EARLIEST SYMPTOMS OF PRESENTATION IN COVID-19 PATIENTS IN TERTIARY CARE HOSPITAL

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ABSTRACT

Objective: To determine the frequency of earliest symptoms of COVID-19 infection among patients with confirmed SARS-COVID-19 infection.

Study Design: Cross-sectional analytical study.

Place and Duration of Study: Combined Military Hospital Multan, from Jun to Dec 2021.

Methodology: Data from 299 patients admitted in tertiary care settings was collected on a questionnaire. Patients regardless of gender and age who had confirmed COVID-19 infection through Real Time Polymerase Chain Reaction (RT-PCR) were included in the study. A nonprobability consecutive sampling technique was used to select samples. Data was entered and analyzed through SPSS version 22. Frequencies and percentages of various presenting symptoms were calculated. Sample size calculated at 95% level of confidence, 1% required precision, and 27% anticipated population proportion were 299. The overall difference in frequencies of symptoms in various groups was compared by using chi-square test. *p*-value <0.05 was taken as significant.

Results: A total of 299 participants were included in this analysis. The median age for participants (interquartile range [IQR]) was 46 (36-54) years. Among 299 adults the reported symptoms were cough 238 (79.6%), fever 176 (58.7%) and, dyspnea 113 (37.8%). Only 78 (26.1%) of participants with confirmed infection reported having all three symptoms of cough, fever, and dyspnea. Other reported symptoms in patients were diarrhea 54 (18.1%), fatigue 128 (42.8%), myalgia 113 (37.8%), and anosmia 98 (32.8%). There was no significant difference in the frequency of symptoms across both genders.

Conclusion: The most frequent symptoms of COVID-19 are cough, fever, and dyspnea.

Keywords: COVID-19, Cough, Fever, Gender.

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INTRODUCTION

COVID-19 is a respiratory disease that is caused by the SARS COV-2 infection. The first case of Coronavirus disease 2019 (COVID-19) was reported in December 2019 in Wuhan, China.[1] COVID-19 was declared a worldwide pandemic in March 2020 by The World Health Organization (WHO).[2] Most commonly affected system by COVID-19 is the pulmonary system but it may affect both the central and peripheral nervous systems and gastro-Intestinal System.[3,4] Mao *et al*, reported that 33% of patients with COVID-19 present neurologic symptoms and these were more common in patients with severe infection.[4]

The majority of patients with COVID-19 have mild to moderate respiratory disease while some people may experience severe disease, for example, COVID-19 pneumonia. Accurate diagnosis of COVID-19 requires laboratory facility and Polymerase chain reaction (PCR) of nose and throat swabs, or imaging tests like CT scans. However, the first and most cost-effective way to diagnose the infection is by identifying early symptoms and signs from clinical assessment. If the diagnosis is accurate through identifying the early symptoms and signs, the requirement for time-consuming, specialist diagnostic tests would be diminished.[5-7] Manifestations experienced by the patients suffering from mild COVID-19 may include dry cough, sore throat, high temperature, loose motion, headache, muscular or joint pain, fatigue, and loss of smell and taste. Manifestations of COVID-19 pneumonia may include shortness of breath, loss of appetite, confusion, pain or pressure in the chest, and high temperature (over 38°C).[8,9]

Management of patients with COVID-19 depends on their symptoms and signs, patients with mild disease may be sent home for isolation and people with severe illness may receive further tests or be hospitalized. Accurate diagnosis is necessary so that it can be ensured that patients should receive the correct treatment promptly, and unnecessary tests, treatment and isolation of unaffected individuals be avoided. Accurate diagnosis is not only important for saving

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time and resources but also limiting the spread of disease.[10] Pakistan is already suffering from the double burden of communicable and non-communicable diseases. As the COVID-19 pandemic unfolds, it is important to keep this in consideration as these highly prevalent endemic diseases may make people of the country more susceptible to severe COVID-19 infection. Information about SARS-CoV-2 infection, early symptoms, its transmission, the pathogenesis of the disease, modalities of diagnosis should be easily available and widespread. Considering the high risk of infection and the large number of individuals who may be carrying the virus in Pakistan it is of utmost impottance to recognize the early symptoms of COVID-19 so that isolation of these individuals before confirmatory diagnostic tests should limit the further spread of disease. This study was planned to determine the frequency of the earliest symptoms of COVID-19 in a tertiary care hospital.

METHODOLOGY

This cross-sectional analytical study was conducted in Combined Military Hospital Multan from June to December 2020 after taking the ethics approval from the Institutional ethical review committee. Sample size calculated at 95% level of confidence, 1% required precision, and 27% anticipated population proportion (Fever) were 299. Patients regardless of gender and age who had confirmed COVID-19 infection through RT-PCR were included in the study. Patients who were suffering from severe disease (Oxygen-dependent) and on ventilator support were excluded. A nonprobability consecutive sampling technique was used to select the study subjects. Information was collected on a questionnaire containing the earliest symptoms of COVID-19. The questionnaire comprising of 2 parts. The first part of the questionnaire contains general information regarding their demographics and the second part consist of survey questions assessing the early symptoms of the infection. Data was entered and analyzed through SPSS version 22. Mean and standard deviation was calculated for quantitative variable in the study like age. Frequencies and percentages of various presenting symptoms were calculated. Effect modifiers were controlled through stratification during data analysis. The overall difference in frequencies of symptoms in various groups was compared by using chi-square test. *p*-value <0.05 was taken as significant.

RESULTS

A total of 299 participants were included in this analysis. All participants with confirmed infection in this analysis had at least one symptom at the time of screening. The median age for the sample population (interquartile range [IQR]) was 46 (36–54) years. Among 299 adults with confirmed SARS-CoV-2 infection, 238 (79.6%) reported cough, 176 (58.7%) reported fever and 113 (37.8%) reported dyspnea, irrespective of the time from symptom development. Only 78 (26.1%) of participants with confirmed infection reported having all three symptoms of cough, fever, and dyspnea, while 151 (50.5%) of participants had both fever and cough.

Other reported symptoms in patients with confirmed SARS-CoV-2 infection were diarrhea 54 (18.1%), fatigue 128 (42.8%), myalgia 113 (37.8%), and anosmia 98 (32.8%). To further explore the question of symptoms in SARS-CoV-2 infection, we examined reported rates of symptoms in participants with confirmed infection according to their gender. There was no significant difference in the frequency of symptoms across both genders.

Table-I: Gender distribution of the patients with confirmed SARS-CoV-2 infection

Gender	Frequency	Percentage
Male	208	69.6%
Female	223	30.4%
Total	299	100%

Table-II: Earliest symptoms reported by patients with confirmed SARS-CoV-2 infection

Symptoms	Frequency	Percentage
Cough	238	79.6%
Fever	176	58.7%
Dyspnea	113	37.8%
Cough, Fever & Dyspnea	78	26.1%
Fever & Cough	151	50.5%
Diarrhea	54	18.1%
Fatigue	128	42.8%
Myalgia	113	37.8%

Table-III: Gender distribution and earliest symptoms reported by patients with confirmed SARS-CoV-2 infection.

Symptoms	Gender	
	Male	Female
Cough	158 (76%)	65 (65.6%)
Fever	75 (36.1%)	33 (36.3%)
Dyspnea	68 (33%)	29 (31.9%)
Cough, Fever & Dyspnea	56 (26.9%)	25 (27.5%)
Fever & Cough	102 (49%)	46 (50.5%)
Diarrhea	39 (18.7%)	16 (17.65)
Fatigue	85 (40.9%)	40 (44%)
Myalgia	71 (38%)	32 (35.2%)

DISCUSSION

In the absence of widespread testing, symptomatic monitoring efforts may allow for understanding the epidemiological situation of the spread of coronavirus

disease 2019 (COVID-19) in Pakistan. We obtained data from patients with confirmed SARS-CoV-19 infection admitted to the hospital to determine the frequency of COVID-19 related early symptoms. We analyzed data earliest COVID-19 related symptoms. Our study findings revealed that cough, fever, and dyspnea are the most frequent symptoms of COVID-19 which is consistent with findings of an early study in which cough, fever, and dyspnea have been described as the three most common symptoms of SARS-CoV-2 infection and these symptoms have also been promoted in guidelines as potential screening symptoms when deciding to test or not test a patient.[11,12,21] The findings of the study showed that about 70% of participants with confirmed SARS-CoV-19 infection were male and there was no significant difference in earliest symptoms in both genders which is in line with the findings of Sharma *et al* in which the majority of the patients with COVID-19 were males and females seems to be protected against the infection.[13]

This generation belongs to a technology-oriented era in which social media, and smartphones play important role in creating awareness among the masses, on the contrary, they cannot be easily reached through traditional media like radio, newspaper, and television. It is the need of the hour to take COVID-19 seriously and share trustworthy. The use of social media may play a vital role in creating awareness regarding the prevention of SARS-CoV-19 infection and notifying the early symptoms of infection so that timely testing for confirmation and isolation of the patients may limit the further spread in the community.[14-16]

The government of Pakistan is trying to spread awareness about the symptoms of disease and prevention strategies especially focusing on staying at home and maintaining social distance. Health authorities need to pay attention to educating the people for identification of early symptoms of COVID-19 and seriousness of the disease so that the false information among the public that the threat of coronavirus has been exaggerated is minimized. Government must encourage Television hosts to invite health care specialists in their programs and can run media campaigns in which correct information about symptoms is given to the public so that unnecessary burden on already an overburdened system can be reduced.[17-19]

The strength of the present study is that it tried to identify the earliest symptoms of COVID-19 in our local population. This is the basic information that must be known by the public. This information can then be used to begin early treatment in the population more sustainable to developing life-threatening symptoms and curbing the spread of infection.The study conducted helps bring to light the symptomatic differences based on the gender of the patient who is COVID-19 positive. This information opens opportunities for numerous researches in the future.

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LIMITATION TO STUDY

The study also has many limitations. The first is the participants were hospitalized in a tertiary care setting with a limited sample size that may lead to selection bias i.e., does not include data on people who do not have access to teaching hospitals. Therefore, it is difficult to verify the selection bias because it is not possible to evaluate the utilization rate of users as well as the demographics of patients not admitted to tertiary care hospitals. Secondly due to the limited sample size generalizability of the data is compromised.

CONCLUSION

The most frequently reported symptoms in patients with confirmed SARS-CoV-19 infection through PCR test are cough, fever, and dyspnea.

Conflict of Interest: None.

Author's Contribution

MR: Conceptualization, write-up, data collection, statistical analysis, proof reading, MAR: Data collection, data entry and analysis, DEAC: Literature search, write up, MAC: Data collection, data entry and analysis, AR: Literature search, proof reading, SWK: Data collection.

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