Nangarhar University
International Journal of Biosciences
Received: 10 May 2023
Accepted after revision: 25 Sep 2023
Published Online: 30 Sep 2023
ORIGINAL ARTICLE Vol 2, Issue 3 (2023) e-ISSN: 2957-9988

Prevalence of the Novel COVD-19 in Nangarhar Province Corona Center Hospital during June 2020 to August 2021

Sahak Shukrullah*, Jabarkhil Abdul Nasir, Rahime Salahuddin, Mulavizada Habibullah and Kamran Zafarzai

Respiratory and Valvular Heart Diseases Department, Faculty of Medicine, Nangarhar University, Nangarhar, Afghanistan

***Corresponding author email: shukrullahsahak510@gmail.com

ABSTRACT

Background: In 2019, a novel coronavirus appeared, quickly circling the world from its Chinese source. The illness brought on by this virus is known as coronavirus disease 2019 (COVID-19), and the virus was given the designation SARS-CoV-2 by the Centers for Disease Control and Prevention. On March 11, 2020, the World Health Organization proclaimed COVID-19 to be a pandemic. During 2020, the virus spread to Afghanistan and infected thousands of individuals. This study's aim is to describe the incidence of COVID-19 in the Nangarhar Corona Center Hospital in Afghanistan between June 2020 and August 2021. Thus, quick administration of the necessary therapy can stop future complications. Additionally, the management of upcoming pandemic virus illnesses will benefit from this study's findings.

Materials and Methods: A descriptive retrospective investigation using interview approach and an accidental sampling technique was used to collect data for this study from the inpatient medical records of patients who were identified as having SARS-CoV-2 infection following admission to the Corona Center Hospital in Nangarhar province, Afghanistan, between June 2020 and August 2021. Additionally, information on the laboratory tests was taken from the hospital file. In addition, 140 patients were questioned about their ischemic heart disease, diabetes, hypertension, and other COVID-19 risk factors. Additionally, 100 patients were given a questionnaire about the socioeconomic effects of COVID-19 on their daily lives and behavior.

Findings: In this study, patients who met the inclusion criteria provided 11000 samples. 3380 female patients and 7620 male patients in all have been reported. There were 9267 negative cases and 1733 positive cases out of them. 1133 (10.1%) of the positive instances were found in male patients, whereas 600 (5.5%) were found in female patients. The 140 patients who were examined for COVID-19 risk factors identified four, including hypertension, diabetes, chronic liver disorders, and ischemic heart disease. Additionally, 75% of participants believed that COVID-19 would be controlled in Afghanistan, compared to 70% who believed that COVID-19 would be managed globally.

Conclusion: The findings of this study indicated that the majority of COVID-19 patients were of productive age. Additionally, our study found that there was a negative overall influence of COVID-19 on Afghan population social life. Immediate action is required on the part of the general public in the shape of focused mass psychological support initiatives in order to improve the mental health of those impacted by the COVID-19 problems.

Keywords: Coronavirus, Disease, Health, Nangarhar province, Patients, Prevalence factors

INTRODUCTION

The novel coronavirus 2019 (COVID-19), sometimes referred to as the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), is a newly emerging infectious virus that spreads coronavirus disease (Huang et al., 2020). The COVID-19 rapidly changed and spread around the world in 2020, turning into a pandemic (Munster et al., 2020). Because of its comparably high transmissibility and morbidity, the world health organization (WHO) has declared that the COVID-19 epidemic is a public health emergency of worldwide significance and should be regarded as a pandemic (Jee, 2020).

Prior to this, coronavirus was primarily isolated from animals and seldom from humans (Wang et al., 2020). Humans have lately been exposed to a brand-new coronavirus strain (Dergaa et al., 2021). The first coronavirus infection was identified in a patient in December 2019 in Wuhan, the provincial capital of China's Hubei province (Zhang et al., 2020). According to Hassan et al. (2020) and Li et al. (2020), the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) is a member of the Coronaviridae family and is the cause of this disease outbreak. The WHO received reports of about 24,000,000 confirmed illnesses and 800,000 fatalities worldwide up until August 27, 2020, despite strict morbidity constraints imposed by nations.

COVID-19 has put the world in a difficult condition right now (Li et al., 2020). The coronavirus primarily targets the human respiratory system (Liu et al., 2021). The broad family of Coronaviridae is responsible for a wide range of human illnesses, from the common cold to more serious conditions like Middle East Respiratory Syndrome and Severe Acute Respiratory Syndrome, among others (Babarinsa et al., 2021). Males have contracted COVID-19 at a higher rate than females, according to the global COVID-19 data research. Additionally, because COVID-19 is more likely to affect people with compromised immune systems, the elderly are more at risk and are more likely to require hospitalization for COVID-19-related problems (Semenzato et al., 2021).

A multitude of infections, post-infection complications, and mortality from severe infections have been linked to certain disorders, including heart disease, diabetes, hypertension, and others. The prevalence of these diseases is expanding as a global health issue (Zhou et al., 2021). Sequential Organ Failure Assessment score, older age, low CD3+CD8+ T-cell levels, high cardiac troponin I levels, and previously existing cardiovascular and cerebro-vascular disease have all been identified as risk factors for a high death rate in COVID-19 patients. This epidemic has caused the populace to be in seclusion and lockdown, suffering psychologically and having terrible mental effects in addition to the evident illnesses and deaths (Ganesan et al., 2021).

The focal ground-glass opacities and consolidations have been seen to be frequent in COVID-19 patients (Shi et al., 2020); as a result, early detection and prompt coronavirus treatment are anticipated to lower the incidence and mortality rate of COVID-19. This study was conducted to ascertain the prevalence, risk factors, and effects of COVID-19 on Afghan population's social life. This study's purpose is to describe the prevalence of COVID-19 in the inpatient ward of Corona Center Hospital in Nangarhar province from June 2020 to August 2021 in order to detect COVID-19 sooner and prevent additional morbidity.

METHODS AND MATERIALS

Site and Patients

A descriptive retrospective investigation using interview approach and an accidental sampling technique was used to collect data for this study from the inpatient medical records of patients who were identified as having SARS-CoV-2 infection following admission to the corona center hospital in Nangarhar province,

Afghanistan, between June 2020 and August 2021. The availability of data from the RT-PCR examination led to the selection of the inpatient medical record. Based on negative RT-PCR results after admission, incomplete medical records and suspicious patients were eliminated from the COVID-19 study. All hospitalized ICU patients who had been admitted served as the inclusion criterion for assessing risk variables. Meanwhile, the impact of COVID-19 on the social life of the Afghan populace was ascertained through interviews. The hospital's ethical review board correctly granted study approval.

Data Collection and Analysis

Microsoft Excel and SPSS statistical software version 10 were used to process the data. Fever and/or respiratory symptoms, a characteristic lesion (GGOs or consolidation) on the chest picture, a normal or low white blood cell count, and a low lymphocyte count were all considered to be related clinical manifestations. The criteria for COVID-19 suspicion were met by patients with at least 3 or 2 clinical symptoms and a history of specific COVID-19 exposure. All of the data was entered onto a Performa that had been pre-designed. Additionally, information on the laboratory test was taken from the hospital file. Continuous and categorical variables were used to classify the variables. Both categorical and continuous variables had their frequencies, means, and percentages calculated. In addition, 140 patients were asked for the risk factors (including hypertension, diabetes, chronic liver diseases and Ischemic heart disease) of COVID-19. Furthermore, 100 patients were asked through a questionnaire for socio-economical impact of COVID-19 on their life and behavior.

RESULTS

Prevalence of COVID-19

Prevalence of COVID-19 including positive and negative cases is illustrated in Figure 1. In this study, 11000 samples were obtained from the patients who met the inclusion criteria. Total recorded male patients were 7620 and female patients were 3380. Of them, 1733 cases were positive and 9267 cases were negative (Figure 1). Among the positive cases, 1133 (10.2%) cases were recorded in male patients while 600 (5.5%) cases were observed in female patients (Table 1). It is worth to mention that all the patients were from Nangarhar province. Also, the both gender positive cases were 15.7% of the total recorded cases.

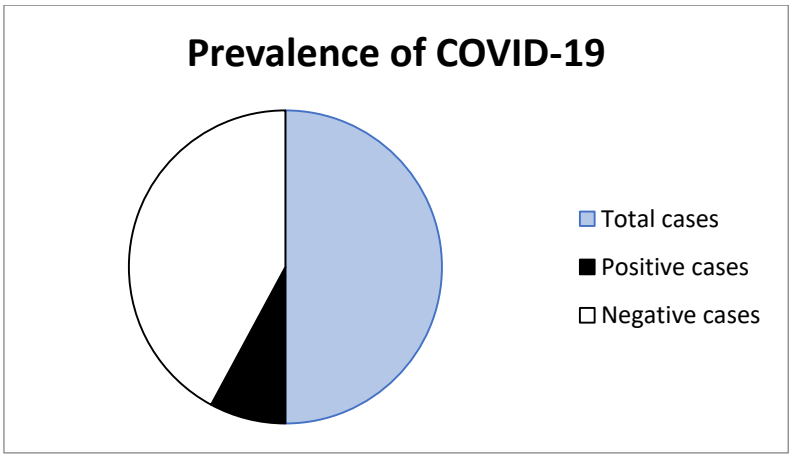

Figure 1. Prevalence of COVID-19 in Nangarhar Corona Center Hospital.

Table 1. Total, positive and negative COVID-19 cases among male and female patients.				
Gender	**Patients (cases)**	**Positive cases**	**Negative cases**	**Percentage (%)**
Male	7620	1133	6487	10.2
Female	3380	600	2780	5.5
Total	**11000**	**1733**	**9267**	**15.7**

Patient Age and Characteristics

Characteristics and age differences of both male and female patients infected by COVID-19 are summarized in Table 2 and 3. Among the infected male patients (1133), majority were of aged between 26-35 years old (24.3%), followed by 36-45 (20.9%), 46-55 (18.8%), 56-65 (15.4%), 66-75 (10%) and 15-25 (8.3%); however, the minority were recorded between 76-85 years old patients (2.3%) as shown in Table 2.

A total of 600 female patients were infected by COVID-19. Among the infected female patients, majority of them were also aged between 26-35 years old (21.5%), followed by 36-45 (17.1%), 56-65 (16.5%), 46-55 (16.3%), 15-25 (15.3%) and 66-75 (10.5%); however, the minority were recorded between 76-85 years old patients (2.8%). Both genders showed that the highest and lowest infections were observed in ages ranged from 26-35 years old and 76-85 years old (Table 3). In addition, in this study, 35 mortalities (2.0%) were recorded in the hospital during the study duration. Among these subjects, males were 30 (85.7%) while females were 5 (14.3%) with the average age of 66.1 years old.

Table 2. Characteristic of COVID-19 male patients according to age differences		
Age (years)	**Positive cases**	**Percentage (%)**
15-25	95	8.3
26-35	275	24.3
36 -45	237	20.9
46-55	206	18.8
56- 65	175	15.4
66-75	114	10
76-85	31	2.3
Total	**1133**	**100**

Table 3. Characteristic of COVID-19 female patients according to age differences		
Age (years)	**Positive cases**	**Percentage (%)**
15-25	92	15.3
26-35	129	21.5
36-45	103	17.1
46-55	98	16.3
56-65	99	16.5
66-75	63	10.5
76-85	16	2.8
Total	**600**	**100**

Risk Factors of COVID-19

The risk factors of COVID-19 are presented in Table 4. Four factors including hypertension, diabetes, chronic liver diseases and Ischemic heart disease were listed from the 140 patients investigated for the risk

factors of COVID-19. The most common risk factors associated with the COVID-19 was hypertension observed in 28 (38.35%) subjects, followed by diabetes mellitus in 22 (30.13%) subjects, ischemic heart disease in 17 (23.28%) subjects while chronic liver disease was observed in 6 (8.21%) subjects (Table 4).

Table 4. Risk factors of COVID-19

Risk factors	Frequency		
	Yes	No	Total
Hypertension	28	7	35
Diabetes mellitus	22	13	35
Chronic liver disease	6	29	35
Ischemic heart disease	17	18	35
Total	**73**	**67**	**140**

Socio-Economical Impacts of COVID-19

According to the survey, 75% of respondents believed that COVID-19 would be controlled in Afghanistan and 70% of respondents believed that COVID-19 would be controlled globally. According to the supposition of 75% of individuals, the fear of COVID-19 can be decreased by avoiding news. Additionally, 90% said that fake news on social media exacerbates the COVID-19 concern. Even with precautions, 70% of participants still expressed concern about catching COVID-19. In addition, 8% of participants believe that COVID-19 will kill them and that treatment will have no effect on them. In addition, 45% of the individuals were very concerned about the infection spreading to their family members.

Table 5. Impact of COVID-19 on social life of Afghan population.

Parameters	Agree (%)	Don't know (%)	Disagree (%)
Attitude			
Global control of COVID-19	70	18	12
Control of COVID-19 in Afghanistan	75	15	10
Decrease in fear by stopping yourself from watching news	75	5	20
Panic increase with unauthentic news from social media	90	5	5
Future generations won't be able to meet individuals face-to-face as they formerly did because of social isolation	35	20	45
Worries	**Not at all**	**Somewhat**	**Extremely**
In spite of protective measures I will be infected by COVID-19	27	3	70
If infected by COVID-19 will not be able to survive	40	52	8
Drug will not help me in treatment	40	52	8
If get infected will transmit to my family members	10	45	45
I will be infected by COVID-19 because I am old	40	45	15

DISCUSSION

Global health issues related to COVID-19 management affect both developed and developing countries. Additionally, there was considerable ambiguity due to the rarely exchange of information, the abundance of

unresolved problems, and the absence of solid evidence for many treatments (Munster et al., 2020). There is still a dearth of knowledge regarding the prevalence of COVID-19, risk factors linked to mortality rates, and the impact of COVID-19 on social life in underdeveloped nations, particularly Afghanistan (Khudadad et al., 2021). This is despite the fact that much information regarding the clinical manifestations and fundamental epidemiology of COVID-19 is currently available.

There were 3380 female patients and 7620 total male participants in this study. There were 9267 negative cases and 1733 positive cases out of them. According to this study, the majority of male and female patients (24.3% and 21.5%, respectively) fall into the productive age range of 26 to 35 years old. The youngest and oldest patients ranged in age from 15 to 85. The study's findings indicated that most of the patients were men. According to our investigation, a different study (Zhou et al., 2021) also found that male patients had higher COVID-19 infection and fatality rates than female patients. Due to the fact that men work outside and women work inside of homes in Afghanistan, men may be more exposed to infection than women. This is similar to another study done in Pakistan that discovered that people between the ages of 20 and 39 are most impacted by COVID-19, with 21.8% of female participants and 78.2% of male participants (Nadeem et al., 2022).

Some people are more at risk for developing a serious infection, if they contract the coronavirus that causes COVID-19. From the 140 patients whose risk factors for COVID-19 were examined in the current investigation, four risk variables—hypertension, diabetes, chronic liver disorders, and ischemic heart disease—were identified. The COVID-19 had 28 (38.35%) patients with hypertension as the most prevalent risk factor, followed by 22 (30.13%) subjects with diabetes mellitus, 17 (23.28%) subjects with ischemic heart disease, and 6 (8.21%) subjects with chronic liver disease. According to a study that supported our findings, hypertension was the most frequent risk factor for the high death rate of COVID-19 (Tadic et al., 2020). Contrary to our findings, a prior study (Sen et al., 2021) similarly identified diabetes mellitus as one of the most prevalent risk variables (69%) for the severity and mortality of COVID-19.

In addition to the obvious illness and deaths, the COVID-19 pandemic has left the population in isolation and lockdown with psychological pain and negative mental repercussions (Ganesan et al., 2021). According to the survey, 75% of respondents believed that COVID-19 would be controlled in Afghanistan and 70% of respondents believed that COVID-19 would be controlled globally. According to the supposition of 75% of individuals, the fear of COVID-19 can be decreased by avoiding news. Additionally, 90% said that fake news on social media exacerbates the COVID-19 concern. Even with precautions, 70% of participants still expressed concern about catching COVID-19. In addition, 8% of participants believe that COVID-19 will kill them and that treatment will have no effect on them.

In addition, 45% of the individuals were very concerned about the infection spreading to their family members. The lockdown and curfew rules in Afghanistan have affected the lives of regular people and led to societal problems. In order to guide policies and therapies aimed at protecting the psycho-social well-being of the general public, it is essential to estimate the psychosocial influence on them. According to a study conducted in Pakistan, 84% of participants believed that fake news on social media enhances the fear surrounding COVID-19 (Balkhi et al. 2020). In our study, we found that 70% of participants fear about catching COVID-19 despite taking precautions, and 8% of participants believe that they would not survive if they contract COVID-19 and that treatment will have no effect on them. In contrast to our findings, a prior study found that 54% of respondents were concerned about catching COVID-19 despite taking precautions. Additionally, they noted that

30% of the participants believed that COVID-19 would kill them and that medical therapy would be ineffective (Jordan et al., 2021). In the current study, 45% of the participants were concerned about the infection spreading to their family. In agreement with our findings, a prior study revealed that 94% of participants were concerned about the infection spreading to their family members.

CONCLUSION

According to this study, the majority of COVID-19 patients were in their productive stage of life. Patients who were elderly or had a history of infection were at particular risk. As a result, individuals at high risk and the elderly should receive prompt therapy and attentive monitoring. Additionally, it has been determined that COVID-19 has a negative overall impact on Afghan populace social life. Immediate action is required on the part of the general public in the shape of focused mass psychological support programs in order to improve the mental health of persons impacted by the COVID-19 issues.

Acknowledgments

The authors would like to thank the entire staffs of the Nangarhar province Corona Center Hospital.

Conflict of Interest

The authors declare no conflict of interests.

REFERENCES

Babarinsa, I. A., Okunoye, G. O., & Odukoya, O. (2021). Severe Acute Respiratory Syndrome Coronavirus (SARS-CoV-1) and Middle East Respiratory Syndrome Coronavirus (MERS-CoV) infections in pregnancy–An overview. *European Journal of Obstetrics & Gynecology and Reproductive Biology*, *263*, 171-175.

Balkhi, F., Nasir, A., Zehra, A., & Riaz, R. (2020). Psychological and behavioral response to the coronavirus (COVID-19) pandemic. *Cureus*, *12*(5).

Dergaa, I., Abdelrahman, H., Varma, A., Yousfi, N., Souissi, A., Ghram, A., ... & Farzian, S. (2021). COVID-19 vaccination, herd immunity and the transition toward normalcy: challenges with the upcoming sports events. *Annals of Applied Sport Science*, *9*(3), 1-12.

Ganesan, B., Al-Jumaily, A., Fong, K. N., Prasad, P., Meena, S. K., & Tong, R. K. Y. (2021). Impact of coronavirus disease 2019 (COVID-19) outbreak quarantine, isolation, and lockdown policies on mental health and suicide. *Frontiers in psychiatry*, *12*, 565190.

Ganesan, B., Al-Jumaily, A., Fong, K. N., Prasad, P., Meena, S. K., & Tong, R. K. Y. (2021). Impact of coronavirus disease 2019 (COVID-19) outbreak quarantine, isolation, and lockdown policies on mental health and suicide. *Frontiers in psychiatry*, *12*, 565190.

Hassan, S. A., Sheikh, F. N., Jamal, S., Ezeh, J. K., & Akhtar, A. (2020). Coronavirus (COVID-19): a review of clinical features, diagnosis, and treatment. *Cureus*, *12*(3).

Huang, C., Wang, Y., Li, X., Ren, L., Zhao, J., Hu, Y., ... & Cao, B. (2020). Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China. *The lancet*, *395*(10223), 497-506.

Jee, Y. (2020). WHO international health regulations emergency committee for the COVID-19 outbreak. *Epidemiology and health*, *42*.

Jordan, J. J., Yoeli, E., & Rand, D. G. (2021). Don't get it or don't spread it: Comparing self-interested versus prosocial motivations for COVID-19 prevention behaviors. *Scientific reports*, *11*(1), 20222.

Khudadad, U., Safi, N., Aftab, W., Ali, A., & Siddiqi, S. (2021). The COVID-19 pandemic: an opportunity to strengthen health systems in Afghanistan. *Eastern Mediterranean Health Journal*, *27*(3), 220-223.

Li, L., Qin, L., Xu, Z., Yin, Y., Wang, X., Kong, B., ... & Xia, J. (2020). Using artificial intelligence to detect COVID-19 and community-acquired pneumonia based on pulmonary CT: evaluation of the diagnostic accuracy. *Radiology*, *296*(2), 65-71.

Liu, D. X., Liang, J. Q., & Fung, T. S. (2021). Human coronavirus-229E,-OC43,-NL63, and-HKU1 (Coronaviridae). *Encyclopedia of virology*, 428.

Munster, V. J., Koopmans, M., Van Doremalen, N., Van Riel, D., & de Wit, E. (2020). A novel coronavirus emerging in China-key questions for impact assessment. *New England Journal of Medicine*, *382*(8), 692-694.

Nadeem, M., Ilyas, U., Umer, A., Raffae, A., Ajmal, S. B., Ali, Z., & Umar, H. M. T. (2022). Impact of Lockdown due to Covid-19 Pandemic on Construction Industry of Pakistan. *Pakistan Journal of Engineering and Technology*, *5*(1), 42-48.

Semenzato, L., Botton, J., Drouin, J., Cuenot, F., Dray-Spira, R., Weill, A., & Zureik, M. (2021). Chronic diseases, health conditions and risk of COVID-19-related hospitalization and in-hospital mortality during the first wave of the epidemic in France: a cohort study of 66 million people. *The Lancet Regional Health–Europe*, *8*.

Sen, M., Honavar, S. G., Bansal, R., Sengupta, S., Rao, R., Kim, U., ... & Sowjanya, Y. (2021). Epidemiology, clinical profile, management, and outcome of COVID-19-associated rhino-orbital-cerebral mucormycosis in 2826 patients in India–Collaborative OPAI-IJO Study on Mucormycosis in COVID-19 (COSMIC), Report 1. *Indian journal of ophthalmology*, *69*(7), 1670-1692.

Shi, H., Han, X., Jiang, N., Cao, Y., Alwalid, O., Gu, J., ... & Zheng, C. (2020). Radiological findings from 81 patients with COVID-19 pneumonia in Wuhan, China: a descriptive study. *The Lancet infectious diseases*, *20*(4), 425-434.

Tadic, M., Cuspidi, C., Grassi, G., & Mancia, G. (2020). COVID-19 and arterial hypertension: hypothesis or evidence?. *The Journal of Clinical Hypertension*, *22*(7), 1120-1126.

Wang, D., Hu, B., Hu, C., Zhu, F., Liu, X., Zhang, J., ... & Peng, Z. (2020). Clinical characteristics of 138 hospitalized patients with 2019 novel coronavirus–infected pneumonia in Wuhan, China. *jama*, *323*(11), 1061-1069.

Zhang, J. J., Dong, X., Cao, Y. Y., Yuan, Y. D., Yang, Y. B., Yan, Y. Q., ... & Gao, Y. D. (2020). Clinical characteristics of 140 patients infected with SARS-CoV-2 in Wuhan, China. *Allergy*, *75*(7), 1730-1741.

Zhou, Y., Chi, J., Lv, W., & Wang, Y. (2021). Obesity and diabetes as high-risk factors for severe coronavirus disease 2019 (Covid-19). *Diabetes/metabolism research and reviews*, *37*(2), e3377.