

Knowledge, Perception and Attitude of the Undergraduate Healthcare Students Relative to COVID-19 Infection at a Teaching Institute of Karachi

ABSTRACT:

Coronavirus disease 2019 (COVID-19) has been declared a pandemic by the World Health Organization. Efforts are being made all over the world to raise awareness in order to prevent the disease from spreading. The purpose of this study was to assess undergraduate healthcare students' attitudes, perceptions, and knowledge of COVID-19 disease. We conducted a cross-sectional survey in which a questionnaire with 12 questions was transformed online on Google forms and distributed online to healthcare students. A total of 926 individual questionnaires were evaluated. The findings revealed that the majority of participants learned about COVID-19 through social media and electronic media, which was the most common source of information. The majority of participants stated that older and middle-aged people are more likely to be affected. The protective measure against symptomatic and asymptomatic COVID 19 is N95 and surgical masks, as well as sanitization. Half of the participants believe that Covid 19 is a bioweapon, and that it affects all religious groups equally. In general,

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undergraduate healthcare students had a fair understanding of the disease and a favorable attitude toward preventive measures. The government and the public are taking effective measures to combat disease spread; however, there is still a need for additional awareness campaigns and knowledge of safe interventions to combat disease spread.

Keyword: COVID-19, Knowledge, Perception, Attitude and Karachi

INTRODUCTION:

In December 2019, the highly contagious infectious agent emerged in the city of Wuhan, China. The disease was caused by a coronavirus, which was eventually named severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (1).

On January 30, 2020, the WHO declared the coronavirus a global public health emergency (2). Then, in early March, many countries around the world reported a significant increase in the number of new cases. Since March 12, 2020, approximately 142,539 cases and 5,393 deaths have been confirmed in 118 different countries (3). The first coronavirus patient in Pakistan was reported on February 26, 2020 (4). Since June 17, 2020, there have been 154,760 confirmed cases; the death rate reported is 2,975, and the number of patients recovered from this condition in the country is 58,437. As of October 10th, 2020, Pakistan had reported 324,077 cases of COVID-19, with 6673 deaths, 9384 active cases (under treatment), and 308,020 recovered cases (5).

Coronaviruses have emerged as the primary pathogens of evolving respiratory disease outbreaks. They are part of a large family of single-stranded RNA viruses that can cause illnesses ranging from a common cold to severe symptoms like MERS and SARS (6). The major symptoms associated with COVID-19 disease include fever, cough, fatigue, malaise, and shortness of breath. It can also affect the digestive tract, causing vomiting and diarrhoea. The primary mode of transmission is via respiratory droplets, which can spread through coughing or sneezing. Due to growing concerns about the virus has grown as a consequence of high transmission capability, which may be associated with morbidity and mortality (7, 8). Even though the World Health Organization (WHO) has defined an incubation period for the virus as 2 to 10 days, latest studies have predicted an incubation period of more than 2 weeks (9). The older individuals and patients with chronic health conditions are more likely to become infected, and they are also more likely to develop serious complications, such as acute respiratory distress syndrome (ARDS) and cytokine storm (10).

Since the proclamation of COVID-19, the Pakistani government has been working to raise safety awareness and enforce lockdown steps to prevent the spread of this infection. Similarly, the WHO has strongly advised self-isolation, social distancing, and lockdown as important anti-disease measures.

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Qian [et al](#) research highlighted three approaches which should be followed to prevent and control the spread: a) monitoring the potential causes responsible for spreading the disease, b) restricting further transmission, and c) protecting vulnerable members of society (11). Along with launching a general public awareness campaign, Pakistan's National Institute of Health has played a critical role in developing and disseminating safety procedures for COVID-19 prevention and transmission. This has included giving information about the use of personal protective equipment and face masks, as well as adhering to an adequate personal hygiene regimen(12).

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During this COVID-19 outbreak, healthcare workers are at high risk (13). A study conducted by Ikhtlaq [et al](#) on medical undergraduate students at Lahore Medical College discovered adequate knowledge and awareness of COVID-19 (14). Similarly, Ahmed et al. discovered that undergraduate dental and medical students at 3 Karachi academic institutions had sufficient information about COVID-19; however, they were concerned for the safety and diagnostic measures required for coronavirus(15).

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This survey was designed to assess healthcare students' knowledge, attitudes, and perceptions of COVID-19 at a teaching institute in Karachi. The current analysis was conducted using an online assessment to better understand the healthcare students' knowledge and risk perception of the COVID-19 outbreak.

METHODOLOGY:

A cross-sectional study was conducted among undergraduate students at Baqai University. The students gave their verbal consent to fill out the questionnaires. The questionnaire survey were anonymous in order to protect the privacy and confidentiality of all information disclosed in the study. The study received ethical clearance from the Ethical Review Committee. The research was conducted in accordance with the Helsinki Convention.

Due to the strict lockdown, a web - based survey form was created on Google Forms (Alphabet; Mountain View, California, United States). It was circulated to students of the different degree program relating to healthcare in the university via social media. Data was collected between May and June of 2021. The convenience sampling technique was used, resulting in a sample size of 934 people. The entire roster of dental and medical students enrolled from the first year onwards, as well as the interns/house officers who gave consent for participation, were included in the study; students who did not provide consent were excluded from the study.

During the research period, a questionnaire was created, tested, and validated twice. The task ahead was primarily aimed at senior medical and dental healthcare professionals with research experience, who were asked to provide their points of view on the simplification, relativity, and ~~significance of~~ [significance of](#) questionnaire content. A pilot study (n = 25) was conducted with a smaller sample of medical and dental students. The ~~pilot study~~ [pilot study](#) records were not used in our final investigation.

~~The following~~The following set of questionnaire was divided into three ~~parts.~~parts. The first part of the survey focused on the participants' demographic information, which included gender, age, geographical ~~location,~~location, field of study, and year of study. ~~The second~~The second section focused on the knowledge regarding main source of information of covid-19, symptoms and preventive measures. The third part include question regarding the perception and attitude of students regarding this unique COVID-19.

RESULTS:

~~A total~~A total of 926 participants completed the online questionnaire. ~~As shown~~As shown in Figure 1, the majority of the participants was between the ages of 18 and 26. The majority of respondents (68%) were females, with the remaining 32% were males.

With 456 participants, the majority were between the ages of 20 and 23 years old, followed by 423 between the ages of 18 and 20 years old, and the remainder were between the ages of 24 and 26 years

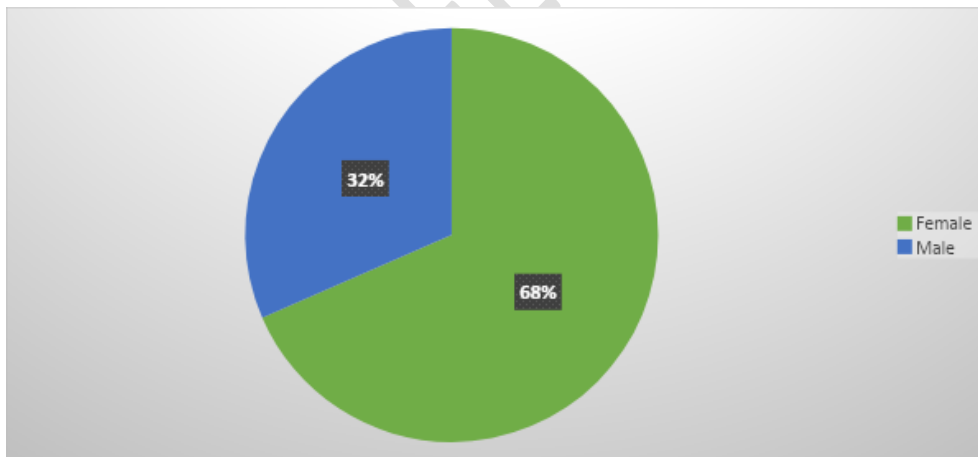


Figure 1: Gender-wise distribution of healthcare students

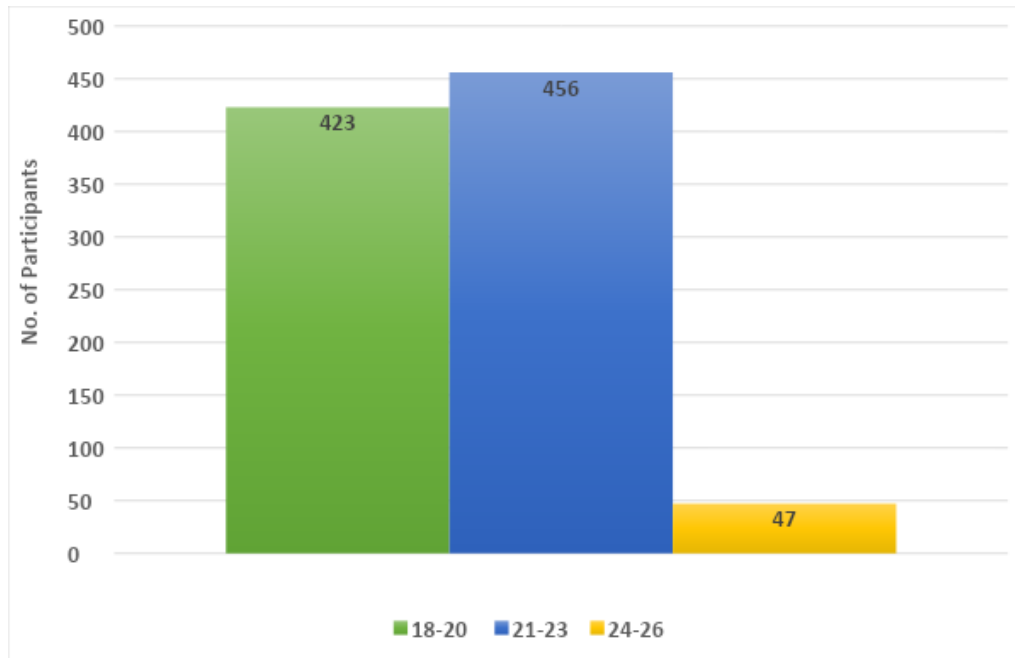


Figure 2: Age-wise distribution of healthcare students

The majority of Most of the students' knowledge and behavior toward the COVID-19 pandemic are critical to its spread, and according to our survey, the main source of information regarding COVID-19 was through social media (36.1%) and electronic media (35.9%) followed by through healthcare workers (11.7%) then friends and family (8.9%) and only a few students got it from print media (7.6%).

More than two-third of the student in our study thought that N95 (40.8%) and surgical mask (37.4%) were the most protective, while only a few thought that cloth mask with filter (11.3%) and store cloth mask (10.6 percent) were the most protective against Covid-19 infection.

In our study, we discovered that the majority of students perceived that the older, middle-aged, and adult age groups were the most commonly infected by COVID -19 infection. A small group of students believed that young people, teenagers, and children were more likely to become infected.

About one-thirds of healthcare students apprehended that the most effective way of controlling **the disease** is the use of masks and gloves (31.7%), followed by social distancing (20.4%), antiviral and vitamins medication (20.3%), and sanitization (20.4%). A few students (6%) **believed that** sun exposure was effective in the prevention of COVID-19, while 4.3 percent believed that eating fruits and vegetables was effective in the prevention of COVID-19.

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The students have understood that the most common symptoms of the COVID-19 infection are fever and chills (45.4%), cough (20.3%), muscular pain (13.8%), and pain in the arm (13.4%). **Only a** few students thought fatigue (7.1%) was the most common symptom of COVID infection.

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Table 1. Knowledge of COVID-19 among healthcare students

Knowledge	
What is your main source of information regarding COVID-19? <ol style="list-style-type: none"> 1. Social Media 2. Print Media 3. Electronic Media 4. Friends and Family 5. Healthcare workers 	334 (36.1%) 70 (7.6%) 332 (35.9%) 82 (8.9%) 108 (11.7%)
What type of mask you think is more protective against COVID-19? <ol style="list-style-type: none"> 1. Surgical Mask 2. N95 3. Cloth Mask with filter 4. Store cloth Mask 	345 (37.4%) 378 (40.8%) 105 (11.3%) 98 (10.6%)
Which age group is more likely to get infected by COVID-19? <ol style="list-style-type: none"> 1. Children 2. Teenagers age group 3. Young age group 4. Adults age group 5. Middle age group 6. Older age group 	08 (0.8%) 15 (1.6%) 34 (3.7%) 224 (24.2%) 250 (27.0%) 395 (42.7%)

Which is the most effective method for protection against COVID-19?	
1. Social distancing	189 (20.4%)
2. Sanitization	169 (18.3%)
3. Use of Mask and Gloves	294 (31.7%)
4. Fruits and Vegetables	40 (4.3%)
5. Sun exposure	56 (6.0%)
6. Antiviral and Vitamin Medication	188 (20.3%)
Symptoms of a Covid 19 infection	
1. Fever and Chills	420 (45.4%)
2. Cough	188 (20.3%)
3. Fatigue	66 (7.1%)
4. Pain in the arm	124 (13.4%)
5. Muscular pain	128 (13.8%)

~~The majority of~~Most males believe COVID-19 is natural, whereas the majority of females believe it is not natural; however, when the results are compared, there is no significant difference between them.

~~The majority of~~Most students had no idea if COVID 19 was asymptomatic or not. As a result, there was no significant difference between the two groups.

In the current study, it was discovered that the majority of female students were unaware of the ~~statistics of~~statistics of COVID 19 infection; however, male students believed they were aware of the statistics of COVID 19 infection. As a result, a significant difference was discovered between the two groups (p=0.001)

It was discovered that the majority of participants in both groups believed that COVID-19 affects all religious groups equally and that isolation is required for people who have been exposed to COVID-19. ~~As a~~As a result, no significant difference was observed between the two perceived behaviors.

Because the majority of both gender groups believed that sanitization protects against COVID-19 and that wearing a mask prevents the spread of COVID-19, no significant change was observed.

Table 2. Attitudes and perceptions about COVID-19 Infection

ATTITUDE and PERCEPTION	FEMALE (n = 634)		MALE (n = 292)		p-value
	n	%	n	%	
1. COVID-19 is natural not a bioweapon.					0.096
YES	214	33.8%	120	41.1%	
MAYBE	148	23.3%	60	20.5%	
NO	272	42.9%	112	38.4%	
2. Can people have asymptomatic COVID-19?					0.874
YES	272	42.9%	127	43.5%	
MAYBE	317	50%	145	49.7%	
NO	45	7.1%	20	6.8%	
3. Do you think COVID-19 statistics (e.g. new cases, deaths, etc.) are made up?					0.001
YES	118	18.6%	142	48.6%	
MAYBE	172	27.1%	78	26.7%	
NO	344	54.3%	72	24.7%	
4. Do you think all religious groups are equally affected by COVID-19?					0.142
YES	496	78.2%	224	76.7%	
MAYBE	72	11.4%	26	8.9%	
NO	66	10.4%	42	14.4%	
5. Is isolation necessary for people who have been exposed to COVID-19?					0.124
YES	600	94.6%	266	91.1%	
MAYBE	18	2.8%	14	4.8%	
NO	16	2.5%	12	4.1%	
6. Does sanitization protect against COVID-19?					0.082
YES	474	74.8%	198	67.8%	
MAYBE	134	21.1%	77	26.4%	
NO	26	4.1%	17	5.8%	

7. Does wearing a mask prevent the spread COVID-19?	528	83.3%	236	80.8%	0.106
YES	76	12.0%	32	26.0%	
MAYBE	30	4.7%	24	8.2%	
NO					

DISCUSSION:

The health care students ~~was~~were polled online to conduct an in-depth analysis of their perceptions and knowledge of COVID-19. It only took one month to collect 1210 knowledge responses and a perception-based ~~questionnaire~~rebased questionnaire with 12 questions, from which 926 responses were analyzed. According to the findings, ~~the majority of~~most participants learned about the disease COVID-19 or SARS-CoV-2 through social and electronic media. ~~Despite the fact that~~Even though these platforms are a natural source of access to information and data all over the world, they are not the most reliable option to choose from. False information is frequently associated with social networking sites such as Facebook. For instance, there was a lot of misconception about hydroxychloroquine being used as a possible therapy for COVID-19, which resulted in a drug scarcity for those that really needed it (16, 17).

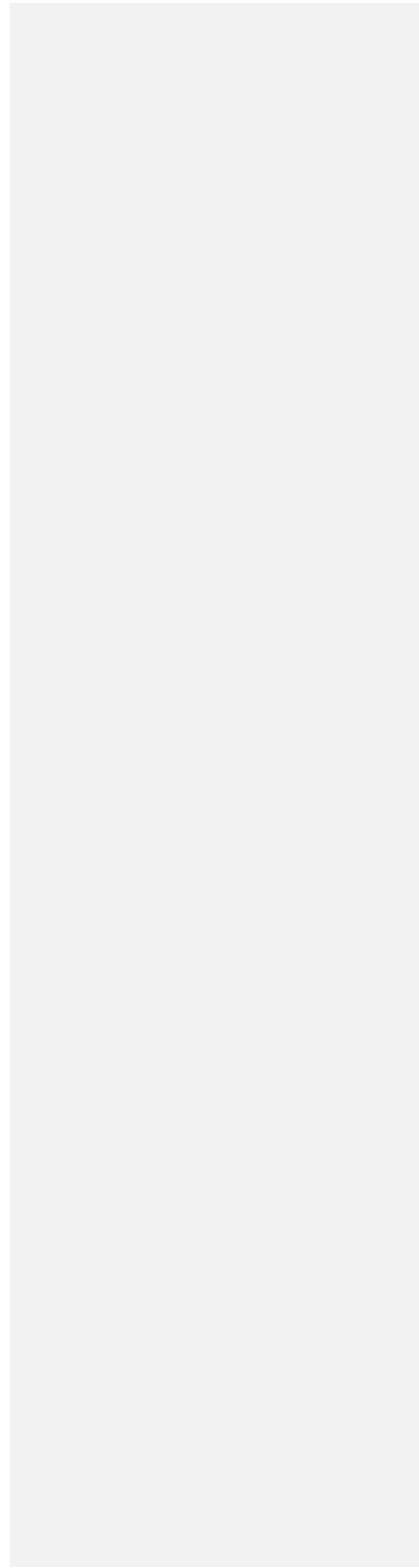
The demographics of the participants, such as age and gender, revealed that female students ~~participated~~the participated the most. ~~The distribution~~The distribution of participants suggested that it could be due to an increase in the number of female students admitted to healthcare systems (18).

According to the survey findings, participants were observed wearing masks and gloves, as well as social distancing, as a preventive measure against the disease. The health care students appeared to be oblivious to the COVID-19 precautions that needed to be taken (17). Participants from across the region believe that standard N95 masks are the most effective at protecting them from COVID infection, and they anticipate the protective ability of surgical masks over cloth masks. In a similar study conducted in Egypt, the general public appeared to assume that wearing ~~masks would~~masks would protect them from disease outbreak, but they were unsure which mask was effective. The WHO does not recommend that healthy young people wear masks; even so, if somebody is undergoing respiratory symptoms that could be caused by a SARS-CoV-2 infection, they should wear a N95 mask for protection.

There is some controversy about whether COVID-19 disease is a bioweapon, and according to our survey, more than one third of the participants said "yes," one third said "no," and a insignificant percentage said "maybe." The findings are intriguing in that people's perceptions support both notions, i.e., COVID-19 being a natural pandemic or a potential bioweapon. The findings are in accordance ~~to~~with a study in which the investigators explain how well this

infection

UNDER PEER REVIEW



has virtually brought the world's superpowers to their knees by bringing the entire world in quarantine and wreaking havoc on the global economy.

According to our gathered answers, ~~the majority of most~~ individuals believe everybody is vulnerable to the new coronavirus respiratory illness, while roughly the same number believe that older customers are more prone to get it. The findings are similar to those of a Chinese study that provides information about COVID-19 patients

~~Majority of~~ Majority of the individual believe that COVID 19 may or may asymptomatic infection; moreover, as per the results of our survey, participants identified fever and chills, cough, muscular pain and pain in the arm as main symptoms of an infected individual. Our participants' knowledge is consistent with that of other epidemiological studies.

Almost half of male students believe that COVID19 case statistics and death rates are made up, ~~while half~~ while half of female students believe otherwise. This type of discrimination stems from the tremendous role of media professionals who play an important role in spreading misinformation through decisions about who or what to cover, and also the repetition of misleading information represents a lot of information likely to affect the attitudes of the Influenced people ~~significantly~~ significantly (19).

~~In the~~ In the current study, three-fourths of students believe that all religious groups are equally effected; however, another study found that it is not the religious group that is effected or not; rather, it is the behaviors associated with religious practices that may be responsible for higher infection rates and thus higher mortality rates (20).

More than 90% of the students believe that isolation is important, especially for patients who are exposed to disease. According to a study, it is extremely crucial to thoroughly understand the spread, morbidity, fatality, and development of immune response associated with coronavirus disease 2019 (COVID-19), which is caused by severe acute respiratory syndrome coronavirus 2, in order to establish an appropriate epidemiological and clinical response. Because current therapeutic options are only partially effective against COVID-19, exposure control is a critical component of the fight (21).

CONCLUSION:

In conclusion, the results of our survey indicate that undergraduate healthcare students at a teaching institute have rather appropriate practices and optimistic approaches as a result of the peak of a COVID-19 infection period. When it comes to the perception of COVID-19, each gender has a different point of view. The education and health programs have aimed to improve knowledge and change ~~students'~~ students' attitudes toward COVID-19, while also promoting safe practices and optimism.

STRENGTH AND LIMITATIONS:

~~This is~~This is among the few studies that have been conducted to assess undergraduate medical students' attitudes, perceptions, and knowledge of COVID-19. This study drew a large number of participants. Because the study was carried out during a lockdown, an online questionnaire was ~~used for~~used for evaluation. ~~The study~~The study only included healthcare students; no other undergraduate students were included.

Because of the small number of participants, more research like this is needed to look into other aspects of COVID-19 in Pakistan, such as the economic burden and availability of SARS-CoV-2 vaccines in low-income residents.

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