Research Article

iMedPub Journals
www.imedpub.com

Archives of Medicine
ISSN 1989-5216

2020
Vol.12 No.5:26

DOI: 10.36648/1989-5216.12.5.327

COVID-19 Knowledge, Attitude and Practice among Medical and Non-medical Students of Karachi, Pakistan - A Comparative Cross-Sectional Study

Roheen Sohaira[1*], Hersha Madan[2], Varsha Madan[3], Aqsa Kabir[3] and Sadia Ayub[2]

[1]Jinnah Postgraduate Medical Centre, Karachi, Pakistan

[2]Sindh Medical College, Jinnah Sindh Medical University, Karachi, Pakistan

[3]Dow Medical College, Dow University of Health Sciences, Karachi, Pakistan

[*]**Corresponding author:** Roheen Sohaira, Jinnah Postgraduate Medical Centre, Karachi, Pakistan, Tel: +923222179171; E-mail: roheensohaira@gmail.com

Received date: July 23, 2020; **Accepted date:** August 04, 2020; **Published date:** August 11, 2020

Citation: Sohaira R, Madan H, Madan V, Kabir A, Ayub S (2020) COVID-19 Knowledge, Attitude and Practice among Medical and Non-medical Students of Karachi, Pakistan- A Comparative Cross-Sectional Study. Arch Med Vol. 12 Iss.5: 26

Abstract

Objective: To assess and compare knowledge, attitude and practice regarding COVID-19 among medical and non-medical students of Karachi, Pakistan

Methods: A cross sectional study was conducted among medical and non-medical students of Karachi, Pakistan from April-May 2020. Male and female students studying in first to fifth year at various medical and non-medical universities of Karachi were inducted through non probability convenience sampling after getting their informed consent.

Results: Out of the total 432 students, 331 (76.1%) were female while 101 (23.4%) were male. About 259 (60.0%) medical students and 153 (35.4%) non-medical students were aware about the detection of COVID-19 in their country (p=0.013). More than half of the medical students, 221 (51.4%) and 113 (26.2%) non-medical students knew the unavailability of vaccine against COVID-19 ($p \leq 0.001$). A total of 264 (61.1%) medical students and 158 (36.6%) non-medical students agreed that handwashing is necessary for the prevention of infection ($p \leq 0.001$). Almost half of the medical students, 201 (46.5%) were of the opinion that smoking will not prevent infection as compared to 80 (18.5) non-medical students ($p \leq 0.001$). Similarly, 191 (44.2%) medical students felt that antibiotics will not prevent infection as compared to 74 (17.1%) non-medical students ($p \leq 0.001$). Upon comparison of the students pertaining to practice of COVID-19, 123 (28.5%) medical students said that they use alcoholic hand rub as compared to 61 (14.1%) non-medical students (p=0.043).

Conclusion: In conclusion, this research clearly indicates the difference in knowledge, attitude and practice among medical and non-medical students towards COVID-19. This reflects an urgent need of planning more awareness campaigns and health policies to fight against COVID-19. This data can be used to further asses the satisfaction of students at a larger level.

Keywords: Knowledge; Attitude; Practice; COVID-19; Medical students

Introduction

Coronaviruses are a large family of single stranded, enveloped positive sense RNA virus, which infect both animals and humans [1]. There are four major subtypes of human pathogenic strain namely HKU1, NL63, 229E and OC43 [2], which usually cause mild respiratory disease except severe acute respiratory syndrome (SARS) and middle east respiratory syndrome (MERS) [1]. Since December, 2019, there have been increasing cases of atypical pneumonia in Wuhan, China caused by a new strain of coronavirus [3]. This virus is genetically similar to that which causes an outbreak of Severe Acute Respiratory Syndrome (SARS) in 2003, therefore World Health Organization (WHO) named this virus as SAR-COV-2 on February 11, 2020 and associated disease as COV-Disease-19 (COVID-19) [4]. Due to the rapid emergence of COVID-19, the World Health Organization (WHO) has declared it as a global pandemic on March 11, 2020 [5]. By April 19, 2020 COVID-19 has resulted in more than 2 million confirmed cases worldwide [6].

This disease can be transmitted among humans directly through respiratory droplets and indirectly by coming in contact with contaminated objects [7]. It is highly contagious with clinical presentation like fever, cough, sore throat, myalgia and fatigue with more severe illness in older people and people with underlying conditions like hypertension, diabetes, cardiovascular disease, chronic respiratory disease, cancer etc. [8]. In Pakistan the first case of COVID-19 was reported on February 26, 2020 [9]. And now there are up to 20,000 confirmed cases [10]. This viral outbreak has made the general

public more adhere towards the preventive measures which is highly reflected by their knowledge, attitude and practice [11].

The aim of this research is to assess and compare the knowledge, attitude and practice of medical and non-medical students and also their compliance related to COVID-19 guidelines advised by the government during the pandemic, as these students are playing an active role in conveying the information to the masses.

Research Methodology

A cross sectional study was conducted among medical and non-medical students of Karachi, Pakistan from April to May 2020. Male and female students studying in first to fifth year at various medical and non-medical universities of Karachi were inducted through non probability convenience sampling after getting their informed consent.

Sample size was estimated from the software Open Epi. With 50% prevalence, 95% Confidence level and 5% bound on Error, the estimated sample size came out to be 384. With 10% inflation for non-response, the sample size came out to be 422. A total number of 432 students were inducted in this study.

A structured questionnaire was used to assess the knowledge attitude and practice of medical and non-medical students regarding knowledge about COVID-19 [12]. The questionnaire also contained sociodemographic details of students along with questions pertaining to the role of health ministry and sources for gaining knowledge regarding the subject.

The knowledge attitude and practice question were assessed as yes/no/not sure variable. The data was collected online using Google form. The questionnaire link was shared among specific WhatsApp and Facebook groups.

Face Validity of the tool was done by public health experts. Reliability test was assessed by pre-testing on 10% of similar sample, data was collected, cleaned for missing variables and cross-validated by random checking. Data was entered in SPSS version 20, where categorical variables were summarized by frequencies and percentages. Chi Square test and where applicable, Fisher's Exact test were used to find the significant difference between knowledge, attitude and practices related to COVID-19 between students in both medical and non-medical college. A p-value of ≤ 0.05 indicated statistical significance.

Results

Out of the total 432 students, 331 (76.1%) were female while 101 (23.4%) were male with the mean age 4.20 ± 1.81 years. Among these 432 students, 60 (13.9%), 104 (24.1%), 78 (18.1%), 143 (33.1%) and 47 (10.1%) were studying in 1st year, 2nd year, 3rd year, 4th year and final year respectively. Majority of them, 265 (61.3%) belonged to medical universities while 167 (38.7%) were from non-medical universities. Of these 181 (86.6%) had some other health issues while 26 (12.4%) had allergic rhinitis followed by 2 (1.0%) with psoriasis. We noticed that about 262 (60.6%) students were satisfied with the steps taken by the ministry of health **(Table 1)**.

Table 1: Demographic details and knowledge regarding ethics among study participants (n=432).

Variables	Parameters	n (%)
Gender	Male	101 (23.4%)
	Female	331 (76.1%)
Age (Mean ± SD= 4.20 ± 1.81)	18-21	253 (58.6%)
	22-26	179 (41.4%)
Year of study	First year	60 (13.9%)
	Second year	104 (24.1%)
	Third year	78 (18.1%)
	Fourth year	143 (33.1%)
	Final year	47 (10.9%)
Field of education	Medical	265 (61.3%)
	Non-medical	167 (38.7%)
Other health issues	Allergic rhinitis	26 (12.4%)
	psoriasis	2 (1.0%)
	others	181 (86.6%)
Satisfaction with the steps of health ministry	yes	262 (60.6%)
	no	170 (39.4%)

Table 2: Comparison between knowledge regarding COVID-19 between medical and non-medical students (n=432).

Variables		Yes n (%)	No n (%)	Not sure n (%)	p-value*
Has COVID-19 been detected in your country?	Medical	259 (60.0%)	3 (0.7%)	3 (0.7%)**	0.013
	Non-medical	153 (35.4%)	8 (1.9%)	6 (1.4%)	
Is fever a symptom of COVID-19?	Medical	248 (57.4%)	12 (2.8%)	5 (1.2%)	<0.001
	Non-medical	129 (29.9%)	17 (3.9%)	21 (4.9%)	
Is cough a symptom of COVID-19?	Medical	256 (59.3%)	5 (1.2%)	4 (0.9%)	<0.001

	Non-medical	141 (32.6%)	11 (2.5%)	15 (3.5%)	
Is difficulty in breathing a symptom of COVID-19?	Medical	261 (60.4%)	4 (0.9%)	0 (0.0%)**	
	Non-medical	151 (35.0%)	9 (2.1%)	7 (1.6%)	<0.001
Is headache a symptom of COVID-19?	Medical	127 (29.4%)	61 (14.1%)	77 (17.8%)	
	Non-medical	66 (15.3%)	34 (7.9%)	67 (15.5%)	0.058
Vomiting is not a common symptom of COVID-19.	Medical	172 (39.8%)	51 (11.8%)	42 (9.7%)	
	Non-medical	78 (18.1%)	47 (10.9%)	42 (9.7%)	0.001
Diarrhoea is not a common symptom of COVID-19.	Medical	175 (40.5%)	61 (14.1%)	29 (6.7%)	
	Non-medical	83 (19.2%)	43 (10.0%)	41 (9.5%)	<0.001
COVID-19 has no vaccine.	Medical	222 (51.4%)	28 (6.5%)	15 (3.5%)	
	Non-medical	113 (26.2%)	28 (6.5%)	26 (6.0%)	<0.001
COVID-19 has no specific treatment	Medical	213 (49.3%	36 (8.3%)	16 (3.7%)	
	Non-medical	90 (20.8%)	37 (8.6%)	40 (9.3%)	<0.001
Can COVID-19 cause death?	Medical	255 (59.0%)	7 (1.6%)	3 (0.7%)	
	Non-medical	145 (33.6%)	10 (2.3%)	12 (2.8%)	0.001

*Chi square as a test of significance, p<0.05

** Fisher Exact as a test of significance, p<0.05

About 259 (60.0%) medical students and 153 (35.4%) non-medical students were aware about the detection of COVID-19 in their country, and the difference was statistically significant (p=0.013). There was significant difference regarding the knowledge of symptoms (fever, cough difficulty breathing) of COVID-19 among medical and non-medical students (p ≤ 0.05). More than half of the medical students, 221 (51.4%) and 113 (26.2%) non-medical students knew the unavailability of vaccine against COVID-19 (p ≤ 0.001). Almost 213 (49.3%) medical students and 90 (20.8%) non-medical students were aware about the non-availability of specific treatment for COVID-19, which was statistically significant (p ≤ 0.001). In addition, 255 (59.0%) medical students knew that COVID-19 can cause death as compared to 145 (33.6%) non-medical students (p=0.001) **(Table 2).**

A total of 264 (61.1%) medical students and 158 (36.6%) non-medical students agreed that handwashing is necessary for the prevention of infection (p ≤ 0.001). Almost half of the medical students, 201 (46.5%) were of the opinion that smoking will not prevent infection as compared to 80 (18.5) non-medical students, and the difference was statistically significant (p ≤ 0.001). Similarly, 191 (44.2%) medical students felt that antibiotics will not prevent infection as compared to 74 (17.1%) non-medical students and this was statistically significant (p ≤ 0.001). More than half of the medical students 255 (59.0%) were of the opinion of visiting a hospital as advised if they get infected as compared to 147 (34.0%) non-medical students (p=0.005). Moreover, 217 (50.2%) medical students believed that they can get infected after coming in contact with the infected patient despite their good immunity as compared to 122 (28.2%) non-medical students (p=0.037) **(Table 3).**

Table 3: Comparison of medical and non-medical students in terms of attitude regarding COVID-19 (n=432).

Variables		Yes n (%)	No n (%)	Not sure n (%)	p-value*
Hand washing is necessary for prevention of infection.	Medical	264 (61.1%)	0 (0.0%)	1 (0.2%)**	
	Non-medical	158 (36.6%)	6 (1.4%)	3 (0.7%)	<0.001
Face mask can prevent viral transmission	Medical	248 (57.4%)	5 (1.2%)	12 (2.8%)**	
	Non-medical	152 (35.2%)	5 (1.2%)	10 (2.3%)	0.602
Smoking will not prevent infection	Medical	201 (46.5%)	31 (7.2%)	33 (7.6%)	
	Non-medical	80 (18.5%)	42 (9.7%)	45 (10.4%)	<0.001
Antibiotic will not prevent infection	Medical	191 (44.2%)	39 (9.0%)	35 (8.1%)	<0.001

	Non-medical	74 (17.1%)	38 (8.8%)	55 (12.7%)	
Virus is not a stigma and I should not hide my infection	Medical	205 (47.5%)	32 (7.4%)	28 (6.5%)	
	Non-medical	114 (26.4%)	23 (5.3%)	30 (6.9%)	0.062
If getting infected I will go to hospital as advised.	Medical	255 (59.0%)	5 (1.2%)	5 (1.2%)	
	Non-medical	147 (34.0%)	11 (2.5%)	9 (2.1%)	0.005
I can get infected If I contacted an infected patient despite of my strong beliefs.	Medical	242 (56.0%)	11 (2.5%)	12 (2.8%)	
	Non-medical	142 (32.9%)	14 (3.2%)	11 (2.5%)	0.108
I can get infected If I contacted an infected patient despite my good immunity.	Medical	217 (50.2%)	29 (6.7%)	19 (4.4%)	
	Non-medical	122 (28.2%)	21 (4.9%)	24 (5.6%)	0.037
Have you bought face masks?	Medical	229 (53.0%)	36 (8.3%)	0 (0.0%)**	
	Non-medical	144 (33.3%)	21 (4.9%)	2 (0.5%)	0.254
I follow regular updates on virus	Medical	223 (51.6%)	37 (8.6%)	5 (1.2%)**	
	Non-medical	132 (30.6%)	28 (6.5%)	7 (1.6%)	0.236
*Chi square as a test of significance, p<0.05 **Fisher Exact as a test of significance, p<0.05					

Comparison of medical and non-medical students in terms of practice of COVID-19 revealed similar results for most variables. However, 123 (28.5%) medical students said that they use alcoholic hand rub as compared to 61 (14.1%) non-medical students, and the difference was statistically significant (p=0.043). About 236 (54.6%) medical students denied drinking ginger with honey as compared to 136 (31.5%) non-medical students (p=0.026). Furthermore, 244 (56.5%) medical students refused eating garlic as compared to 141 (32.6%) non-medical students and this was statistically significant (p=0.013) **(Table 4).**

Table 4: Comparison of medical and non-medical students in terms of practice of COVID19 (n=432).

Variables		Yes n (%)	No n (%)	p-value*
I avoid hand shaking	Medical	216 (50.0%)	49 (11.3%)	
	Non-medical	130 (30.1%)	37 (8.6%)	0.353
I wash my hands with water and soap regularly	Medical	246 (56.9%)	19 (4.4%)	
	Non-medical	156 (36.1%)	11 (2.5%)	0.816
I use alcoholic hand rub.	Medical	123 (28.5%)	142 (32.9%)	
	Non-medical	61 (14.1%)	106 (24.5%)	0.043
I cough and sneeze in a tissue and throw it in waste bin.	Medical	155 (35.9%)	110 (25.5%)	
	Non-medical	97 (22.5%)	70 (16.2%)	0.933
I wear a face mask	Medical	167 (38.7%)	98 (22.7%)	
	Non-medical	106 (24.5%)	61 (14.1%)	0.924
I drink ginger with honey	Medical	29 (6.7%)	236 (54.6%)	
	Non-medical	31 (7.2%)	136 (31.5%)	0.026
I eat garlic.	Medical	21 (4.9%)	244 (56.5%)	
	Non-medical	26 (6.0%)	141 (32.6%)	0.013
*Chi square as a test of significance, p<0.05				

Upon enquiring their source of knowledge regarding COVID-19, majority of them 238 (60.6%) acquired it from social media **(Figure 1).**

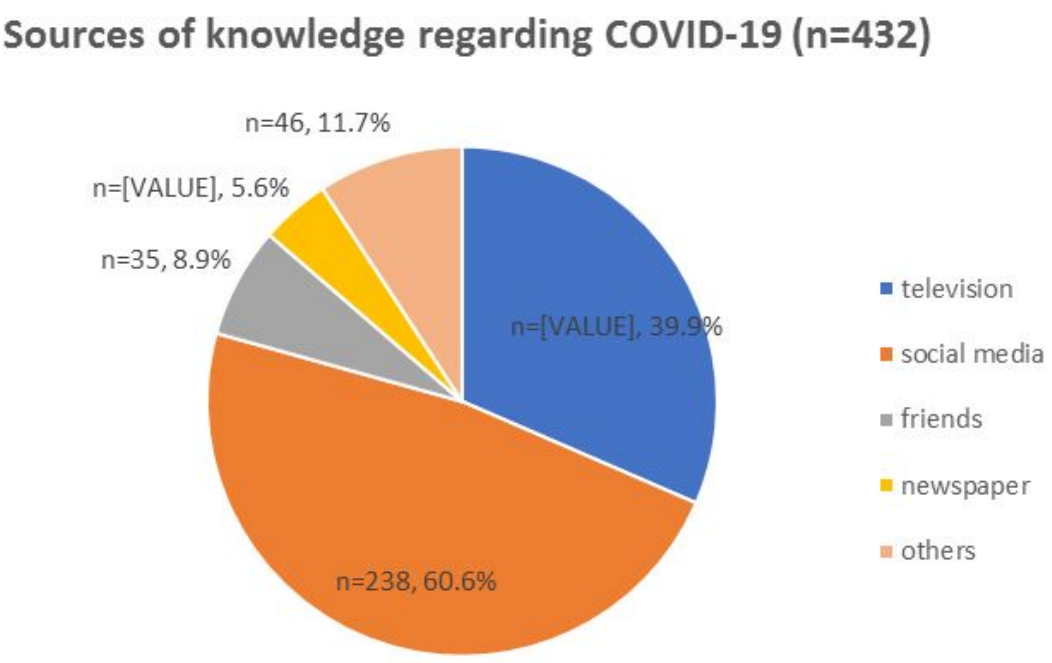

Figure 1: Sources of knowledge regarding COVID-19 (n=432), *Multiple responses apply.

Discussion

This study is conducted to provide a perception about knowledge, attitude and practice regarding COVID-19 among medical and non-medical students of Karachi at the time of outbreak in 2020. More than 180 countries including China have been exposed to this deadly virus [13]. We found that overall; the students have unambiguous knowledge about COVID-19 which reflects their apprehension about the severity of this pandemic. In consonance with the study among Chinese residents, an overall 90% of the participants had knowledge about COVID-19 [14].

COVID-19 can present with mild, moderate or severe illness [15]. A study conducted in China showed that 81% of the patient suffered mild illness with a very low fatality rate of 2.3% [16]. Most of the students were confident that there is no specific treatment or vaccine against COVID-19 yet. Very few students' knowledge regarding the treatment and vaccine was lacking. Several drugs such as Chloroquine, Arbidol, Remdesivir and Favipiravir are undergoing clinical trials to check their efficacy and safety in the treatment of COVID-19 [17].

It was a sigh of relief and contentment that how well the young generation has perceived the ferocity of this disease, which has been expressed by their high level of attitude, practice and satisfactory control measures. The attitude of participants like hand washing, using alcoholic hand rub, avoiding hand shaking, wearing face mask and coughing or sneezing in a right way will not only prevent getting this illness but also other contagious diseases. Since we can't isolate ourselves entirely so the good hand hygiene is the most important practice and majority of the participants supports the method of hand washing with soap and water rather than hand sanitizer on daily basis which is actually recommended [18]. However, 1/3 of our students are not realizing that smoking can not only increases the chances of getting this infection but can also cause severe symptoms than non-smokers as per available data [19]. Surprisingly very few students (18.8%) believed that the use of antibiotics will prevent this illness which shows that it is necessary to further increase awareness about the supportive treatment of COVID-19, and it may also help in reducing antibiotic resistance which has emerged as a major health issue in Pakistan [20]. Furthermore, majority of the students in our survey didn't consider the virus as stigma and preferred going to hospital as advised per guidelines; if someone is not feeling well and suspects having COVID-19 then you should isolate yourself and consult your doctor [21]. Since it has been proved through a research that an efficacious isolation and contact tracing could help in making this situation controllable [22]. It's remarkable that 2/3 of our participants believed that they can get infected from this novel coronavirus despite of their good immunity as it has been observed that there is fast recovery and less severity in healthy adults as compared to elder and immunocompromised individuals, due to their competitive immune system [23]. Moreover, majority of the students denied the consumption of ginger with honey and garlic while, World Health Organization (WHO) have already explicated that these remedies can have a positive impact on health since it contains a lot of vitamins and antioxidants which may boost immune system but these are not medically proven against COVID-19 [24].

About 60% of the population was satisfied by the steps taken by the Ministry of Health for COVID-19 like specific isolation wards in hospitals, social distancing, promotion of preventive measures and early closure of all educational institutes, public places, airports, calling off all the main events to avoid over-crowding etc. While there were still 40% who were not convinced, which means that government need to put in more efforts to win this battle against COVID-19. Here we also tried to assess their source of knowledge which they got from multiple sources. Majority of them gained their knowledge regarding COVID-19 from social media (60.6%).

It is important to mention that this research had certain limitations firstly, those people who had smartphones and were active on social media were the only ones who got the chance to participate in this survey. Moreover, our study included only few universities of Karachi, therefore the results cannot be generalized to the whole population. This survey exhibits results from an educated population while the knowledge, attitude and practice of uneducated people might be different from the findings of our study. In addition, since it was a cross sectional study therefore, we cannot report the changes in the knowledge attitude and practice of students in future.

Conclusion

In conclusion, this research clearly indicates the difference in knowledge, attitude and practice among medical and non-medical students towards COVID-19. This reflects an urgent need of planning more awareness campaigns and health policies to fight against COVID-19. This data can be used to further asses the satisfaction of students at a larger level. Due to limitations in our study, more studies are required to find out the knowledge, attitude and practice pertaining to COVID-19 among general population.

Conflict of Interest

Authors declare no Conflict of interest

Funding

No source of funding was availed during the study.

References

1. Hassan S, Sheikh FN, Jamal S, Ezeh JK, Akhtar A (2020) Coronavirus (COVID-19): a review of clinical features, diagnosis, and treatment. Cureus. 12: e7355.
2. Singhal T (2020) A review of coronavirus disease-2019 (COVID-19). Indian J Pediatr 87: 281-286.
3. Zhang J, Litvinova M, Wang W, Wang Y, Deng X, et al. (2020) Evolving epidemiology and transmission dynamics of coronavirus disease 2019 outside Hubei province, China: a descriptive and modelling study. The Lancet Infect Dis 20: 793-802.
4. Yi Y, Lagniton PN, Ye S, Li E, Xu RH (2020) COVID-19: what has been learned and to be learned about the novel coronavirus disease. Int J Biol Sci 16: 1753.
5. Cucinotta D, Vanelli M (2020) WHO declares COVID-19 a pandemic. Acta bio-medica: Atenei Parmensis 91: 157-160.
6. https: //www.worldometers.info/coronavirus/#countries
7. https: //www.who.int/news-room/commentaries/detail/modes-of-transmission-of-virus-causing-COVID-19-implications-for-ipc-precaution-recommendations
8. Verity R, Okell LC, Dorigatti I, Winskill P, Whittaker C, et al. (2020) Estimates of the severity of coronavirus disease 2019: a model-based analysis. The Lancet Infect Dis 20: 669-677.
9. Raza S, Rasheed MA, Rashid MK. (2020) Transmission Potential and Severity of COVID-19 in Pakistan.
10. https: //www.COVID.gov.pk/
11. Zhong BL, Luo W, Li HM, Zhang QQ, Liu XG, et al. (2020) Knowledge, attitudes, and practices towards COVID-19 among Chinese residents during the rapid rise period of the COVID-19 outbreak: a quick online cross-sectional survey. Int J Biol Sci 16: 1745-1752.
12. Alzoubi H, Alnawaiseh N, Asma'a Al-Mnayyis MA, Lubada AA, Al-Shagahin H (2020) COVID-19-Knowledge, Attitude and Practice among Medical and Non-Medical University Students in Jordan. J Pure Appl Microbiol 14: 17-24.
13. https: //www.pharmaceutical-technology.com/features/coronavirus-outbreak-the-countries-affected/]
14. Zhong BL, Luo W, Li HM, Zhang QQ, Liu XG, et al. (2020) Knowledge, attitudes, and practices towards COVID-19 among Chinese residents during the rapid rise period of the COVID-19 outbreak: a quick online cross-sectional survey. Int J Biol Sci 16: 1745-1752..
15. Cascella M, Rajnik M, Cuomo A, Dulebohn SC, Di Napoli R (2020) Features, evaluation and treatment coronavirus (COVID-19). StatPearls Publishing.
16. The Novel Coronavirus Pneumonia Emergency Response Epidemiology Team (2020) The Epidemiological Characteristics of an Outbreak of 2019 Novel Coronavirus Diseases (COVID-19) - China, 2020. China CDC Weekly 2: 113-122.
17. Dong L, Hu S, Gao J (2020) Discovering drugs to treat coronavirus disease 2019 (COVID-19). Drug Discov Ther 14: 58-60.
18. https: //www.cdc.gov/handwashing/pdf/hand-sanitizer-factsheet.pdf
19. Berlin I, Thomas D, Le Faou AL, Cornuz J (2020) COVID-19 and smoking. Nicotine & Tobacco Research pp: 1-3.
20. Afal MS (2017) Emergence of antibiotic resistance in Pakistan, a clear problem for future. J Vaccines Vaccin 8: 375.
21. https: //www.cdc.gov/coronavirus/2019-ncov/if-you-are-sick/steps-when-sick.html
22. Hellewell J, Abbott S, Gimma A, Bosse NI, Jarvis CI, et al. (2020) Feasibility of controlling COVID-19 outbreaks by isolation of cases and contacts. The Lancet Global Health 8: E488-E496.
23. Abdulamir AS, Hafidh RR (2020) The Possible Immunological Pathways for the Variable Immunopathogenesis of COVID-19 Infections among Healthy Adults, Elderly and Children. Electron J Gen Med 17: em202.

24. https: //newseu.cgtn.com/news/2020-04-03/Enjoy-ginger-but-it-s-not-a-cure-for-COVID-19-says-WHO--Pn0Wuje3UA/index.html