AWARENESS LEVEL OF DOCTORS REGARDING CORONA VIRUS INFECTION DISEASE (COVID-19)

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ABSTRACT

Objective: To assess the awareness level of medical doctors regarding COVID-19

Material and Methods: This cross-sectional study was conducted by Department of Medicine, Khyber Teaching Hospital Peshawar. A total of 283 medical doctors including dental/medical undergraduates of final year professionals, postgraduate residents and fellows participated in the study and filled an online validated questionnaire. The questionnaire comprised of questions about characteristics of study participants, origin and nature of COVID-19, clinical features and complications of COVID-19, diagnosis and management of COVID-19 and lastly about preventive measures against COVID-19. The results were stratified into tables on the basis of qualification of the study participants. Data was analyzed by SPSS 23 and presented in tables.

Results: Results of the survey indicate that doctors are generally aware about the different aspects of COVID-19. About 96.1% doctors were aware of bat origin of COVID-19; 49.5% were aware about animal to person and person to person mode of spread of corona virus; 83.4% were aware about droplet borne mode of transmission of coronavirus infection; 91.9% doctors knew about up to 2 weeks incubation period of COVID-19 and 97.2% of the participants were informed that COVID had been declared a pandemic by World Health Organization (WHO). Seventy-seven percent (77%) doctors were aware that dry cough is a common presentation of COVID-19 among the options of runny nose, body aches and pains and dry cough; 82% were aware that acute respiratory distress syndrome (ARDS) is the most lethal complication of COVID-19; 55.8% study participants were aware that COVID-19 was causing most of the daily mortalities in current COVID pandemic while 75.3% doctors were aware about 2% global fatality rate of COVID-19.

Most of the study respondents (97.2%) were informed about viral RNA PCR from nasopharyngeal swab as diagnostic modality for COVID-19; 87.6% doctors were aware about most common computed tomography (CT) chest findings of bilateral lung infiltrates and 89% respondents knew about supportive care as ultimate care for patients with COVID-19.

Majority of doctors (66.1%) were aware that social distancing was most important preventive measure against COVID-19, with frequent hand washing and use of face mask to follow respectively. Almost , 75.6% participants were aware that N95 mask was meant for use by staff taking nasopharyngeal swab from suspected COVID-19 patient and 94% of the doctors were aware about 20 seconds recommended duration of hand washing by World Health Organization.

Conclusion: Doctor's community is aware of different aspects of COVID-19 including epidemiology, clinical manifestations, diagnostics, complications and preventive measures effective against COVID-19.

Key Words: Awareness; Corona Virus Infection Disease (COVID-19); Coronavirus; Doctors

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INTRODUCTION

Corona Virus infection brought the whole world to a major halt in the start of year 2020. The disease which took birth in Wuhan City of China in late December 2019 soon became a worldwide pandemic that became difficult to control. It has since then affected individuals from all walks of life in one way or the other. As of 29th July 2020 there have been 16,899,285 confirmed cases of COVID-19, including 663,540 deaths, reported to World Health Organization (WHO)[1]. Of these, 276,288 cases have been reported in Pakistan with 5,892 deaths[2]. The doctor community has been the front line soldiers along with other health care professionals. They are not only been facing COVID-19, but have also been upfront the rapidly changing information, guidelines and protocols revolving around COVID-19.

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The purpose of this study was to assess the awareness level of doctor community regarding COVID-19. Due to the rapidly changing dynamics of COVID-19, it is difficult for the doctor community to keep abreast of all the updates; however the purpose of the study was to evaluate their knowledge about modes of transmission, clinical features, incubation period, diagnostic tools, treatment options and mortality. These are the aspects of COVID which the treating doctors come across. Well versed doctors can ultimately educate patients and their carers about prevention and control of COVID. A poor understanding of the disease among health care workers (HCWs) may result in delayed treatment and result in the rapid spread of the infection. Furthermore, if doctors are aware of preventive measures against COVID-19, and practice them, they would be able to keep themselves safe during patient interaction especially while performing procedures that require close proximity with patients for example during nasopharyngeal sampling for corona virus, nasopharyngeal intubation, and mechanical ventilation[3].

MATERIAL AND METHODS

This cross-sectional study was conducted by Department of Medicine, Khyber Teaching Hospital Peshawar and 283 doctors were included. These included respondents were male and female undergraduate medical and dental students of final year professionals, post-graduate trainees and fellows of Internal Medicine. Approval from Institutional Ethical Review Board was taken before initiating the study (IREB Approval Number: 798-ADR/KMC dated March 3, 2020). Informed consent was taken from all participants before including their responses in the study. The participants were requested to fill a pre-designed questionnaire between 04th March and 05th April, 2020. The questionnaire was formulated using 20 questions regarding awareness about different aspects of COVID-19. The questionnaire was validated both for face and content validity by 8 subject experts amongst faculty members from Department of General Medicine Khyber Medical College Peshawar. Pilot study was conducted on 10 participants who were 2nd year PG Residents from Department of General Medicine Khyber Teaching Hospital Peshawar for pilot study and these residents were then excluded from main study. Data was analyzed from the questionnaire using SPSS 23 and was presented in tables.

The responses were divided on the basis of qualification of respondents as follows: undergraduate medical and dental students, post-graduate trainees and responses from fellows. Questions had been asked about the number of suspected and confirmed COVID cases that respondents had come across, origin, spread, transmission, incubation period, symptomatology, complications, diagnostic tools, treatment options, preventive measures, latest advances and fatality of COVID-19. Responses were stratified on the basis of qualification of respondents.

RESULTS

Characteristics of the study participants are outlined in Table 1. A total of 283 doctors participated in the study. Of these, 189 (66.8%) were males and 94 (33.2%) were females. Almost 10.6% of the respondents aged up to 25 years; 48.4% aged between 26-35 years; 15.5% aged between 36-45 years and 25.4% aged more than 45 years. Respondents were stratified into undergraduate medical and dental students (47.7%), postgraduate trainees (15.2%) and fellows who had qualified exit exams (37.1%). Approximately 82.7% of the respondents had come across up to 25 suspected COVID cases; 9.2% of the respondents had come across 26-50 suspected COVID cases; 4.6% had seen 51-100 suspected cases while 3.5% had seen more than 100 COVID suspects. Eight percent (8%) of the participants had seen up to 10 confirmed COVID cases; 5.7% had seen 11-20 confirmed cases, whereas 5.3% had seen more than 20 confirmed cases of COVID-19. The knowledge of respondents about origin and nature of COVID-19 stratified on the basis of qualification is discussed in Table 2. About 96.1% of the respondents marked 'bat' as the animal origin of COVID whereas 3.9% opted for other options. Nearly 49.5% of the respondents opted for animal to person and person to person spread of the disease whereas 44.5% opted for only person to person spread and 83.4% participants committed for droplet borne mode of transmission of COVID. Approximately 91.9% chose up to 2 weeks duration for incubation period option and 97.2% of the doctors were aware that COVID has achieved the status of pandemic by WHO.

Knowledge about symptomatology, complications and outcome of COVID-19 are outlined in Table 3. About 4.9% respondents picked runny nose as the most common presentation of COVID; 18% opted for body aches and pains; and 77% favored dry cough as the common presentation of COVID. Approximately 82% of the doctors opted for acute respiratory distress syndrome (ARDS) as the most common complication of COVID; whereas 15.9% chose acute respiratory failure as the most common complication. The question asked about currently most lethal disease was tricky; as per WHO globally, tuberculosis is the most lethal disease, but amidst the COVID pandemic, COVID had become the most lethal disease, causing greater fatalities on daily basis than tuberculosis. Nearly 55.8% doctors opted for COVID as most lethal disease, whereas 26.9% voted for tuberculosis. As much as 75.3% of the respondents opted for 2% fatality rate of COVID whereas 15.5% opted for 5% fatality rate.

Table 4 highlights the knowledge of different strata of doctors about diagnosis and management of COVID-19.

Almost 97.2% of the doctors were aware that PCR for viral RNA from nasopharyngeal swab was the diagnostic modality for COVID-19. Approximately 87.6% marked bilateral lung infiltrates as most common CT scan findings while 89% of the doctors agreed that supportive care was mainstay of therapy for COVID-19 patients.

Table 5 outlines the knowledge of doctors about different preventive measures for COVID-19. Almost 66.1% of the doctors marked keeping social distance as the most important preventive measure against COVID. However 26.5% doctors opted for frequent hand washing

Table 1: Characteristics of study participants

Variable	Category	Number (n)	Percentage (%)
Gender	Male	189	66.8
	Female	94	33.2
Age (Years)	Up to 25	30	10.6
	26-35	137	48.4
	36-45	44	15.5
	>45	72	25.4
Qualification	MBBS/MD/BDS	135	47.7
	FCPS Trainee/Postgrad. Diploma/MS Students	43	15.2
	FCPS/American Board/FRCP/FRCS	105	37.1
Suspected cases came across	0-25	234	82.7
	26-50	26	9.2
	51-100	13	4.6
	>100	10	3.5
Confirmed cases came across	0-10	252	89.0
	11-20	16	5.7
	>20	15	5.3

Table 2: Knowledge about origin and nature of COVID-19 based on qualification

Variable	Qualification						Total	
	MBBS/MD/BDS		FCPS Trainee/ Postgrad. Diploma/ MS Students		FCPS/American Board/ FRCP/FRCS			
	n	%	n	%	n	%	n	%
Animal origin								
Bat	134	47.3	36	12.7	102	36.0	272	96.1
Other	1	0.4	7	2.5	3	1.1	11	3.9
Spread how								
Animal to person spread	1	0.4	0	0.0	0	0.0	1	0.4
Person to person spread	64	22.6	18	6.4	44	15.5	126	44.5
Person to animal spread	0	0.0	1	0.4	1	0.4	2	0.7
Animal to person and person to animal spread	8	2.8	1	0.4	5	1.8	14	4.9
Animal to person and person to person spread	62	21.9	23	8.1	55	19.4	140	49.5
Transmission mode								
Air-borne	25	8.8	2	0.7	16	5.7	43	15.2
Droplet-borne	108	38.2	40	14.1	88	31.1	236	83.4
Vertical transmission	2	0.7	1	0.4	1	0.4	4	1.4
Incubation period								
Less than a week	7	2.5	2	0.7	2	0.7	11	3.9
1 week	3	1.1	2	0.7	4	1.4	9	3.2
Up to 2 weeks	124	43.8	38	13.4	98	34.6	260	91.9
3 weeks	1	0.4	0	0.0	0	0.0	1	0.4
4 weeks	0	0.0	1	0.4	1	0.4	2	0.7
WHO Status								
Epidemic	2	0.7	0	0.0	3	1.1	5	1.8
Endemic	0	0.0	1	0.4	1	0.4	2	0.7
Pandemic	132	46.6	42	14.8	101	35.7	275	97.2
Sporadic	1	0.4	0	0.0	0	0.0	1	0.4

Table 3: Knowledge about the symptoms, complications and outcome of COVID-19 based on qualification

Variable	Qualification						Total	
	MBBS/MD/BDS		FCPS Trainee/Postgrad. Diploma/MS Students		FCPS/American Board/FRCP/FRCS			
	n	%	n	%	n	%	n	%
Symptoms								
Runny nose	6	2.1	4	1.4	4	1.4	14	4.9
Body aches and pains	16	5.7	7	2.5	28	9.9	51	18.0
Dry cough	113	39.9	32	11.3	73	25.8	218	77.0
Complications								
Septic shock	1	0.4	0	0.0	0	0.0	1	0.4
Acute respiratory failure	24	8.5	6	2.1	15	5.3	45	15.9
Acute cardiac injury	0	0.0	1	0.4	1	0.4	2	0.7
Secondary infection	2	0.7	1	0.4	0	0.0	3	1.1
Acute respiratory distress syndrome (ARDS)	108	38.2	35	12.4	89	31.4	232	82.0
Lethal disease								
Dengue fever	4	1.4	4	1.4	5	1.8	13	4.6
HIV / AIDS	5	1.8	1	0.4	11	3.9	17	6.0
COVID -19	79	27.9	28	9.9	51	18.0	158	55.8
Tuberculosis	36	12.7	10	3.5	30	10.6	76	26.9
Middle East Respiratory Syndrome (MERS)	11	3.9	0	0.0	8	2.8	19	6.7
Fatality rate (%)								
2	101	35.7	33	11.7	79	27.9	213	75.3
5	20	7.1	4	1.4	20	7.1	44	15.5
10	11	3.9	3	1.1	5	1.8	19	6.7
35	3	1.1	1	0.4	0	0.0	4	1.4
40	0	0.0	2	0.7	1	0.4	3	1.1

Table 4: Knowledge about the diagnosis and management of COVID-19 based on qualification

Variable	Qualification						Total	
	MBBS/MD/BDS		FCPS Trainee/Postgrad. Diploma/MS Students		MBBS/MD/BDS			
	n	%	n	%	n	%	n	%
Diagnostic method								
Viral RNA PCR from nasopharyngeal swab	132	46.6	40	14.1	103	36.4	275	97.2
Quantitative CRP	0	0.0	0	0.0	1	0.4	1	0.4
Chest X ray for bilateral lung infiltrates	1	0.4	3	1.1	1	0.4	5	1.8
Salivary lymphocytes	2	0.7	0	0.0	0	0.0	2	0.7
CT findings								
Lung cavitation	12	4.2	2	0.7	4	1.4	18	6.4
Pleural effusions	6	2.1	2	0.7	3	1.1	11	3.9
Discrete pulmonary nodules	3	1.1	2	0.7	1	0.4	6	2.1
Bilateral lung infiltrates	114	40.3	37	13.1	97	34.3	248	87.6
Treatment								
IV fluids	0	0.0	1	0.4	0	0.0	1	0.4
Supportive care	117	41.3	35	12.4	100	35.3	252	89.0
IV Antibiotics	2	0.7	0	0.0	0	0.0	2	0.7
IV anti-virals	5	1.8	2	0.7	0	0.0	7	2.5
Immune therapy	11	3.9	5	1.8	5	1.8	21	7.4

Table 5: Knowledge about preventive measures for COVID-19 based on qualification

Variable	Qualification						Total	
	MBBS/MD/BDS		FCPS Trainee/Post-grad. Diploma/ MS Students		MBBS/MD/BDS			
	n	%	n	%	n	%	n	%
Preventive measures								
Wearing a face mask	6	2.1	0	0.0	11	3.9	17	6.0
Frequent hand washing with soap and water	41	14.5	13	4.6	21	7.4	75	26.5
Keeping social distance	88	31.1	29	10.2	70	24.7	187	66.1
Drinking boiled water	0	0.0	1	0.4	0	0.0	1	0.4
Avoiding eating and drinking together with ill people	0	0.0	0	0.0	3	1.1	3	1.1
N95 mask								
For general population use	6	2.1	3	1.1	3	1.1	12	4.2
For use by health care professionals while seeing non-COVID patients in the outpatients departments	23	8.1	7	2.5	10	3.5	40	14.1
For use by staff taking nasopharyngeal swab from suspected COVID-19 patient	100	35.3	29	10.2	85	30.0	214	75.6
COVID -19 patient in single isolation room	5	1.8	4	1.4	7	2.5	16	5.7
By phlebotomist taking blood from suspected COVID -19 patient	1	0.4	0	0.0	0	0.0	1	0.4
Hand washing duration (Seconds)								
5	0	0.0	1	0.4	0	0.0	1	0.4
10	4	1.4	1	0.4	1	0.4	6	2.1
15	4	1.4	2	0.7	0	0.0	6	2.1
20	124	43.8	38	13.4	104	36.7	266	94.0
25	3	1.1	1	0.4	0	0.0	4	1.4
Investigational drugs								
Ritonavir / lopinavir	27	9.5	11	3.9	20	7.1	58	20.5
Remdesivir	58	20.5	16	5.7	53	18.7	127	44.9
Interferon beta / ribavirin	4	1.4	1	0.4	3	1.1	8	2.8
Intravenous immunoglobulins	37	13.1	7	2.5	19	6.7	63	22.3
Favipiravir	7	2.5	5	1.8	7	2.5	19	6.7
None	2	0.7	3	1.1	3	1.1	8	2.8
Measures for prevention								
Chloroquine	54	19.1	16	5.7	29	10.2	99	35.0
Azithromycin	3	1.1	1	0.4	1	0.4	5	1.8
Vitamin C	27	9.5	4	1.4	11	3.9	42	14.8
Vitamin E	0	0.0	1	0.4	0	0.0	1	0.4
None of the above	51	18.0	21	7.4	64	22.6	136	48.1
Eye-shield								
To be used by the general population	0	0.0	1	0.4	0	0.0	1	0.4
A non-health care worker caring for suspected COVID patient	5	1.8	1	0.4	5	1.8	11	3.9
A suspected COVID patient	8	2.8	4	1.4	7	2.5	19	6.7
A confirmed COVID patient	17	6.0	6	2.1	20	7.1	43	15.2
A health care worker on duty at the triage	105	37.1	31	11.0	73	25.8	209	73.9

with soap and water as the most essential preventive measure against COVID. Approximately 75.6% of the participants agreed that N95 mask was indicated for use during sampling from nasopharyngeal swab from suspected COVID-19 patient. Another 14.1% of the participants opted for N95 use by health care professionals while seeing non-COVID patients in the outpatients departments. About 94% of the doctors were aware about 20 seconds duration of hand washing recommendation by WHO as a preventive measure against COVID-19. Almost 44.9% of the study population opted for Remdesivir as the novel drug showing efficacy against COVID whereas 22.3% marked intravenous immunoglobulins as potentially effective novel therapy. Nearly 35% of the participants opted for chloroquine as an effective drug for prevention against COVID; 1.8% favored azithromycin; another 14.8% chose vitamin C; 0.4% selected vitamin E; and 48.1% were aware that none of these options played any effective role in prevention against COVID. Almost 73.9% of the doctors were aware that eye shield is indicated for use by doctors on duty at triage.

Further details can be seen in the tables. Stratification of the results on the basis of qualification is also documented in the tables.

DISCUSSION

The present study is an attempt to assess the awareness level of doctors about different aspects related to COVID-19. This is one of the pioneer studies conducted in Khyber Pakhtunkhwa province of Pakistan regarding awareness among doctors about COVID-19. The survey was conducted in April and May 2020. Since then there has been a lot of progress regarding the pathogenesis and management of COVID-19 however some pertinent points in the clinical features diagnostics and prevention still remain the same and cannot be emphasized any less.

COVID-19 is a highly transmittable and pathogenic viral infection caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2)[4]. The virus emerged in Wuhan, China in late December, 2019 and spread across the globe in no time. As per genomic studies SARS-CoV-2 is phylogenetically related to severe acute respiratory syndrome-like (SARS-like) bat viruses, therefore the possible primary reservoir could be in bats. Intermediate source of transfer to humans is not clearly understood however animal to human and human to human transfer are now known facts[5,6]. In our study, doctors from all strata were aware about origin of the virus in bats and its transmission from animals to humans and between humans.

The current study demonstrates that most of the doctors are aware about origin, transmission, clinical features, diagnostics, management and preventive measures against COVID-19. Majority of the undergraduate medical students, post graduate trainees and fellows were aware that Corona virus had origin in bats. The concept of transmission of virus from animal to person and person to person was also clear to many doctors. Almost all the doctors were aware of the 2 week incubation period. This can be compared to findings from a study conducted in Bangladesh about the awareness, knowledge and perceptions regarding COVID-19[7].

WHO announced COVID-19 outbreak as a pandemic on 11th March 2020[4,8].The virus was confirmed to have reached Pakistan on 26 February 2020, when a student in Karachi tested positive upon returning from Iran[9].

COVID-19 has a variety of presentations. Common presentations are fever, cough which is usually dry, associated with shortness of breath and body aches and pains[10,11]. The case definitions of COVID-19 have shown flexibility owing to the dynamics of clinical presentation[12]. Initially, only patients with history of travel to endemic areas or contact with people arriving from endemic areas were tested for coronavirus upon developing symptoms. As time progressed and the disease became widespread, people with no such contact history but with fever and cough or body aches and pains were also tested for COVID-19[13]. The disease has other non-respiratory presentations too. Case series report gastrointestinal symptoms in 2-40% of patients, and diarrhea can be the initial manifestation of infection[14]. Viral RNA has been detected in stool samples, sometimes at high levels[15]. This raises the possibility of oro-fecal transmission. Taste or olfactory disorders were noted in up to 53% of the cases in a small cohort from Italy and new anosmia has also been proposed as a criterion for testing, especially in young people with few other symptoms[10,16].

The study participants had varied response to the most common clinical presentation of COVID-19. Although most of the doctors were aware of dry cough as the common clinical presentation, a good number of doctors also opted for body aches and pains as the common presentation.

COVID-19 can lead to many complications, such as: venous thromboembolism, cardiovascular complications, acute liver and kidney injury, neurological complications, cytokine release syndrome, pediatric inflammatory multisystem syndrome and septic shock[17,18]. Acute respiratory distress syndrome has been reported in 8% of patients in case series[19]. It is a leading cause of mortality in patients with COVID-19. Most of the doctors were aware that it is the most lethal complication of COVID-19. Children can quickly progress to respiratory failure after contracting COVID-19 so need to be managed vigilantly[20].

Question asked about most lethal disease was tricky. While tuberculosis is the most lethal disease worldwide with daily increased number of deaths especially in parts of Africa and Asia, currently COVID-19 has taken over TB as the main culprit behind maximum number of daily deaths[4,5,21]. Doctors were aware of 2% fatality of

COVID-19; however some of them also opted for 5% fatality rate. Indeed COVID-19 reached 5% fatality in some parts of the world. At one time its fatality in Khyber Pakhtunkhwa province of Pakistan was also 5%[22].

Doctors had good level of awareness regarding the diagnostic modalities of COVID-19. They were aware of nasopharyngeal swab for coronavirus RNA as the ultimate diagnostic test. They were also aware that CT scan findings of bilateral lung infiltrates most favored COVID-19. Supportive treatment was the option marked by most of the doctors for COVID treatment modality. Questions related to diagnostics and management of COVID-19 revealed good awareness level of doctors, most likely attributed to the fact that doctors are directly involved in both diagnosis and management of COVID-19 patients.

Much has changed about the guidelines related to COVID-19 since its origin in December 2019. However some pertinent aspects of prevention against COVID-19 are still applicable. These include the use of face masks, maintaining social distance and frequent hand washing. Hand washing duration of 20 seconds has also been high- lighted in this pandemic. The concept of surgical face masks and specially designed N95 face masks became clear during the COVID crisis. Surgical masks are for use by the public and health care professionals (HCPs) during non COVID interactions[23]. N95 masks which filter 95% of the particles are to ensure safety during such patient encounters as taking nasopharyngeal swab for coronavirus RNA.[23]. The HCPs prone to splashes, droplets or sprays and splatters of blood or body fluids should wear N95 masks[24]. Gloves, face shields and goggles are other elements of personal protective equipment (PPE) for COVID-19. Doctors also seemed to be aware of use of face shields. Doctors in the current survey were usually aware of the different methods of protection against COVID-19.

Results of our study can be compared to a web based study from Abu Dhabi about knowledge and perceptions among HCPs[24]. There is a difference among questions asked in that survey, however the questions and responses regarding epidemiology and prevention are very much congruent to findings of our study.

Since the inception of COVID-19, many already known drugs and a multitude of investigational drugs have been tested for efficacy against COVID-19 however no single drug has been found effective against COVID-19 and the use of all these drugs is still a speculation. The use of chloroquine and hydroxychloroquine, azithromycin, vitamins C and E, anti-virals, immunosuppressive drugs, anti-neoplastic medications and monoclonal antibodies have all been tried in different patients of COVID-19[21,23,24]. Most of these drugs are still in different phases of different trials. It can be hoped that research will one day be able to establish confirmed treatment strategies for COVID-19.

Questions asked from participants were simple and basic. This could be one reason why most of the doctors gave correct answers that indicated their awareness level. A larger study with greater sample size and greater number of questions to judge deep learning and awareness among doctors about genomics, strains, vaccines, novel treatment therapies and management of COVID in special populations would better highlight the awareness status of doctors and would better stratify the awareness graph on the basis of qualification and clinical experience.

CONCLUSION

COVID-19 is one of the major pandemics that hit the world. All health care professionals including doctors have kept abreast with the rapidly changing dynamics of the disease and have shown openness to accept the reality of COVID-19. The doctor community has accepted the challenge of COVID-19 with courage and bravery and their practices have demonstrated that they are willing to combat COVID-19. Doctors from all strata have demonstrated good awareness about different aspects of COVID-19, including epidemiology, clinical features, diagnostics, complications and preventive measures against COVID. It is hoped that with continuing medical education, online resources and social media input, doctor community will continue to remain updated and aware about the future prospects this new disease is yet to bring.

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Haider I:	Main Idea, questionnaire, content and face validity and critical review
Badshah A:	Literature review, discussion writing, formatting of article
Tajik I:	Statistical analysis, results compilation and final drafting
Khan Z:	Data Collection and proof-reading

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.