

Perception of University students towards National Efforts at Controlling COVID-19 Pandemics, The Practice of Prevention Measures and its Associated Factors During School Reopening

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Abstract

Background: The Coronavirus disease 2019 (COVID-19) pandemic has affected the whole communities, including students. University students are more dynamic and energetic than older ones so that they are more susceptible to contract and spread the virus. Up-to-date information about the disease, preventive methods, its spread, and government-issued advisories are crucial for containing an outbreak. Thus, the study aimed to assess the perception of students towards national efforts at controlling COVID-19 pandemics, the practice of prevention measures, and its associated factors during school reopening, Northeast Ethiopia.

Method: A cross-sectional study was conducted among Debre Berhan University students from December 1 to 15/2020, when students just get back to school. Multistage sampling technique was applied to recruit 682 participants. Epi-Data version 4.6 and SPSS version 25 software was used for data entry and analysis, respectively. The perception and practice of the participants were assessed using a scoring system. Binary logistic regression analysis was performed to detect significant ($p \leq 0.05$) predictors of COVID-19 prevention practice.

Result: The overall high perception and good practice of prevention behaviors were 32%, 95% CI (28.8–35.2), and 37.5%, 95% CI (33.7–41.2), respectively. Being female (AOR (CI) =1.67(1.17-2.37), rural residence (AOR (CI)= 1.56(1.07-2.29), fathers' education (AOR (CI)= 1.94(1.06-3.56), having respiratory disease (AOR (CI)= 2.81(1.32-5.95), and information source from YouTube (AOR (CI)= 1.87(1.19-2.91) were significant factors of COVID-19 prevention practice. Besides, high perception towards national efforts at controlling COVID-19 (AOR (CI)= 2.94(2.04-4.25) was positively associated with the practice of prevention measures.

Conclusion: During school reopening, most students had a low perception towards national efforts at controlling COVID-19 and poor prevention practice. Socio-demographics, having a chronic illness, information source, and perception towards national efforts were factors of COVID-19 prevention practice. Thus, raising the perception about the national efforts, promoting precautionary measures, managing chronic illnesses, and disseminating information through YouTubes are critical to prevent and control COVID-19 among students during school reopening.

Background

Human beings are experiencing and fighting more disastrous diseases through a history where some are controlled and others are continued as an epidemic (1). In Wuhan, China, a novel coronavirus as the causative agent of coronavirus disease 2019 (COVID-19) outbreak on January 2020 was first reported (2). World health organization (WHO) also declared COVID-19 as a pandemic on 11th March 2020 (3). COVID-19 is a highly infectious viral pandemic disease caused by a new strain of an RNA virus called Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV2) (4). The virus is primarily transmitted through respiratory droplets and close contact from human-to-human. Poor hand hygiene practice,

overcrowding, and close physical contact like handshaking can aggravate the spread of infection (5, 6). Fever, cough, myalgia, or fatigue are common and other symptoms like headache, sputum production, hemoptysis, and diarrhea are less common symptoms of COVID-19 (7).

COVID-19 pandemic affected almost all continents of the world; over 117,455,738 confirmed cases and more than 2,605,472 deaths were reported until March 8, 2021. America and Asian countries were highly affected. In Ethiopia, since the first case detected on March 13, 2020, 165,029 confirmed cases and 2,420 deaths were reported till March 8, 2021 (8). Because of low testing capacity, weak contact tracing, and poor reporting system in African countries, the number of cases and deaths are low as compared to developed nations (9).

Now, the COVID-19 pandemic is the most challenging event for the whole world's features such as the socio-economic, healthcare system, and psychological wellbeing of humanity (10). Even though many countries in Africa scale-up their preparation and readiness to tackle the COVID-19 pandemic, shortage of testing kits, poor tracing system, poor health care system, shortage of personal protective equipment, shortage of laboratories, and negligence of the public to the preventive measures are the big challenge for the continent (9, 11, 12).

Across the countries, national state of emergency and preventive measures like contact tracing, strict quarantine, social distance, and universal use of masks have been implemented to cut off the transmission and damage the pandemic (13, 14). The Ethiopian government has also implemented various and synergistic strategies from closing all schools to the highest level of offending state of emergency (15). However, many countries including Ethiopia are still facing the risk of a recurring epidemic (16). Despite this, students are now being in return to their institutions to continue the banned education with strict adherence to national preventive measures (17).

To alleviate the spread of COVID-19 while continuing the teaching-learning process, Debre Berhan University has enumerated prevention measures to be strictly adhered to by the staff and the students. All staff and students should maintain 1 to 1.5 meters of physical distance in the library, laboratory, or workshops, while the distance between the instructor and the students in the classroom should be 1.5 to 2 meters. The number of students in the classroom shall not exceed 30 and should be limited to 40 minutes session. Face masks covering both the mouth and nose should be worn at all times in public spaces. All students and staff are required to frequently clean hands using soap and water for at least 20 seconds or use hand sanitizer with 70%+ alcohol. Students and staff with COVID-19 symptoms should stay in their place of residence and report or seek medical attention. Classrooms shall be ventilated for at least 15 minutes after the end of each session and shall be cleaned and disinfected at least twice a day. Besides, offices, libraries, and laboratories should be cleaned and ventilated regularly for at least an hour a day. Further, group activities such as team-based sports or games are prohibited.

Many pieces of evidence showed that the success of national efforts at controlling the pandemic profoundly depends on the community's perception and attitude towards the risk of an epidemic and the significance of preventive measures (18, 19). They have a major role in forming individuals' self-

protection behaviors, willingness to cooperate, and adopt new preventive measures during outbreaks (20–22). Perception and practice of students are strongly correlated with the incidences of many infectious diseases, which negatively or positively affect the efforts to prevent infectious transmission (18, 19). Special consideration should be given to students. Because these groups are at high risk, and the existence of a single case can cause pandemics (17). Thus, assessing perceptions and practice toward COVID-19 preventive measures are vital for understanding the sustainability of these strategies. Therefore, this study aimed to assess the perception towards the national effort at controlling COVID-19 pandemics and the practice of prevention behaviors and its associated factors among Debre Berhan University students.

Methods And Materials

Study area, period, and design

The study was conducted in Debre Berhan University which is located in North-Shewa Zone, North-East Ethiopia, and 130 km far from Addis Ababa, the capital city of Ethiopia. The university had two institutes, twelve colleges, and 50 departments. By the year 2020/21, the university had a total number of 11,573 regular students: 7,154 male and 4,419 females. An institution-based cross-sectional study design was employed and data were collected from December 1 to 15, 2020, when students just get back to school.

Sample size determination and sampling procedure

Open Epi version 3.03 statistical software was used to calculate the sample size. The assumptions were: proportion of practice 65% (23), power of the study ($1-\beta$), 80%, confidence level 95%, level of significance, $\alpha=5\%$, a margin of error, $d = 5\%$, and design effect, $D = 2$. Adding a 5% non-response rate, the final sample size was 713.

A multistage sampling technique was applied to select study participants. In the beginning, five colleges were randomly selected by the lottery method. Then the required sample size was proportionally allocated to the selected departments based on the total number of students. Finally, the list of students was obtained from their respective departments, and simple random sampling was done to pick the required participants.

Inclusion and Exclusion Criteria

All Regular students of both sexes available at the time of data collection, and agreed to participate in the study were included. Those who had a physical disability and not competent to fill the questionnaire were excluded from the study.

Data collection tool and measurements

Data were collected using a structured, self-administered questionnaire. The questionnaire was designed by referring to former studies (24–27) and was modified to fit the local setting. The questionnaire

comprises questions related to sociodemographic background, information sources, the practice of COVID-19 prevention measures, and perceptions towards the national effort at controlling the pandemics.

To determine the perception of students towards the national effort at controlling COVID-19, four questions with three alternative options, "Yes", "Not sure" or "No" were prepared (Table 2). For those who respond "Yes", one point will be provided and those who responded "Not sure" or "No" will get zero points. Students who scored below 3 points were considered as having low perception and those who scored 3 and above points were considered as having high perception towards the national effort of COVID-19 prevention strategies (28). The Cronbach's alpha coefficients of the items were 0.66.

The preventive practice of COVID-19 was assessed by ten questions with three alternative responses "Always", "Sometimes" or "Never" (Table 3). Two points were given for the correct answers, one point for the answer "Sometimes", while zero for incorrect answers. The total preventive practice scores were computed out of twenty (20) points, and those who scored $\geq 75\%$ (≥ 15 points) were considered to have good practices and $< 75\%$ (< 15 points) poor practices (27). The Cronbach's alpha coefficients of the items were 0.80.

Data quality control

A pre-test was done among Victory College students on 5% (36 students) of the samples. Besides, a reproductive health expert checked the face and content validity of the questionnaire. The completeness, clarity, and appropriateness of questions were revised based on results of the pretest and expert opinion. Two supervisors and four data collectors were involved in the data collection. One-day training regarding the objectives, procedures, and data collection tools was given for supervisors and data collectors. The supervisors review the day-to-day activities of data collectors regarding the completeness, consistency, and accuracy of the collected data.

Data management and analysis

The data were checked, cleaned, and entered into Epi-data version 4.6 and exported to SPSS version 25 for analysis. Descriptive analysis was done and the results were presented using texts, means, and tables. Binary logistic regression analysis was performed and variables with a p-value of ≤ 0.25 were entered into a multivariable logistic regression analysis model to control the confounding factors. Adjusted odds ratio (AOR) with a 95% confidence interval was computed to describe the strength of associations and the Hosmer-Lemeshow goodness-of-fit was applied to test for model fitness. Variables with a p-value of ≤ 0.05 were considered significant.

Results

Baseline characteristics of participants

Of the total 712 students, 682 (95.8% response rate) responded to the self-administered survey. The mean age of respondents was 23.35 ± 3.46 (SD) years. Up to 43.4% were females compared to 56.6% males.

Besides, 76.2% were single, 91.8% Christian and 83.6% were undergraduate students. Telegram (66.6%) was the most common source of information about COVID-19. Around 4.7% and 4.4% of students had diabetes and hypertension, respectively (Table 1).

Perception towards the national efforts at controlling COVID-19 pandemic

In this study, 32% (N=218), 95% CI (28.8–35.2), of students had high perception towards the national efforts at controlling the COVID-19 pandemic, and the mean cumulative score of perception was 1.88 ± 1.4 . More than half of respondents (57.2%) agreed that the Ethiopian government had taken preventative measures early. However, only 42.5% think local authorities have sufficient tools to deal with confirmed and suspected cases of COVID-19 (Table 2).

The practice of COVID-19 prevention behaviors

About 72.4% of students regularly wear face masks and 61% frequently washed hands with soap and water. Besides, 60.7% of student's self-quarantine if exposed and advised to do so. However, only 30.8% always use hand sanitizers. The overall good practice of prevention behaviors was 37.5% (N=256), 95% CI (33.7–41.2), and the mean cumulative score of practice was 13.4 ± 4.04 (Table 3)

Factors associated with the practice of COVID-19 prevention behaviors

Based on the multivariable logistic regression analysis model, female students were 67% more likely to have good COVID-19 prevention practices compared to males (AOR (CI) =1.67(1.17-2.37). Students from rural residence were also 56% more likely to practice COVID-19 prevention measures compared to their counterparts (AOR (CI)= 1.56(1.07-2.29). There are 94% increased odds of COVID-19 prevention practice among students whose fathers had attended higher education (AOR (CI)= 1.94(1.06-3.56) compared to those students whose fathers had no formal education. Similarly, the odds of having good practice of COVID-19 prevention behaviors were approximately three times higher among students who had respiratory disease (AOR (CI)= 2.81(1.32-5.95) and high perception towards the national efforts at controlling COVID-19 infection (AOR (CI)= 2.94(2.04-4.25). Besides, students who obtain information from YouTube were 87% more likely to experience COVID-19 prevention behaviors (AOR (CI)= 1.87(1.19-2.91) (Table 4).

Discussion

This study assessed the perception and practice of university students regarding COVID-19 and its related factors with infection prevention practices. The levels of good practice towards COVID-19 were 37.5%, 95% CI (33.7–41.2).

The overall prevention practice was consistent with study findings from Pakistan (29), Mizan Tepi (17), Gondar (30), and Dire Dawa (31), in which 36.5%, 42%, 41.6%, and 40.7% of university students had good prevention practices, respectively. This low practice might be due to a significant number of cases and deaths are not reported in Ethiopia as of Europeans and Americans. Besides, the communities are

careless and ignorant of the impacts of the pandemics. The people undermine the virus believing that they are safe, will not be infected and the virus is self-limiting. Even, some communities believe that COVID-19 is not a real pandemic rather the government uses it for political profit (31).

On the other hand, it was lower than 60.8% from Cameroon (32), 65% from South Wollo (23), and 59.8% from Addis Ababa (33). This could be related to the difference in the cut-values, i.e., this study used 75% cut of point to categorize prevention practice while former studies used 80% and above. Besides, it may be due to variations in the sample size and study period. Our study was conducted during school resumption when students just get back to school, however, the Cameroon, South Wollo, and Addis Ababa studies were conducted during the rapid spread of the virus, April to May 2020. This was the time that most communities perceive the virus as dangerous and practice precautionary actions.

However, this level was higher than the findings from South Ethiopia (34), in which only 20% of participants practiced COVID-19 prevention behaviors. The differences might have been subjected to variations in the study populations. This study sampled university students, who were supposed to have a better educational background and access to information, however, the study in South Ethiopia included community members, where most are rural residents and attended only primary school.

Besides, this study found that about one-third (32%) of students had a high perception of the national efforts at controlling the COVID-19 pandemic. More than half of the students (57.2%) agreed that the Ethiopian government had taken preventative measures early. However, only 42.5% think that local authorities have sufficient tools to deal with confirmed and suspected cases of COVID-19. This was comparable with the study report from Egypt and Nigeria, where only 22% of the populations were satisfied with their country's handling of the pandemic (25). However, 62.1% had a satisfactory perception of the global efforts at controlling the virus and preventing further spread. Moreover, in Libya, 73.8% of students are confident that their country can win the battle against COVID-19 (27).

Female students were more likely to have good COVID-19 prevention practices compared to males (AOR (CI) = 1.67(1.17–2.37). Similarly in Hong Kong male participants were less likely to implement prevention measures (35). Besides another study in Ethiopia found that females had better compliance with prevention measures (36). Many studies concluded that females are more cautious, sensitive, and preventive (24, 31). This might be due to females spent most of their time at home, and commonly involved in childcare and food preparation. Thus, they are naturally more prone to practice precautionary measures, i.e., hand washing, and keeping physical distance, to protect themselves and others. Besides, females had a high-risk perception towards COVID-19 (37). Perception of greater risk is associated with the adoption of health preventive behaviors (38).

Students from the rural residence were more likely to practice COVID-19 prevention measures compared to their counterparts (AOR (CI) = 1.56(1.07–2.29). Comparable findings were reported from Mizan Tepi University, where rural residency was positively associated with practice (17). This contradicts with a study from China (39), Gondar (30), and South Wollo (23), where the odds of practice among students from the urban residence were more likely than rural. The findings from the current study suggest that the

dissemination of information through social and news media, mobile phones, and public information campaigns has not brought the difference in implementation of prevention measures, as it is expected that living in urban is easy to access information than rural. Further research may be needed to clarify these discordant findings.

Prevention practice was significantly higher among students whose fathers had attended higher education compared to those students whose fathers had no formal education (AOR (CI) = 1.94(1.06–3.56)). Similarly, in southern Ethiopia, a significant positive association was reported (34) Further, an online survey indicated poor prevention practices among low-educated people (36). This could be because educated people are more likely to use social media, scientific websites, articles, and news media, which in turn increases the access to information regarding precaution measures. Besides, educational level was significantly related to knowledge of COVID-19 prevention behaviors (40). Consecutively, good knowledge increases the chance of adopting health prevention practices (30).

Increased odds of practice were noted among students with respiratory disease. Students who had a chronic respiratory disease were approximately three times to have good prevention practice (AOR (CI) = 2.81(1.32–5.95)). Similarly, in Dire Dawa (31) and Gedeo Zone (34), participants with chronic medical illnesses, i.e., hypertension, diabetes, chronic respiratory disease, and heart disease were more likely to practice prevention methods. The justification might be patients with chronic illness have altered local/systemic immune response and host microbiome. Thus, patients with chronic conditions are at increased risk of developing severe disease from the virus, hospital admission, and death. In one meta-analysis study, patients with chronic obstructive pulmonary disease (COPD) have a five-fold increased risk of severe COVID-19 infection (41). Hence, they have a high chance of caring regularly for themselves.

This study depicted that, students who obtain information from YouTube were more likely to experience prevention behaviors (AOR (CI) = 1.87(1.19–2.91)). This result was supported by a former study finding from Jordan, in which the use of social media platforms, i.e., Facebook, YouTube, WhatsApp, and others, positively influence public health behavioral changes and public health protection against COVID-19 (42). Besides, in the Amhara region, social media was a significant predictor of good knowledge and practice of COVID-19 (43). This could be due to ease of use and access of the service everywhere and every time using mobile internet. The potential advantages of social media platforms include enhanced public awareness, improved health outcomes, promotion of healthy behavior, dissemination of public health interventions, and provision of health information to the community. Thus, everyone can quickly access up-to-date information using these media. However, informants, i.e., the World Health Organization, Government, and Ministry of Health, need to assess the media preference of students and the community to offer information regarding COVID-19.

Moreover, students who had a high perception of the national efforts at controlling and preventing COVID-19 were three times more likely to have good prevention practice (AOR (CI) = 2.94(2.04–4.25)). A consistent finding was reported from the US, in which students with greater perceptions were more likely

to implement health-protective behaviors to avoid COVID-19 (38). High perception is important for enhancing protection and control priorities against COVID-19 infection.

Limitation

Response biases, mainly the intention of the participants not to respond to the actual practice and participation questions is likely (Social desirability bias). Besides, other confounders like knowledge and attitude were not assessed in this study. Since it is a snapshot, it shares the limitations of the cross-sectional study to draw a causal relationship.

Conclusion And Recommendation

During school reopening, most students had a low perception towards national efforts at controlling COVID-19 and poor prevention practice. Socio-demographic background, having a chronic illness, information source, and perception towards national efforts were factors of COVID-19 prevention practice. Thus, raising the perception about the national efforts, promoting precautionary measures, managing chronic illnesses, and disseminating information through YouTubes are critical to prevent and control COVID-19 among students during school reopening.

Further, the finding will help instructors, health bureau managers, health care professionals, woreda, zonal, and university administrators, and other responsible bodies to organize the necessary interventional programs i.e., health education, law enforcement, award and recognition for practitioners.

Abbreviations

AOR

Adjusted Odds Ratio

CI

Confidence Interval

COPD

Chronic Obstructive Pulmonary Disease

COR

Cruds Odds Ratio

COVID-19

Coronavirus Disease 2019

DBU

Debre Berhan University

SPSS

Statistical Packages for Social Sciences

SRS

Simple Random Sampling

Declarations

Ethical approval and consent to participate

The study proposal, tools, and informed consent were ethically approved by the Institutional Review Board (IRB) of Debre Berhan University. Consent was obtained from all study participants and was conducted following the declaration of Helsinki Ethical Principles. Information obtained was kept confidential and anonymous.

Consent for publication

Not applicable

Availability of data and materials

The original raw data analyzed during the current study are available from the corresponding author and can be presented upon reasonable request.

Competing interest

The authors report no competing interests.

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None

Authors' contributions

MT conceived and designed the study, performed the statistical analysis, and drafted the manuscript. SD and AM followed the data collection. BT and AY participated in its design and coordination and helped to draft the manuscript. AB and WM critically revised, provided necessary comments, and made basic adjustments to the final paper. All authors read and approved the final manuscript.

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Tables

Table 1
Baseline characteristics of study participants, 2020.

Variables	Category	Frequency	Percent (%)
Age	Mean \pm SD of age (in years)	23.35 (mean)	\pm 3.46 (SD)
Gender	Male	386	56.6
	Female	296	43.4
Residence	Rural	350	51.3
	Urban	332	48.7
Religion	Christian	626	91.8
	Muslim	56	8.2
Marital status	Single	520	76.2
	In relationship	76	11.1
	Married	72	10.6
	Divorced/Widowed	14	2.1
Level of education	Undergraduate studies	570	83.6
	Postgraduate studies	112	16.4
Faculty	Medicine and Health Science	442	64.8
	Non-health/non-medical	240	35.2
Fathers education	No formal education	304	44.6
	Primary education	112	16.4
	Secondary education	104	15.2
	Higher education	162	23.8
Mothers education	No formal education	360	52.8
	Primary education	112	16.4
	Secondary education	100	14.7
	Higher education	110	16.1
Number of students in the dorm	< 4	112	17.9
	\geq 4	560	82.1

Variables	Category	Frequency	Percent (%)
Chronic disease	Diabetes	32	4.7
	Hypertension	30	4.4
	Kidney disease	26	3.8
	Heart disease	40	5.9
	Respiratory disease	40	5.9
	HIV/AIDS	24	3.5
Sources of information	Facebook	376	55.1
	Telegram	454	66.6
	You tube	152	22.3
	WhatsApp	50	7.3
	Instagram	86	12.6
	Scientific websites and articles	84	12.3
	TV/Radio	408	59.8
	Magazines and newspaper	78	11.4

Table 2

Perception towards national efforts at controlling COVID-19 pandemic among University Students, 2020.

Variables	Yes, n (%)	Not sure, n (%)	No, n (%)
Do you think that the preventative measures that were taken by the Ethiopian government were early?	390(57.2)	196(28.7)	96(14.1)
Do you think that the preventative measures taken by the Ethiopian government, in the beginning, were sufficient?	292(42.8)	244(35.8)	146(21.4)
Do you think that the local authorities have sufficient tools to deal with confirmed and suspected cases of (COVID-19)?	290(42.5)	212(31.1)	180(26.4)
Do you think that the attempts of the local authorities at your place of residence will succeed in curbing the spread of COVID-19?	312(45.7)	256(37.5)	114(16.7)

Table 3
Practice of prevention behaviors of COVID-19 among University Students, 2020.

Variables	Always	Sometimes	Never
Do you wear a face mask?	494 (72.4%)	178 (26.1%)	10 (1.5%)
Do you avoid touching nose, eye, and face with an unwashed hand?	296 (43.4%)	310 (45.5%)	76 (11.1%)
Do you avoid handshakes and kiss with others?	230 (33.7%)	324 (47.5%)	128 (18.8%)
Do you maintain physical distancing?	230 (33.7%)	332 (48.7%)	120 (17.6%)
Do you frequently wash your hands with soap and water?	416 (61.0%)	242 (35.5%)	24 (3.5%)
Do you use hand sanitizers?	210 (30.8%)	278 (40.8%)	194 (28.4%)
Do you keep rooms well ventilated?	268 (39.3%)	284 (41.6%)	130 (19.1%)
Do you avoid crowds?	266 (39.0%)	316 (46.3%)	100 (14.7%)
Do you cough into a bent elbow or tissue?	352 (51.6%)	262 (38.4%)	68 (10.0%)
Do you quarantine yourself if you are suspected and advised to do so?	414 (60.7%)	154 (22.6%)	114 (16.7%)

Table 4
Factors associated with the practice of COVID-19 prevention behaviors, 2020.

Variables	Categories	Practice		COR (95% CI)	AOR (95% CI)
		Unsatisfactory	Satisfactory		
Gender	Male	260	126	1	1
	Female	166	130	1.62(1.18–2.21)	1.67(1.17–2.37)
Residence	Rural	210	140	1.24(0.91–1.69)	1.56(1.07–2.29)
	Urban	216	116	1	1
Religion	Christian	384	242	1.89(1.01–3.53)	1.71(0.88–3.31)
	Muslim	42	14	1	1
Faculty	Health	264	178	1.40(1.01–1.95)	1.22(0.83–1.79)
	Non-health	162	78	1	1
Fathers education	No formal education	194	110	1	1
	Primary education	68	44	1.14(0.73–1.78)	1.42(0.83–2.45)
		70	34	0.86(0.53–1.37)	1.31(0.69–2.46)
	Secondary education	94	68	1.28(0.86–1.88)	1.94(1.06–3.56)
	Higher education				
Friend/family history of Covid-19	Yes	54	44	1.43(0.93–2.20)	1.67(0.98–2.83)
	No	372	212	1	1
Friends/families died from Covid-19	Yes	20	22	1.91(1.02–3.57)	0.80(0.37–1.76)
	No	406	234	1	1
Respiratory disease	Yes	20	20	1.72(0.91–3.26)	2.81(1.32–5.95)
	No	406	236	1	1
Kidney disease	Yes	20	6	0.49(0.19–1.23)	0.35(0.12–1.03)
	No	406	250	1	1

Variables	Categories	Practice		COR (95% CI)	AOR (95% CI)
		Unsatisfactory	Satisfactory		
Telegram use	Yes	276	178	1.24(0.89–1.73)	1.44(0.98–2.10)
	No	150	78		
You tube	Yes	88	64	1.28(0.89–1.85)	1.87(1.19–2.91)
	No	338	192		
Magazines/ Newspaper	Yes	56	22	0.62(0.37–1.04)	0.56(0.31–1.04)
	No	370	234		
Websites/ Articles	Yes	62	22	0.55(0.33–0.92)	0.56(0.30–1.05)
	No	364	234		
Perception towards the national effort	Low perception	326	138	1	1
	High perception	100	118	2.79(1.99–3.88)	2.94(2.04–4.25)