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Knowledge, attitude, and practices related to the coronavirus pandemic among patients and their attendants visiting the nuclear medicine department

Kahkashan Bashir Mir^{1*} , Shazia Fatima¹ ,
Noreen Marwat¹ , Sadaf Batool¹, Muhammad
Adnan Saeed¹, Mohammad Faheem¹ Ayesha
Ammar Bukhari¹ 

ABSTRACT

Background: The coronavirus disease 2019 (COVID-19) pandemic is an ongoing global pandemic. The knowledge, attitude, and practices toward COVID-19 play a fundamental role in determining a society's predisposition to accept behavioral changes advised by health authorities. The aim of this study was to assess the knowledge, attitude and practices about COVID-19 among a convenient sample of patients and their attendants visiting the nuclear medicine department in Pakistan.

Methods: A cross-sectional study was conducted through a comprehensive questionnaire consisting of four sections including demographics, knowledge, attitude, and practices among patients and their attendants coming to the nuclear medicine department of AECH-NORI, from different areas of Pakistan over the duration of 2.5 months from mid-April to June 2020. The data from 231 participants ($n = 231$) were collected and results were compiled. A p -value of < 0.05 was considered statistically significant.

Results: Gender was a significant predictor of the level of knowledge and practices concerned ($p < 0.05$). Education had a statistically significant correlation with attitudes and practices in addition to knowledge ($p < 0.05$). Young and middle-aged patients were more concerned about the disease when compared to the elderly population. Majority of the participants had sufficient knowledge about the disease (75.8%) and good attitude (66.3%), but having poor practices (48.5%) toward the disease prevention.

Conclusion: The study suggests that majority of the patients and their attendants have adequate knowledge and awareness related to COVID-19. However, some aspects of practice were found to be deficient. Consistent counseling and awareness programs are still required to manage the pandemic in Pakistan in order to limit the related morbidity and mortality.

Keywords: COVID-19, knowledge, awareness, practice.

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Correspondence to: Kahkashan Bashir Mir

*Nuclear Medicine Specialist, Atomic Energy Cancer Hospital, Nuclear Medicine Oncology & Radiotherapy Institute (AECH-NORI), Islamabad, Pakistan.

Email: alikhkashan@gmail.com

Full list of author information is available at the end of the article.

Introduction

The coronavirus disease 2019 (COVID-19) pandemic is an ongoing global pandemic, which is caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) [1,2]. It is primarily spread between people having close contact, most often through small droplets produced by coughing, sneezing, and talking [3-6]. It is most infectious during the first 3 days after the onset of symptoms, although the spread is also possible even before the symptoms appear [3,4]. The time from contact to the virus to onset of symptoms is typically around 5 days but may range from 2 to 14 days [7-9]. Symptoms of COVID-19 can be relatively non-specific, but the two most common symptoms

are fever and dry cough. Less common symptoms include fatigue, sore throat, myalgia, sputum, loss of sense of smell and taste, shortness of breath, joint pain, headache, vomiting, and diarrhea [10-12]. Among symptomatic patients, approximately one in five may have difficulty in breathing [3]. Alarming symptoms consists of breathing difficulty, continuous chest pain, and walking difficulty. [13]. Progression of the disease can lead to complications like pneumonia, acute respiratory distress syndrome, sepsis, septic shock, and kidney failure [11]. The standard test for the detection of the virus is reverse transcription polymerase chain reaction from a nasopharyngeal swab. There is

no known vaccine or specific antiviral treatment till date [3]. It is managed with symptomatic treatment, supportive care, isolation of infected people, and disinfection. Avoiding exposure to the virus is the only best effective and possible preventive method [14]. Infection preventive and control (IPC) measures include use of face masks, regular hand washing, maintaining a distance of 1.5-2 meters from one another, and avoid touching the face [14]. All over the world, authorities have also responded by implementing travel restrictions, lockdowns, and facility closures. Healthcare professionals (HCP) including doctors and paramedical staff are playing a key role throughout the world in the management of patients affected by COVID-19 [14]. However, multiple reports of infection and deaths of HCPs have been documented, due to exposure from patients who are less aware rather than unaware of the disease and are not following the standard operating procedures (SOPs), as they can be a source of infection despite the precautionary measures taken by HCPs. These patients can be a potential source of infection for HCPs [15]. People in developing countries like Pakistan are not following SOPs because of the low literacy rate, careless attitude, and various myths as well, toward the awareness programs being launched by the government. That is why it is important to assess the level of knowledge, attitude, and practices of patients and their attendants coming to the hospitals. This primary step is critical to overcome a pandemic, in countries like Pakistan so that the best possible available resources can be redirected accordingly [16]. Due to continuously increasing reported infection rates, it was assumed that the knowledge, attitude, and practices of general public toward COVID-19 are deficient. In the current scenario, while defining any society's inclination to accept behavioral changes and other measures advised by health authorities, assessment of knowledge, attitude, and practices (KAP) toward COVID-19 plays a major role. Estimation of KAP toward COVID-19 among the general public would be beneficial to give better insight to address inadequate knowledge about the pandemic and the implication of preventive strategies and health awareness programs.

The objective of this study was to assess knowledge, attitude, and practices about COVID-19 among a convenience sample of patients and their attendants visiting the nuclear medicine department for scanning and radionuclide therapies in AECH-NORI.

Materials and Methods

This research was conducted at the nuclear medicine (NM) department of AECH NORI hospital. A total of $n = 231$ patients and their attendants were enrolled in the study from April to mid-June 2020. Data were collected using a comprehensive questionnaire that comprised 32 pre-defined, closed-ended questions with three responses of yes, no, and do not know, including the demographics. The questionnaire consisted of four main themes:

- 1) Demographics, which surveyed gender, age, and education;
- 2) Knowledge (K) about COVID-19;
- 3) Attitude (A) toward COVID-19 infection;
- 4) Practices (P) relevant to COVID-19.

A group of doctors evaluated the content of the questionnaire used to evaluate the KAP levels of participants. The questionnaire was distributed among all the patients and their attendants coming to the NM department to take any of the available services. All participants were kept anonymous. The data collected were analyzed through SPSS and MS excel software. Descriptive statistics was carried out, considering $p < 0.05$ as statistically significant. We divided the above questionnaire into three groups on the criteria of knowledge (K), attitude (A), and practices (P). This division was only carried out at the researchers' level and participants were unaware of this.

Results

A total of $n=231$ patients and their attendants filled the questionnaire. The demographic data are presented in Table 1. Out of the total 231 participants, 128 (55.4%) were male and 103 (44.6%) were female. 23.8% were below 35 years of age, 48.5% were between 35 and 55 years, and 27.7% were above 55 years (age grouping was arbitrary just to ascertain any impact of source of information used by general public, considering that, in Pakistan, the youth are more in touch with social media like Facebook and internet, while elderly patients usually gain major information from television, newspapers, and their religious gatherings etc.). 39% of the patients were below SSC level, while 61% of patients were SSC or above, while completely illiterate patients did not participate in the study.

The summary of survey questions showing knowledge, attitudes, and practice level of participants toward COVID-19 is presented in Table 2.

Majority of the participants were familiar with COVID-19 and its etiology (80%). 88% of the participants were aware of the contagious nature of the disease. About 76% of the participants know that the infection spreads by sneezing and coughing of the infected person.

Table 1. Demographic details of the sample.

TOTAL NO. OF PARTICIPANTS (N = 231)	
1.	Gender: Male (n = 128, 55.4%) Female (n = 103, 44.6%)
2.	Age : <35 years (n = 55, 23.8%) 35-55years (n = 112, 48.5%) >55 years (n = 64, 27.7%)
3.	Education: Below SSC level (n = 90, 39%) Above SSC level (n = 141, 61%)

Table 2. Summary of results of survey questions

S NO.	SURVEY QUESTIONS	YES %	NO %	DON'T KNOW %	K/A/P
1.	Corona infection is caused by a bacteria or virus?	80	18	02	K
2.	Is this COVID-19 disease contagious/spreads from person to person?	88	11	01	K
3.	Can you get the infection by coughing or sneezing of the infected person?	76	22	02	K
4.	Can you get the disease by sitting close to the infected person?	79	19	02	K
5.	Does the infection spread by shaking hands with each other?	68	28	04	K
6.	Is fever the main symptom of the disease?	90	09	01	K
7.	Is cough the only symptom of the disease?	65	30	05	K
8.	Can nausea, vomiting, generalized body aches, and diarrhea not be the symptoms of this disease?	83	11	06	K
9.	There is no specific treatment of the disease?	24	56	20	A
10.	Should the person having symptoms of fever, cough, or flu run to the hospital to seek urgent medical care?	84	12	04	A
11.	If you gets this infection, you should only avoid going out from home, contact with other family members at home is not dangerous at all?	56	42	02	A
12.	In this time of COVID-19 pandemic, is it completely safe to go to hospital for nuclear scans or routine thyroid follow-up?	87	10	03	A
13.	For routine thyroid follow-up, is it safe to use general public transport if you are healthy and not having this infection?	68	31	01	A
14.	Visiting the hospital in case of non-specific symptoms, routine thyroid check-up, or for nuclear scans without taking protective measures can increase the risk of getting this infection?	80	17	03	A
15.	During visit to the hospital, wearing facemask is helpful in not getting the infection?	52	45	03	P
16.	During visit to the hospital, wearing gloves is helpful in decreasing the chance of being infected?	07	88	05	P
17.	Frequent hand washing is necessary to prevent yourself from the disease?	90	09	01	P
18.	Hand wash with soap is not helpful; use of sanitizer is a must to wash hands every time?	59	39	02	P
19.	Is it safe to visit hospital for nuclear scans or routine thyroid check-up if you are having fever?	56	35	09	P
20.	Is it necessary to maintain social distance from other persons during visit to the hospital?	52	43	05	P
21.	Is it beneficial to pass through the sanitizing tunnel, if placed in the hospital?	58	36	06	P
22.	Is it necessary to follow the SOPs implemented by hospital administration in case of visiting hospital or any medical setup, even other than the COVID-19 setup?	14	78	08	P
23.	Use of protective measures like facemasks and hand gloves by patients and their attendants visiting the hospital are helpful for the doctors and other health staff ONLY?	32	30	38	A
24.	Use of protective measures like facemasks and hand gloves while visiting the hospital are helpful for patients and their attendants ONLY?	44	40	16	A
25.	Use of protective measures like facemask and hand gloves by patients and their attendants visiting the hospital are helpful for the doctors and other health staff as well as for them?	39	19	42	A
26.	Can it be fatal?	85	14	01	K
27.	If your COVID-19 PCR is negative, it means you don't have the disease?	96	01	03	K
28.	Knowledge, attitude, and following the SOPs are the only way to avoid infection from the disease?	78	20	02	A
29.	Where did you get the information about this infection? From television and newspaper?	95	04	01	A

The percentage of participants who were aware of the importance of social distancing was 79%. 68% knew that shaking hands with each other could lead to infection. Interestingly, 90% of the participants were aware that fever is the main symptom of the disease, while 65% believed that cough is the only symptom of the disease. Among participants, 83% believed that nausea, vomiting, myalgia, and change of taste along with diarrhea could not be the symptoms of the disease. Among participants, 24% were aware that a vaccine is not available. Participants who believe that in case of any such symptoms they should rush to the nearby hospital to seek urgent health advice were 84%. Only 56% knew that once infected they should be restricted to their homes and should avoid contact with the rest of the family members. Surprisingly, 87% of the participants believed that there is no harm in visiting non-COVID medical set-ups or nuclear medicine hospitals for routine thyroid follow-up or for nuclear scans even when this pandemic is at its peak, as in Pakistan. 68% believed that using general public transport causes no harm to any one if they are healthy and not having disease symptoms. 80% believed that it is safe to visit hospital having mild symptoms of any disease, for nuclear scans or routine thyroid check-ups even without having special protection as they are visiting a non-COVID set-up. About 52% of the participants believed that facemasks can help to protect from getting infected, during a visit to the hospital. Only 7% believed that wearing gloves while visiting a hospital can reduce the chances of having infection. Almost 90% were practicing frequent washing hands with soap and 59% believed that hand wash with sanitizer only is important. The percentage of participants who believed that it is safe to travel to hospital for routine thyroid follow-up or any nuclear scans even if they are having fever was 56%, which is obviously concerning. 52% believed that maintaining social distance in hospital is mandatory and beneficial. Only 58% believe in the fact that passing through sanitization tunnel in hospital is good for them. Among the participants, 14% believed that following hospital SOPs strictly are important, while 78% of the participants are of the opinion that doctors and paramedics have created a hype of restriction by implementing such SOPs. 32% believed that protective gears likely face mask and gloves are necessary for protection of doctors and healthcare staff. 44% believed that these are a must for their own protection and only 39% believed that this practice can help all to reduce the chance of being infected. Participants who believed that this can be fatal were 85%, while 14% believed that this cannot be fatal. Majority of the participants believed that if PCR is negative they are free of the disease (96%), again very alarming, while 3% did not have any basic idea about the test at all. A good percentage of the participants were of idea that prevention and following the SOPs are the only measures to avoid this infection (78%). Regarding the source of awareness,

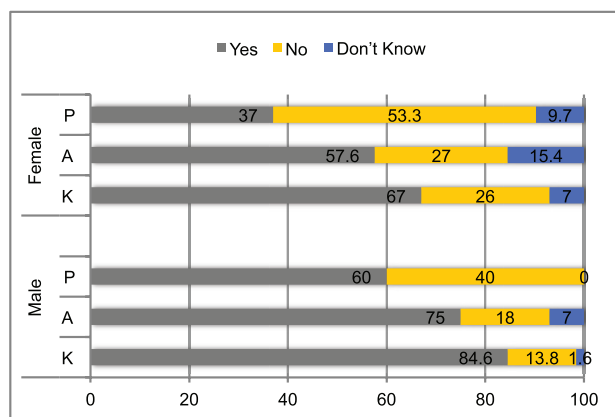


Figure 1. Gender response toward the COVID-19 pandemic.

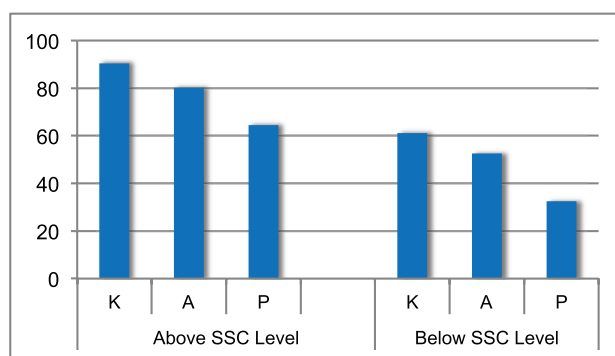


Figure 2. Impact of Education on knowledge (K), attitudes (A), and practices (P) of patients and their attendants toward the COVID-19 pandemic.

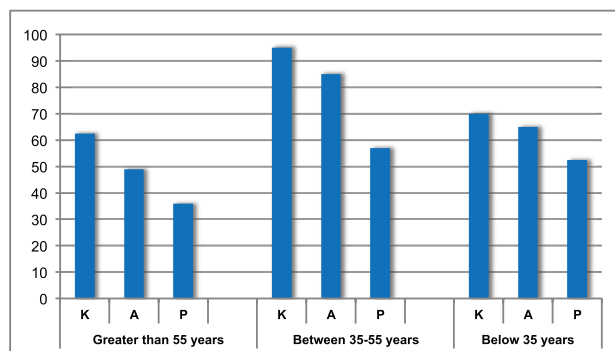


Figure 3. Impact of age on knowledge (K), attitudes (A), and practices (P) of patients and their attendants toward the COVID-19 pandemic.

95% of the participants agreed that they get knowledge about the disease from television, newspaper, and social media. Surprisingly, none of the participants were fully aware of all the facts about this disease and was not practicing the recommendations. The present study reported that there is a significant relationship between the participant's responses with gender ($p < 0.05$) as seen in Figure 1.

There is a significant relationship between the participants' responses and their education levels ($p < 0.05$) as seen in Figure 2.

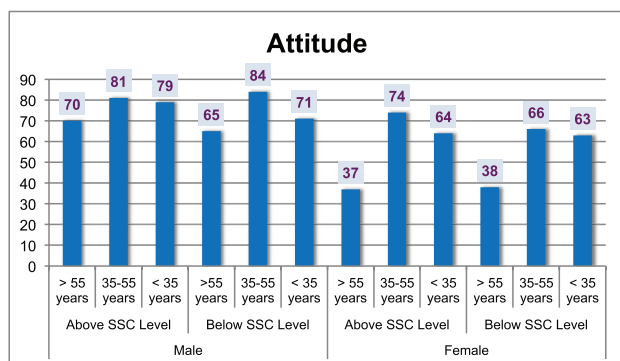


Figure 4. Attitude of patients and their attendants according to gender, education level, and age toward the COVID-19 pandemic.

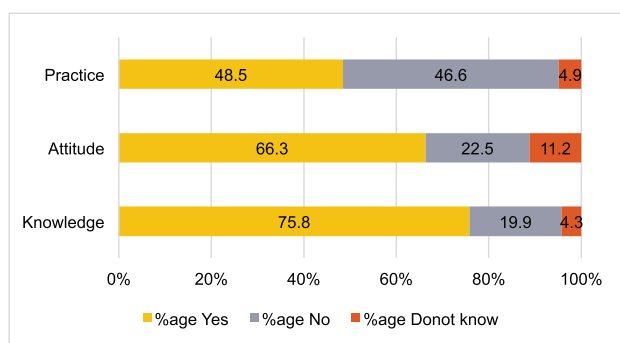


Figure 5. Overall knowledge (K), attitude (A), and practices (P) of the sample (n= 231) toward the COVID-19 pandemic.

Again, there is statistically significant relationship between the participant’s responses and their ages as seen in Figure 3.

Overall, there was positive attitude toward the battle of the COVID-19 pandemic in males who were educated and aged between 35 and 55 years. While females and less educated participants showed indifferent attitude toward the SOPs.

Overall, this study shows that almost 75.8% of the participants have enough knowledge, 66.8% showed positive attitude, but only 48.5% of the participants were carrying out proper practices despite having adequate knowledge, as shown in Figure 5.

Discussion

COVID-19 infection is still the single most important global concern because of its overwhelming effects within a short time. The novelty of this disease, along with its uncertainties, makes it crucial for government and health authorities of developing countries like Pakistan to plan appropriate strategies and prepare the public to reduce morbidity and mortality. To date, there has been limited published data on population’s KAP toward COVID-19, specifically in Pakistan [17]. It is, therefore, of extreme importance that these details be analyzed to redirect the efforts in a positive way, considering the limited available resources of Pakistan. On the other hand, HCPs working even in non-COVID hospitals are also becoming the

victims of the disease more rapidly. Multiple reports have been published regarding the infection and deaths of HCPs from COVID-19 infection. One of the possible explanations is the dearth of knowledge and practices of patients and their attendants toward SARS-COV-2. It is clear from this study that the average knowledge of Pakistani population with regard to COVID-19 is adequate at 70±5%. Even so, the rate of COVID-19 knowledge ranged widely indicating that while some participants had high levels of knowledge about the disease, others did not. Gender was the significant predictor of the level of concern ($p < 0.001$), while knowledge was the significant predictor of both the attitude and practices, as concluded by overall analysis and percentage of results. This is consistent with many of the studies conducted so far, like one in Saudi Arabia [18]. Females were having little or wrong knowledge about the disease. This might be due to the overload of fake information that may have caused confusion.

35-55-year-old participants had maximum knowledge, positive attitude, and they showed good practices toward disease control. Moreover, the young population is also concerned about following the SOPs. Many above 55 years, even though having sufficient knowledge about the fatality of the infection, still are not following SOPs strictly. Positive attitudes were higher among those who were more educated. On the other hand, those with less education achieved lowest knowledge scores, again emphasizing some effect of an educated society to control any pandemic. Educated people are following the desired practices more religiously while less educated people are showing casual attitude toward the practices despite having enough knowledge and awareness. This is consistent with a recent study in Nigeria, which showed that knowledge and education are very well correlated with each other [19]. Alarming, 56% of the participants believed that there is some specific treatment of the disease that is why they believe in rushing to the nearest hospital in case of even mild, non-specific symptoms. This aspect of knowledge and education must be addressed by governments, authorities, and other awareness resources like electronic and social media, including television and newspapers. 56% of the participants are of the idea that once they have even mild symptoms of the disease, they should restrict themselves to their home without isolation from other family members. They think isolation is not necessary or not possible. This attitude was mainly seen in elderly people.

In the current study, most participants were convinced of taking precautions such as using masks, and practicing proper hand hygiene and avoiding general public transports. This indicates a general willingness of the participants to make behavioral changes in the face of the COVID-19 pandemic. Again wearing mask and maintain social distancing are a must to avail any of the available services in the NM department of our hospital.

Overall, the analysis of the data revealed that 75.8% of the participants have basic knowledge of the disease, e.g., etiology, contagious nature, mode of spread, symptoms, importance of social distancing, and disease fatality. 66.3% of the participants showed good attitude toward the SOPs, are well aware of self-isolation, and the need of medical treatment. Only 48.5% are practicing and following what knowledge and awareness they have. This is alarming because despite having knowledge and awareness of the diseases, the general public is still not motivated toward following the practices recommended during this pandemic.

The current survey exposes the fact that more comprehensive education and awareness programs are still needed with focus on consistency of information from the government, related authorities, and social media. Live television awareness programs, pamphlets in hospitals, recorded information through public address system in hospitals, and COVID-19 information desks should be made in hospitals for the patients visiting to general hospitals. Hospitals and clinics should establish pre-check triages for all the patients. They should enquire regarding their health status and travel history before giving any appointment. Besides that, temperature of the patients and their attendants should be evaluated once they are in the hospital premises; if a patient has a travel history within the past 2 weeks, he should get appointment after minimum 14 days, if there is no emergency. Patients with continuous high fever along with any other symptoms including, sore throat, persistent cough, headache, body aches, or diarrhea should be registered as a COVID-19 patient until proven otherwise and should be referred to the designated hospital facilities. Consistent counseling and awareness programs are still needed if we want to overcome this deadly infection and want to get rid of it.

Conclusion

In summary, the present study was able to provide a comprehensive analysis of the knowledge, attitudes, and practices of patients and their attendants toward COVID-19. The findings suggest that they have an acceptable level of knowledge about COVID-19 and are generally positive in their outlook in overcoming the pandemic, but the desired practices are still not enough. Consistent awareness campaigns from the government and health authorities are key to aid public knowledge and understanding of COVID-19. The findings of this study can be used to set priorities in information campaigns on COVID-19 by public health authorities and the media.

Limitations of the Study

This study was carried out with a convenient sample size, since we were only targeting the patients or their attendants visiting a cancer hospital. But we can generalize these

findings in the way that if this subgroup of a population which is at higher risk of COVID-19 complications are so indifferent or less aware, general public will be worse if not the same.

List of Abbreviations

COVID-19	Coronavirus disease 2019
HCP	Healthcare professionals
KAP	Knowledge, attitude, and practices
SOPs	Standard operating procedures

Conflict of interests

The authors declare that there is no conflict of interest regarding the publication of this article.

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Consent to participate

Written informed consent was obtained from all the participants.

Ethical approval

Ethical approval was granted by the Research Training and Monitoring Cell (RTMC) of NORI, in April 2020, RTMC 6/1-06-2020.

Author details

Kahkashan Bashir Mir¹, Shazia Fatima¹, Noreen Marwat¹, Sadaf Batool¹, Muhammad Adnan Saeed¹, Mohammad Faheem¹, Ayesha Ammar Bukhari¹

1. Department of Nuclear Medicine, Atomic Energy Cancer Hospital, NORI, Islamabad, Pakistan

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