Sometimes	61 (10.20)	49 (7.95)	110 (9.07)

When needed	144 (24.08)	185 (30.08)	329 (27.12)
Practice on duration of handwashing (²)			
Less than 20 seconds	93 (15.55)	63 (10.24)	156 (12.86)
20 seconds or more	481 (80.43)	530 (86.18)	1011 (83)
Practice on frequency of handwashing each day (³)			
Less than 5 times	104 (17.39)	102 (16.59)	206 (17)
5 or more times	470 (78.60)	493 (80.16)	963 (79.39)
Practice on mask wearing habits (⁴)			
Yes	455 (76.09)	472 (76.75)	927 (76.42)
No, not at all	24 (4.01)	6 (0.98)	30 (2.47)
No, sometimes	104 (17.39)	124 (20.16)	228 (18.8)
Practice on mask wearing behavior during special occasion (^β)			
When I have to go outside of my home	507 (88.64)	528 (89.49)	1035 (89.07)
While talking with others	347 (60.66)	312 (52.88)	659 (56.71)
I wear mask when I feel like it	171 (29.90)	187 (31.69)	358 (30.81)

Notes:² = regarding practice on duration of handwashing, 47 (4.14%) of students did not respond this question.

³ = regarding practice on frequency of handwashing each day, 46 (3.76%) of students did not respond this question.

⁴ = regarding practice on mask wearing habits, 28 (2.29%) of students did not respond this question.

^β = Multiple response questions