



Assessment of Knowledge, Attitude and Practices and Associated Factors among Menelik II Health Science College Students Towards COVID-19 Prevention Addis Ababa, Ethiopia, 2021: A Cross-Sectional Study

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Abstract

Introduction: The recent pandemic called COVID-19 is most contagious severe acute respiratory disease emerged in China and affected all over the world. Following this pandemic, various protective steps have been taken by nations around the globe. Ethiopia has taken numerous preventive and control steps. Therefore, there is an immediate need to consider students' awareness, attitude, and practice of COVID-19 in order to enhance the targeted management and health education of COVID-19 among students in countries affected by the disease.

Aim of the Study: The main aim of this study was to assess the knowledge, attitude, and practice and associated factors among Menelik II Medical and Health Science College students towards COVID-19 prevention, Addis Ababa from December 20th, 2020 to May 31st, 2021 G.C.

Methods and Materials: Institutional based cross section study was conducted among students at Menelik II Medical and Health Science College Students in Addis Ababa. Active students, registered second-semester academic calendar were included in this study. Systematic sampling method was employed on 340 students and data was collected by trained data collectors using questioner adapted from different studies and modified to our context. Data was entered and analyzed using SPSS version 25. Descriptive and analytic analyses were estimated. Both Crude and adjusted odds ratio were estimated using bivariate and multivariate logistic regression model respectively. Variables with P value less than 0.05 in final model were reported as significant factor associated with Knowledge, Attitude, and Practice (KAP).

Result: In this study, 313 students were participated with response rate of 92%. 251 (80.2%) had good knowledge and 213 (68.1%) had positive attitude toward COVID-19 prevention and control. While only 125 (39.9%) had good practice. age, sex was predictor of knowledge; age and knowledge were associated with attitude and again knowledge and attitude were associated with practice of the students toward prevention and control of COVID-19 pandemics.

Conclusion: Current study revealed that there was a gap in knowledge, attitude, and practice of students toward COVID-19 prevention and controlling strategy. Even though the students had better knowledge, the proportion of practice was low. Moreover, knowledge, attitude, and practice were linked each other. Thus, knowledge and attitude were the main determinants of practice. In addition to this, again age and sex was predictor of knowledge while age and knowledge were associated with attitude.

Introduction

Coronavirus Disease (COVID-19) is an infectious disease caused by a newly discovered coronavirus. The first human cases of COVID-19, the disease caused by the novel coronavirus causing COVID-19, subsequently named Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) were first reported by officials in Wuhan City, China, in December 2019 and a person with laboratory confirmation of COVID-19 infection, irrespective of clinical signs and symptoms is a confirmed case of COVID-19. Wuhan City was the source of this outbreak or played a role in the initial amplification of the outbreak. On January 30th, 2020, the Director General of the World Health Organization (WHO) declared that the outbreak of the Coronavirus Disease 2019 (COVID-19) constitutes a Public Health Emergency of International Concern [1-3].

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Most people infected with the COVID-19 virus will experience mild to moderate respiratory illness and recover without requiring special treatment. Older people and those with underlying medical problems like cardiovascular disease, diabetes, chronic respiratory disease, and cancer are more likely to develop serious illness. The best way to prevent and slow down transmission is to be well informed about the COVID-19 virus, the disease it causes and how it spreads. Protect yourself and others from infection by washing your hands or using an alcohol-based rub frequently and not touching your face [1,3].

COVID-19 is caused by a previously unreported strain of coronavirus, officially named Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2). It primarily spreads through droplets of saliva or discharge from the nose when an infected person coughs or sneezes, so it's important that you also practice respiratory etiquette (for example, by coughing into a flexed elbow) [4].

COVID-19 can affect anyone, and the disease can cause symptoms ranging from mild to very severe. For some other illnesses caused by respiratory viruses (such as influenza), some people may be more likely to have severe illness than others may because they have characteristics or medical conditions that increase their risk. These are commonly called "risk factors." Examples include older age or having certain underlying medical conditions [1].

Globally, according to WHO report at the end of December, there have been 79,931,215 confirmed cases of COVID-19, including 1,765,265 deaths, reported to WHOM. And the pandemic covered 222 Countries, areas or territories with cases. In Africa 1,844,009 confirmed cases were reported and 40,552 deaths were reported [3].

In Ethiopia 122,413 cases and 1,901 deaths were reported at the end of December 2020. Addis Ababa is a city with the highest case report and mortality due to COVID-19. In Addis Ababa, a total of 66,867 confirmed cases and 122 deaths were reported till the end of December 2020 [3,5].

A hallmark of the COVID-19 pandemic is the sudden appearance of an unprecedented number of critically ill patients in a small geographic area. This can overwhelm local health care resources, resulting in shortages of trained staff, ventilators, renal-replacement therapy, and intensive care unit beds [6].

Following this pandemic, various protective steps have been taken by nations around the globe. These include limits on travel, home confinement, the closing of schools and other social facilities. Therefore, in order to avoid the spread of the COVID-19 breakout in countries, adequate awareness, behaviors and practices towards prevention measures are necessary [1,7,8].

Students constitute a special segment of the community that needs to live separately but lacks life experience for greater mobility and urgent needs. Also, students from colleges and universities are among the most involved users on diverse social media channels; their perceptions and behavior may have a huge effect on the propagation of a pandemic [9,10].

COVID-19 is most contagious immediately after the onset of symptoms, although the spread through asymptomatic cases has been reported. In order to stop the transmission of COVID-19, Ethiopia has taken numerous preventive and control steps. This includes the shutdown of schools, remaining at home, keeping social and physical distances, placing hand washing basins in areas frequently visited

by persons (banks, churches/mosques, markets), and declaring a national emergency [5].

Methods and Materials

Study design

A descriptive institution based cross sectional study design was conducted from December 20th, 2020 to May 31st, 2021 G.C at Menelik II Medical and Health Science College.

Population

Students in Menelik II Medical and Health Science College were source population and those students assumed to be more vulnerable to acquiring COVID-19 was the study population. All Menelik II health Science and medical College students selected to be the actual study population due to exposure in practical area in emergency, operation room in aerosols producing procedure and sample taking and related procedure in medical laboratory students. These are active students, registered second-semester academic calendar were included in this study. However, some students who are not interested have physical and mental health problem during the data collection period were not included in this study.

Sample size and sampling procedure

The sample size was calculated for levels of knowledge, attitude, and practice towards COVID-19. Then, the maximum sample size was considered for this study. Thus, the final sample size is determined using a single population proportion formula with assumptions: 5% margin of error, 95% Confidence Intervals. The sample is calculated using single population formula [11].

$$n = \frac{Z_{\alpha/2}^2 \times p(1-p)}{ME^2}$$

Where, $Z_{\alpha/2}$ is the critical value of confidence level of 95%, α is 0.05 and the critical value is 1.96, ME is the margin of error which is level of precision 5%, and p is the sample proportion.

Sample size for knowledge: To calculate sample size for knowledge the proportion of knowledge (good) is taken from previous study done in Ethiopia; the proportion (p) 69.6%, $Z_{\alpha/2}$ critical value of 95% Confidence level 1.96, ME of 5%, using above formula:

$$n = \frac{1.96^2 (0.69)(1-0.69)}{(0.05)^2}$$

$$n = 329$$

Sample size for attitude: Proportion of attitude from previous study done in Ethiopia is taken that is Attitude (positive) 56.4%, $Z_{\alpha/2}$ critical value 1.96, ME of 5%, using above formula.

$$n = \frac{1.96^2 (0.56)(1-0.56)}{(0.05)^2}$$

$$n = 379$$

Sample size for practice: Proportion of good practice taken from previous study done in Ethiopia (65%) $Z_{\alpha/2}$ critical value 1.96, ME of 5%, using above formula

$$n = \frac{1.96^2 (0.65)(1-0.65)}{(0.05)^2}$$

$$n = 350$$

Finally, the sample size of which is maximum is considered number of samples for this study (n=379). After adding 10% of non-response rate, the final sample size would be 416. In the study total population size does not reach to 10,000 populations. By using sample size correction formula for finite population. $n^{\circ} = 416$ sample

size calculated early, N=1884 total number of populations in the study area.

$$n = n^{\circ} / 1 + \left[\frac{(n^{\circ} - 1)}{N} \right]$$

$$n = 416 / 1 + [(416 - 1) / 1884]$$

$$n = 340$$

Was taken for the last results of all done.

Data collection tool and procedure

A data collection tool was developed in English from previous studies [8,12-15] and WHO course material on emerging respiratory viruses, including COVID-19 and translated to Amharic. The questionnaire consists of four parts: Sociodemographics, knowledge, and attitudes and practice of the students. Sociodemographic characteristics include age, sex, and marital status, and residency, year of study, estimated monthly income, and source of knowledge.

KAP part of the tool consists students' awareness of COVID-19, which included symptoms of patients infected by COVID-19, routes of transmission, precautions and risk avoidance. "Three choices per question were offered to participants: "Yes", "No" and "I don't know". "One point was given correct answers, while zero points were given incorrect answers or "I do not know. Finally, I don't know was recorded as zero. "Good knowledge" of COVID-19 in this analysis means that the participant's score on knowledge questions beats the mean score. In comparison, on knowledge issues, "poor knowledge" would be allocated to students who scored below the mean average.

With six questions, attitude towards COVID-19 was evaluated. Questions included were: Agree, disagree, and no response. The answer divided into agree, neutral and disagreement, taking into account previous research. For each participant, subscale scores were computed. Higher scores displayed a "positive" attitude towards COVID-19. Finally, those who have above mean score were categorized under positive attitude and mean and below were categorized under negative attitude.

Participant practices were assessed by questions on seven specific behaviors. And good practice was assigned for participants who have at least mean score of the total. Data was collected through self-administered which guided by four trained data collectors since the participants were literate.

Data quality management

Data collectors were trained for one day on the purpose of the study and ethical aspects. A pre-test was carried out before the actual study to check the validity and consistency of the checklist. The principal investigators were made day to day on-site supervision during the whole period of data collection. Completeness of the information on all variables in the data collection form was audited at the end of each day to ensure accuracy.

Study variables

Dependent variable:

- Knowledge, Attitude, Practice

Independent variables:

- Sociodemographic characteristics (age, sex, marital status, educational level, field of study, income), knowledge for attitude, knowledge and attitude for practice towards the preventive measures of COVID-19.

Data entry and analysis

Data was entered into SPSS version 25. And descriptive analysis (mean, median, standard deviation and IQR) were conducted. Both Crude Odds Ratio (COR) and Adjusted Odds Ratio (AOR) were estimated using bivariate and multivariate logistic regression analysis respectively to assess the association between the dependent variable with each independent variable. Thus, independent variables with p-value less than 0.25 in bivariate logistic regression were considered in the final model. Finally, statistical significance level was declared at a P-value of less than 0.05 in multivariate logistic regression model.

Ethical consideration

Ethical clearance was obtained from Menelik II Medical college and health sciences institutional review board. Permission was granted by college administrators. Verbal informed consent was obtained from each participant after providing adequate information. Confidentiality of information was assured.

Result and Presentation

Sociodemographic characteristics

In this study, 313 students were participated with response rate of 92%. Among the total participants, more than half 179 (57.2%) were age of above 24 years and 192 (61.3%) were males. More than three-fourth 240 (76.7%) were single.

Knowledge of students toward COVID-19 prevention and control

We evaluate the knowledge of the students toward COVID-19 prevention and control strategy; we used 12 quad tones that had two options. Thus, most 283 (94.4%) of them know clinical sign and symptom of the COVID-19. But, 126 (40.3%) said eating or contacting wild animals would does not result in the infection of COVID-19 virus. 172 (55%) said the person with COVID-19 cannot infect the virus to others when a fever is not present. In addition, most 273 (87.2%) of know that COVID-19 virus spread *via* respiratory droplets of infected individual. 281 (89.8%) aware about avoiding crowding would help to prevent COVID-19.

Attitude of students toward COVID-19 prevention and control

Among the total respondents, 61.3% agree that COVID-19 will be successfully controlled in Ethiopia. In addition, 106 (33.9%) does not have confidence that Ethiopia can win the battle against the COVID-19. Among the total participants, 179 (57.2%) agree that COVID-19 is a curable disease and 184 (58.8%) disagree that COVID-19 diseases result in death in all cases. Most 258 (82.4%) of believe health education can help prevent COVID-19 and 249 (79.6%) agree that that COVID-19 can be treated at home.

Practice of students toward COVID-19 prevention and control

Regarding practice, (52.7%) consider vaccination to prevent COVID-19 and (45.4%) consider herbal products and traditional medicine. Moreover, more than half (53.7%) do not avoid handshaking, hugging and kissing and only (17.3%) and (21.4%) use disinfectant and hand washing to prevent COVID-19. Moreover, (18.2%) practice prevention measures given by local health care authority and (22.1%) have gone to any crowded place in the last week.

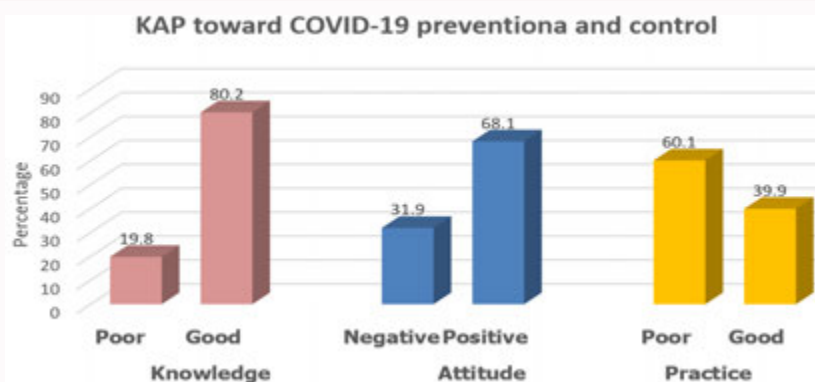


Figure 1: Overall KAP of students, Kotebe Metropolitan University Menelik II Health science, and Medical College, Addis Ababa, 2021.

Table 1: Sociodemographic characteristics of the participants, Kotebe Metropolitan University Menelik II Health Science, and Medical College, Addis Ababa, 2021.

Variables	Frequency	Percentage
Age		
18-24 years	134	42.8
>24 years	179	57.2
Sex		
Female	121	38.7
Male	192	61.3
Marital status		
Single	240	76.7
Married	73	23.3

Overall Level of KAP among students toward COVID-19 prevention and control

From the total respondents, 251 (80.2%) had good knowledge and 213 (68.1%) had positive attitude toward COVID-19 prevention and control. While only 125 (39.9%) had good practice. And social media was the major source of knowledge for 26% of the respondents.

Factors associated with knowledge of students toward COVID-19

Both bivariate and multivariate logistic regression was conducted to assess knowledge and associated factors. In bivariate analysis variable with p-value <0.25 were entered in multivariate model. Age, sex was significant in multivariate logistic regression. Thus, students with age above 24 years were 7-time higher odds of having good knowledge as compared to students with age 18 to 24 years (AOR=7.68; 95% CI: 3.80, 15.54). also, males were four times greater odds of having better knowledge regarding COVID prevention and control as compared to females (AOR=4.32; 95% CI: 2.19, 8.52). However, marital status was not significant in multivariate logistic regression.

Factors associated with attitude toward COVID-19 prevention and controlling

Both bivariate and multivariate logistic binary logistic regression was conducted to assess knowledge and associated factors. In bivariate analysis variable with p value <0.25 were entered in multivariate model. In multivariate regression, only age and knowledge were significantly associated with attitude. Thus, students with age >24 years were higher odds of positive attitude toward COVID-19 prevention

and control as compared to younger students. (AOR=1.88; 95% CI: 1.114, 3.180). Moreover, students' knowledge was also significant effect on attitude of the students. Students with good knowledge were two times higher odds of having positive attitude toward COVID-19; (AOR=2.10; 95% CI: 1.106, 4.012). Otherwise, sex, marital status was not significant in multivariate regression.

Factors associated with practice of the COVID19 prevention and controlling

In addition, to assess factors of practice of COVID-19 prevention and controlling, both bivariate and multivariate logistic regression was conducted to assess knowledge and associated factors. In bivariate analysis variable with p value <0.25 were entered in multivariate model. In multivariate regression, only knowledge and attitude were significantly associated with practice. Thus, students with good knowledge had 12 times higher odds of having good practice to prevent COVID-19 as compared to its counterpart (AOR=12.43; 95% CI: 4.136, 27.403). And students with positive attitude had three-time higher odds of having good practice as compared to students with negative attitude (AOR=3.27; 95% CI: 1.816, 5.917).

Discussion

The main aim this study is to assess the magnitude and KAP of the students toward COVID-19 prevention and controlling. Thus, from the total respondents, 251 (80.2%) had good knowledge and 213 (68.1%) had positive attitude toward COVID-19 prevention and control. While only 125 (39.9%) had good practice. Moreover, age, sex was predictor of knowledge; age and knowledge were associated with attitude and again knowledge and attitude were associated with practice of the students toward prevention and control of COVID-19 pandemics.

Magnitude of good knowledge among study participants was found to be 251 (80.2%) and age, and sex, was independent predictors of knowledge towards COVID-19 transmission prevention. This finding is in line with the findings from different study which suggested that magnitude of knowledge among study participants was high [16,17]. But community based cross sectional study conducted among public in Addis Ababa revealed that, only 37.2% had good knowledge [18]. This discrepancy may arise due to difference in study period and population. In contrary to the above findings, result of other studies in Ethiopia and other African countries [18-20] and Iran [21] revealed that majority of participants have moderate knowledge related to COVID-19 transmission prevention and it may also be due to study period discrepancy as well as the population targeted.

Table 2: Knowledge of students toward COVID-19, Kotebe Metropolitan University Menelik II Health science, and Medical College, Addis Ababa, 2021.

Questions	Yes	No
Know clinical sign and symptom of COVID-19	283 (94.4%)	30 (5.6%)
current and no effective cure for COVID-19 but early symptoms and supporting treatment	217 (69.30%)	97 (30.7%)
Eating or contacting wild animals would result in the infection by the COVID-19 virus	187 (59.7%)	126 (40.3%)
The person with COVID-19 cannot infect the virus to others when a fever is not present.	151 (45%)	172 (55%)
The COVID-19 virus spread via respiratory droplets of infected individual	273 (87.2%)	40 (12.8%)
A COVID-19 virus airborne	207 (67%)	106 (33%)
Children and young adults do not need to take measures to prevent the infection by the COVID-19 virus.	216 (66.1%)	97 (33.9%)
Ordinary residents can wear masks to prevent the infection by the COVID-19 virus	271 (86.6%)	42 (13.4%)
To prevent infection by COVID-19, an individual should avoid going to crowded places	281 (89.8%)	32 (10.2%)
People who have contact with someone infected with the COVID-19 virus should be immediately isolated in a proper place.	277 (88.5%)	36 (11.5%)

Table 3: Attitude of the students toward COVID-19, Kotebe Metropolitan University Menelik II Health science, and Medical College, Addis Ababa, 2021.

Questions	Disagree	Not sure (neutral)	Agree
Do you agree COVID-19 will be successfully controlled?	78 (24.9%)	43 (13.7%)	192 (61.3%)
Do you have Confidence Ethiopia can win the battle against the COVID-19?	106 (33.9%)	90 (28.7%)	117 (37.4%)
It is my opinion that COVID-19 is a curable disease.	107 (34.2%)	27 (8.6%)	179 (57.2%)
It is my opinion that COVID-19 diseases result in death in all cases	184 (58.8%)	7 (2.2)	122 (39%)
It is my opinion that health education can help prevent COVID-19	55 (17.6%)	0 (0%)	258 (82.4%)
It is my opinion that COVID-19 can be treated at home.	57 (18.2%)	7 (2.2%)	249 (79.6%)

Table 4: Practice of the students toward COVID-19, Kotebe Metropolitan University Menelik II Health science, and Medical College, Addis Ababa, 2021.

Questions	No	Yes
In order to prevent contracting COVID-19, I want to be vaccinated if available	148 (47.3%)	165 (52.7%)
In order to prevent contracting COVID-19, I use herbal products and traditional medicine	171 (54.6%)	142 (45.4%)
I avoid handshaking, hugging and kissing	168 (53.7%)	145 (46.3%)
In order to prevent contracting and spreading COVID-19, I use disinfectant and solutions.	259 (82.7%)	54 (17.3%)
In order to prevent contracting and spreading COVID-19, I frequently wash hands.	246 (78.6%)	67 (21.4%)
Have you practice prevention measures given by local health care authority.	256 (81.8%)	57 (18.2%)
In recent days have gone to any crowded place?	244 (78%)	69 (22.1%)

Table 5: Factor associated with knowledge toward COVID-19 among students of Kotebe Metropolitan University Menelik II Health science, and Medical College, Addis Ababa, 2021.

Variables	Knowledge		COR 95% CI	AOR 95%CI
	Poor	good		
Age				
18-24	46	88	5.32	1
>24 years	16	163	5.32 (2.85, 9.95)	7.68 (3.80, 15.54)*
Sex				
Male	37	203	2.034 (1.23, 5.045)	4.32 (2.19, 8.52)**
Female	25	48	1	1
Marital status				
Single	46	88	2.85 (1.57, 5.19)*	6.55 (0.841, 14.09)
Married	16	163	1	1

**P<0.001; *p<0.05; COR: Crude Odds Ratio; AOR: Adjusted Odds Ratio

The findings from current study revealed that increasing age, male sex, have statistically significant positive effect on knowledge towards COVID-19 or were significantly associated with having increased level of knowledge (good knowledge). This finding was in

line with the findings from studies which revealed that increasing age [22] was significantly associated with having good knowledge towards COVID-19 transmission prevention and being female is significantly associated with poor knowledge level in the study conducted in

Table 6: Factors associated with Attitude toward COVID-19 among students of Kotebe Metropolitan University Menelik II Health science, and Medical College, Addis Ababa, 2021.

Variables	Attitude		COR 95% CI	AOR 95% CI
	Negative	Positive		
Age				
18-24	56	78	1	1
>24 years	44	135	2.20 (1.350, 3.571)**	1.88 (1.114, 3.180)*
Sex				
Female	41	80	1.15 (0.711, 1.87)	1.05 (0.621, 1.791)
Male	59	133	1	1
Marital status				
Single	72	168	1.452 (0.840, 2.501)	0.72 (0.390, 1.333)
Married	28	45	1	1
Knowledge				
Poor	32	30	1	1
Good	68	183	2.87 (1.621, 5.071)**	2.10 (1.106, 4.012)**

**P<0.001; *p<0.05; COR: Crud Odds Ratio; AOR: Adjusted Odds Ratio

Table 7: Factors associated with Practices toward COVID-19 among students of Kotebe Metropolitan University Menelik II Health science, and Medical College, Addis Ababa, 2021.

Variables	Practice		COR 95% CI	AOR 95% CI
	Poor	Good		
Age				
18-24	88	46	1	1
>24 years	100	79	1.51 (0.951, 2.401)	0.87 (0.509, 1.494)
Sex				
Female	74	47	1.07 (0.676, 1.716)	0.80 (0.469, 1.384)
Male	114	78	1	1
Marital status				
Single	137	103	0.57 (0.327, 1.006)	1.08 (0.561, 2.111)
Married	51	22	1	1
Attitude				
Negative	80	20	1	1
Positive	108	105	3.88 (2.224, 6.800)**	3.27 (1.816, 5.917)*
Knowledge				
Poor	58	4	1	1
Good	130	121	13.49 (4.756, 38.299)**	12.43 (4.136, 27.403)**

**P<0.001; *p<0.05; COR: Crud Odds Ratio; AOR: Adjusted Odds Ratio

Gondar specialized hospital among medical visitors where [23]. But there is contradicting finding about age is reported and negatively associated with knowledge level as reported from study conducted in Addis Zemen Hospital [24]. On the contrary, being male [25], was factors which have statistically significant association with decreased level of knowledge related to COVID-19 transmission prevention but family income had insignificant association with knowledge level in the current study. The difference could be due to difference in the time and study area and study population.

In the study 213 (68.1%) had positive attitude toward COVID-19 prevention and control and age and knowledge were independent predictors of attitude towards COVID-19 transmission prevention. In contrary to the findings from the current study, several studies indicated that majority of study participants have good or positive attitudes towards COVID-19 transmission prevention [17,20]. But

finding from population-based survey conducted in Iran suggested that, the majority of the general population (60.8%) had a moderate attitude [22] and more than 31.4% and 26% of participants in studies conducted in Iran and Rwanda respectively had a negative attitude towards COVID-19 transmission prevention [19,22]. This discrepancy in findings from different study may arise due to difference in study period and target population.

Regarding factors associated with attitude, in current study age and knowledge were significant and in line with the findings from different other studies conducted in different part of the world where increasing age [22] and good COVID-19 knowledge [22] were significantly associated with having positive attitude towards COVID-19 transmission prevention.

In the study, the level of good practice was 125 (39.9%) and

attitude and knowledge were significant predictors of practice. The level of practice in this study contradicts with or lower than the findings from different studies where majority of participants taking high precautions measures (good practice) towards COVID-19 transmission [16-18]. This finding is not also supported with findings from studies in Iran and China which showed that majority of study participants had moderate practice level towards COVID-19 transmission prevention [10,20]. Although, current magnitude of poor practice towards COVID-19 was higher than findings from studies conducted in Gondar and Addis Zemen Hospital as well as Ambo public health facility among medical visitors and clients suggested that the prevalence of poor practice were 39%, 47.3% and 45.39% respectively [23,24]. This may be due to difference in study population where more adolescent and young people included in current study and they are more likely to be careless.

Regarding factors associated with practice of COVID-19 prevention and control, in current study knowledge and attitude were significantly associated with practice. Moreover, the finding was in line with the findings from different other studies conducted in different part of the world where lower level of education [20,26,27] having negative attitude towards COVID-19 [23] and poor knowledge associated with COVID-19 transmission prevention [23,24] were significantly associated factors with poor practice related to COVID-19 transmission prevention. Finding from study conducted in Iran revealed that male sex [22] is significantly associated with poor practice level which is in line with our finding.

Conclusion

Current study revealed that there was a gap in knowledge, attitude, and practice of students toward COVID-19 prevention and controlling strategy. Even though the students had better knowledge, the proportion of practice was low. Moreover, knowledge, attitude, and practice were linked each other. Thus, knowledge and attitude were the main determinants of practice. In addition to this, again age and sex was predictor of knowledge while age and knowledge were associated with attitude.

Recommendations

Based on the finding of the study students with young age would be the focus during awareness creation and colleges and universities should provide education and create awareness regarding COVID-19 prevention and controlling mechanisms. The focus would be given to improve the knowledge and attitude of the students since these factors were linked with practice of the COVID-19 prevention application.

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