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Knowledge, attitudes, practices, and social awareness regarding SARS-CoV-2 infection in the kyrgyz population in the post-pandemic period

Mirza Masroor Ali Beg*[1], Haider Ali[2], Yahya Nur Ahmed[1], Yavuz Gunduz[1], Hafsa Develi[1], Tilekeeva UM[2]

[1]*Faculty of Medicine, Alatoo International University, Bishkek, Kyrgyzstan*

[2]*Department of pharmacology, Kyrgyz state medical college, Bishkek, Kyrgyzstan*

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ABSTRACT

Three years after the global COVID-19 epidemic, social media's extensive dissemination of information has greatly raised public awareness of the virus's symptoms, propagation, and severity. The majority of Kyrgyz people are aware of the main features of COVID-19, including its incubation time, typical symptoms, and person-to-person transmission. A cross-sectional face-to-face survey study of knowledge and practices regarding COVID-19 among the general population was conducted in Bishkek the capital city of Kyrgyzstan. We enrolled 160 (100%) Kyrgyz national participants from different region of Bishkek. 98% of the participants were aware of COVID-19 (mostly from news and social media, 39% and 38%, respectively). 92% acknowledged the 2–14 day symptom onset period, 96% recognized symptoms, and 94% realized it passes from person to person. Only 67% of respondents were aware of preventative techniques, and 28% misinterpreted the incubation time, while 79% acknowledging its lethality. The study found that participants had a high level of knowledge about symptoms (96%) and transmission (94%). Although the majority acknowledged preventive practices such as handwashing (91%) and travel disclosure (84%), there were still gaps in diagnostic knowledge (only 61% were aware of RT-PCR testing). Interestingly, 79% recognized the lethality of COVID-19, and 67% knew how to prevent it. Even with widespread knowledge, there is still a need for focused teaching on diagnosis and certain preventative techniques. Still gaps in some areas, such as diagnostic knowledge, the results demonstrate that people generally have a strong understanding of COVID-19 preventative techniques and related behaviors.

***Corresponding author:** Mirza Masroor Ali Beg ✉ mirzamasroor1986@gmail.com

INTRODUCTION

The novel coronavirus disease 2019 (COVID-19) pandemic has had the greatest impact on mankind worldwide. From this pandemic, healthcare providers gained extraordinary experiences for handling pandemic disease. The first confirmed case of COVID-19 was reported in December 2019 from Wuhan, China (Du Toit, 2020). On 11 March 2020, the World Health Organization (WHO) announced the COVID-19 outbreak as a pandemic and released guidelines for prompt case detection, transmission prevention strategies, and treatment management (WHO, 2020a). The causative agent of COVID-19 is severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), it is an enveloped, non-segmented, single-stranded, positive-sense RNA virus that belongs to the Betacoronavirus genus and the Coronaviridae family of Nidovirales order. The human, palm civet, and bats are major known reservoirs of this virus (Helmy *et al.*, 2020; Zhou *et al.*, 2020). As per recent WHO data globally, there have been 759,408,703 confirmed cases, including 6,866,434 COVID-19-associated deaths were reported and 13,229,166,046 COVID-19 vaccination doses were completed [https://covid19.who.int/]. In Kyrgyzstan, a total of 206,708 confirmed cases with 2,991 deaths has been reported, and 3,076,723 doses of vaccination was completed (WHO, 2020b). It is well documented that the human-to-human transmission of SARS-2CoV-2 majorly occurs via the respiratory route by direct contact, particularly in close environments with aerosol droplets, and intermediate fomites from both symptomatic and asymptomatic COVID-19 patients. However, the fecal-oral route is also the possible transmission mode (Li *et al.*, 2020). About 40.5% of SARS-CoV-2-infected individuals don't have any symptoms (Ma *et al.*, 2021). Among the symptomatic COVID-19 patients they have symptoms including fever, dry cough, sneezing, sore throat, and diarrhea. In case of severe complications, patients may have pneumonia, metabolic acidosis, septic shock, and bleeding (Oliván-Blázquez *et al.*, 2022). There are several vaccines against SARS-CoV-2 have been approved, and an effective vaccination program is underway globally (Parra-Lucares *et al.*, 2022). However, the long-term outcomes are still being studied. Due to the continuous emergence of SARS-CoV-2 variants, the scientific community around the world believes that COVID-19 may stay for a long time (Parra-Lucares *et al.*, 2022). The most effective way to handle this disease is to minimize the chance of transmission both in the community as well as in healthcare settings (Pfaller and Herwaldt, 1997). Appropriated knowledge and practice among the general population may help reduce COVID-19-associated stigma in the community by sharing their knowledge with others. The considerable need is to ensure that the targeted populations are still practicing preventive control management for COVID-19 prevention after three years of the outbreak. There is no study has been done on knowledge, attitude and practice for prevention against COVID-19 among the Kyrgyz national population. Therefore, in this study, we assessed the knowledge, attitude, and practices regarding COVID-19 among the general population, which could contribute positively, shortly, to handling COVID-19 through cooperating with other stakeholders.

MATERIAL AND METHODS

Study design and setting

A cross-sectional face-to-face survey study of knowledge and practices regarding COVID-19 after three years of pandemic among the general population was conducted in Bishkek the capital city of Kyrgyzstan. The study was conducted from March to April 2023.

Study participants

In this study, we interviewed and enrolled 160 (100%) Kyrgyz national participants from different region of Bishkek. For convenience, the Russian language version of questionnaires were also provided to all participants and responses were collected in study form. The objective of the study was clearly disclosed to all participants, written consent was collected, who not willing to participate and not provide written consent were excluded from the study, the confidentiality of participants were not disclosed.

Data collection and questionnaire design

The questionnaire for the present study was adapted from previously published relevant studies, which were conducted in different countries for a similar purpose.

A set questionnaire was first designed in the English version and then translated to the Russian language for easy understanding to study participants. Before conducting the study, the prepared set of questionnaires was pretested on twenty local participants near Ala-Too International University, Bishkek and essential correction were made before conducting actual survey. These participants were not included for data analysis of study.

One day orientation on study data collection was provided to five undergraduate medical students who were voluntary appointed for the face-to-face interview with study participants.

The study data and interview with participants was collected and done by voluntary appointed undergraduate medical students of Ala-Too International University. The approved questionnaire had three major sections. In the first section of the questionnaire, we asked questions for collecting participants demographic characteristics, including age, gender, education status, residence, occupation. In the second section we asked question for COVID-19 associated general information, their possible routes of transmission, incubation period, common symptoms, and associated complications and in the last section was asked about COVID-19 related preventive practices.

RESULTS

Demographic characteristics of participants and general information of Covid-19

The present research work included total of 160 (100%) participants, among them 55 (34.4%) were males, 105 (65.6%) were females and the average age of all the participants was 27.62 years. The education level of participants, 102 (63.8%) participants were 10th class pass, 56 (35%) participants were 12th pass, 1 (0.6%) participant was graduate, 1 (0.6%) were post graduate. 98% of participants heard about Covid-19, while only 2% of participants did not hear about Covid-19.

Based on the source of information about Covid-19 were also assessed and observed that 39% and 38% participants heard about Covid-19 through social media and news respectively while 14% heard about Covid-19 through news and media, 6% through news, social media and WHO, 2% through news and WHO and 1% through WHO (Fig. 1).

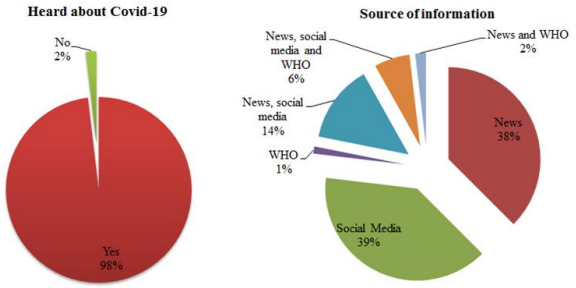

Fig. 1. Demographic characteristics of participants and general information of Covid-19

Knowledge about spread of Covid-19, symptoms and incubation

All the participants know that the covid-19 is transmissible disease (100%). Among the participants, 94% aware about the spread of covid-19 and 67% participants know about how to stop the covid-19 spread. The study used a series of survey questions to gauge public awareness of certain COVID-19 features and know that COVID-19 is a transmissible disease (100%). Majority of participants (94%) knows that COVID-19 spreads from person to person, while only 6% were unaware of this manner of transmission. Regarding preventive measures, 33% of participants accepted not knowing how to stop the virus's spread, while 67% of participants said they did. The frequency of COVID-19 symptom recognition was very high, with 96% of respondents reporting knowledge with the symptoms and only 4% disagreeing. Similarly, 92% of respondents were correct when they said that COVID-19 symptoms usually show up 2–14 days after exposure, but 8% did not know this. Significant awareness of the incubation

period was also demonstrated by the fact that 72% of respondents agreed that it lasts between 2 and 14 days, despite 28% not knowing the precise length. When asked if they thought COVID-19 may be lethal, 79% of individuals agreed, compared to 21% who disagreed. Overall, the results indicate that significant percentage of responders still lack precise knowledge regarding prevention and incubation periods, our data show that awareness of COVID-19 symptoms, transmission, and death is generally high (Fig. 2).

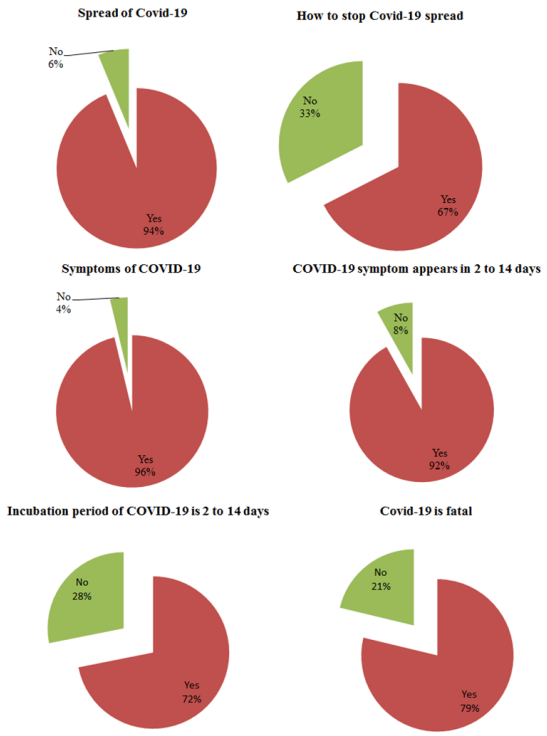

Fig. 2. Distribution of responses on public knowledge regarding COVID-19 transmission, symptom onset, incubation period, and fatality

Prevention of COVID-19

The results also show that respondents had a high degree of awareness about COVID-19 safety and preventative measures. The majority (95%) agreed that it is possible to stop the spread of COVID-19, whilst only 5% disagreed. In reference to the virus's lethality, 79% of participants were aware that COVID-19 can be lethal, whereas 21% were not. Regarding nutritional safety during the pandemic, 84% of respondents concurred that eating meat that has been properly prepared and handled is safe, while 16% disagreed.

Similarly, 84% thought that those who are ill should tell their medical professionals about their recent travels, whereas 16% did not think this was a necessary practice. Additionally, there was a high level of awareness regarding hand cleanliness, with 91% of participants saying that washing hands with soap and water helps prevent the spread of COVID-19, and only 9% disagreeing. When asked about the COVID-19 diagnostic process, specifically RT-PCR, respondents' awareness was lower; just 61% of them were aware of how the diagnosis is made, and 39% were not. The findings show that people typically have a solid awareness of COVID-19 prevention strategies and associated behaviors; however there are still gaps in some areas, like diagnostic knowledge.

DISCUSSION

Three years have passed since the worldwide COVID-19 outbreak. To slow the coronavirus's spread, some nations have placed limits on public life during this time. For many people, the continuous closing of national borders, schools, and companies, together with the imposition of mask laws, social distancing regulations, and immunization campaigns, has become commonplace (CDC, 2022). Since early 2020, public perceptions of these measures have inevitably changed as the COVID-19 pandemic has changed from being viewed as an exceptional, transient situation to becoming a part of our daily lives for the foreseeable future (CDC, 2022). Presently, it was observed that the majority of the population is aware of COVID-19, according to current survey-based research, and the majority of Kyrgyz people obtained their information from social media.

According to studies, most people are aware of the basic symptoms and the ways that the disease is spread. However, there are differences in people's understanding of the diagnostic processes and preventative measures. For instance, a cross-sectional study conducted in Jordan revealed that some misconceptions regarding prevention remained despite the high level of general awareness (Al Nsour *et al.*, 2022). Social media platforms have greatly influenced public attitudes by disseminating both

false and truthful information (Cuan-Baltazar *et al.*, 2020). Even among healthcare professionals, there have been documented knowledge gaps on new testing techniques, despite their typically better comprehension of COVID-19 protocols (Bhagavathula *et al.*, 2020). Furthermore, surveys that compare nations such as the US and the UK reveal disparities in public awareness that are probably caused by different public health messaging (Geldsetzer, 2020).

Public awareness of certain COVID-19 characteristics and the fact that the virus is 100% contagious, the study employed a set of survey questions. The majority of people show a keen understanding of how COVID-19 spreads, understanding that it is communicated from person to person. Additionally, most people are aware of the typical symptoms that the virus causes. The incubation period was familiar to many responders, as evidenced by their accurate identification of the normal timeframe in which symptoms occur after exposure. The disease's potential seriousness, including the chance of death, is also acknowledged by a sizable portion of the population. There are still certain gaps in knowledge, though, especially when it comes to preventive measures and a thorough comprehension of the virus's course. Social distancing and mask use have been highlighted as important preventive interventions since close contact increases the risk of transmission (Morawska and Milton, 2020; WHO, 2020c). Studies have shown that COVID-19 spreads mostly through airborne transmission, mainly through particles smaller than 5 micrometers, especially in indoor settings with insufficient ventilation (Greenhalgh *et al.*, 2021). Furthermore, the virus can be efficiently spread by asymptomatic and pre-symptomatic people, making containment measures more difficult (Byrne *et al.*, 2020).

This implies that even while the general public is aware of the main features of COVID-19, specialized knowledge gaps may still require additional educational initiatives. Most participants acknowledged that COVID-19 has the potential to be fatal when asked about the virus's potential severity. Overall, the results indicate that responders had a good grasp of the disease's signs, symptoms, and pathways of transmission. Public health education might be improved in these areas, as there is still a discernible knowledge gap about preventive measures and the average time between exposure and the onset of symptoms. As a critical measure to stop the spread of COVID-19, most participants stressed the significance of telling medical experts about recent travel experiences. The majority of people were aware that hand hygiene habits were important and that washing hands with soap and water is a good way to prevent the spread of the disease. Since respiratory droplets are the primary way that COVID-19 spreads, wearing a mask, keeping a safe distance, washing your hands, and having adequate ventilation are all crucial preventive measures. Additionally, vaccination is essential for lowering the incidence of serious disease and its spread. The majority of symptoms usually show up 5 days after exposure, with an incubation period that usually lasts between 2 and 14 days. Quarantine following exposure is crucial to prevent silent spread since people can be contagious before symptoms show up CDC, 2022; Lauer *et al.*, 2020).

However, fewer participants showed a thorough comprehension of the COVID-19 diagnostic procedure, particularly the function of RT-PCR testing. This implies that whereas general preventive behaviors are widely known, relatively little is known about diagnostic techniques.

The majority of people are aware that testing is crucial for identifying infections and halting their spread, but many are unclear about how various tests operate, such as the difference between fast antigen testing and the gold-standard RT-PCR. This incomplete knowledge may cause testing to be delayed or cause uncertainty on the best time and method for testing. To increase effective pandemic management, public education initiatives are essential for raising understanding of testing protocols, scheduling, and result interpretation (Roy *et al.*, 2020; Bhagavathula *et al.*, 2020).

Since the start of the epidemic, public awareness of the seriousness of COVID-19 has significantly increased. According to studies, the majority of people are aware that COVID-19 can cause serious sickness, hospitalization, and even death, particularly in older adults and people with underlying medical issues. There are differences in the perceived severity, which are frequently impacted by false information, cultural norms, and personal risk evaluations Dryhurst *et al.*, 2020; Lin *et al.*, 2020). Furthermore, studies indicate that greater adherence to public health recommendations is associated with accurate knowledge of the COVID-19 virus's propensity for death and sequelae. On the other hand, underestimating the severity of the disease can encourage riskier behavior, which could increase the rate of transmission (Van der Weerd *et al.*, 2011). Although there are still gaps in some areas, such as diagnostic knowledge, the results demonstrate that people generally have a strong understanding of COVID-19 preventative techniques and related behaviors.

CONCLUSION

Due in large part to social media, the majority of people are aware of the COVID-19 pandemic's symptoms, propagation, and intensity after three years. The major ways that COVID-19 spreads are by respiratory droplets and aerosols, and symptoms usually show up two to fourteen days after exposure. Because most people are aware of how serious the infection may be, they are more likely to follow preventive measures including wearing masks, washing their hands, avoiding close contact with others. But there are still unanswered questions, particularly with certain preventive strategies and diagnostic tests like RT-PCR. In order to fill in knowledge gaps and enhance pandemic management, ongoing public education is crucial. But there are still a lot of unanswered questions about diagnostic techniques, particularly RT-PCR testing. For effective control, more public education on prevention and diagnosis is still essential.

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