Assessing Clinical Knowledge and Practice towards COVID-19 – A Cross Sectional Community Study

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ABSTRACT

Objectives: This study was aimed to investigate the knowledge and practice about COVID-19 among adults living in capital of Telangana, India. **Methods:** A cross sectional web based online study was conducted over a period of 3 months from April to June using structured self- administered online questionnaires. We targeted adults living in Hyderabad using convenience sampling technique. A total of 384 respondents completed the study questionnaires. The data were analyzed using the Statistical Package for Social Sciences (SPSS) version 24.0. Descriptive statistics were used to describe the status of knowledge, attitude, and practices. **Results:** Most of the respondents were male (65.1%) aged between 21-30 years (220 out of 384). The most common source of information for the COVID-19 was social media (50.7%). Almost 78% of the respondents were known that COVID-19 associated with dry cough, body pains and fever. Also majority of them were knew that disease can transfer from the infected patients (87%), while most of them (85%) were agreed that wearing facemask can help in controlling the infection. Almost all (92%) of the respondents agreed that isolation and treatment of COVID-19 patients may help in controlling the spread of virus. There was a significant difference among the attitudes of the participants about covid-19 ($p <.001$). **Conclusion:** In conclusion current study findings reveled that Indian residents of a telangana state, have had adequate knowledge, attitudes, and acceptable practices towards COVID-19.

Key words: COVID-19, Knowledge, Attitudes, Clinical symptoms, Flue, Fever, Respiratory failure.

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INTRODUCTION

Universally there was uncertain distress caused by the recent deaths resulting from zoonotic virus named as Coronavirus or "COVID-19" which originated from china.[1] The virus infection is characterized mainly by respiratory symptoms (flu) associated with fever, dry cough, extreme tiredness, muscle pain, and difficulty in breathing with an incubation period of 2 weeks.[2-4] In India, the first case of COVID-19 was identified in Kerala with a student that was studying at Chinese university in Wuhan city and returned to India on the 30th January 2020 after which he tested positive for COVID-19.[5] Therefore, it is essentially important to apply preventative measures as intervention to control the spread of COVID-19.[6] As of August 9, 2020, a total of 19,462,112 global confirmed cases were reported by WHO.[7] Over a very short period of time, the COVID-19 pandemic has propagated both, nationally and internationally, reaching several countries.[6] The majority of cases were found in USA 25.1% (4,897,958), followed by Brazil 15.2% (n=2,962,442), India 11% (n=2,153,010), Russian federation 4.5%, (n=887,536), and China 0.47%, (n=88,937).[7] In response to this, WHO declared that all countries, territories, and conveyances must make collaborative efforts to prevent and control the rapid spread of COVID-19. At the time of writing this manuscript, there were globally 722,285 cumulative deaths attributed to COVID-19 among those 22.1% and 13.7%, were reported by USA and Brazil, respectively. However, Mexico, UK and India reported lower deaths incidences, approximately 7.1, 6.5% and 5.8% respectively.[6,7] Similar to other countries Indian government has implemented the complete lockdown starting form 24 march and was extended to august 32, 2020. However, the battle against COVID-19 in India is still undergoing.[8] The Knowledge about the prevention and control of the disease is crucial for controlling the spread of emerging communicable diseases. Lack of knowledge and practice towards chronic diseases was associated with more severe morbidity and higher mortality, which jeopardizes the prevention or control of the disease.

There were bundles of research that have been published which measures knowledge, attitude and practice of many chronic diseases such as swine flu,[9] dengue fever[10] and malaria parasite.[11] Good knowledge, practice and positive attitude towards any diseases may help in successful control and prevention, which ultimately results in reduced mortality and morbidly rate. Nevertheless, there is no research study conducted in Telangana state to measure public knowledge, attitude and practice towards corona virus. Therefore, we conducted a study to measure community knowledge, practice and attitude towards COVID -19 among public from Hyderabad, Telangana, India.

MATERIALS AND METHODS

Study Design, Settings and Participants

A non-interventional, cross sectional web-based questionnaire was conducted to achieve the objective of this study. An online platform was used to gather data about COVID-19 for Indian populating who were residing in Hyderabad capital of Telangana. The study participants were recruited through social media. This quantitative study was initiated immediately after the third week of the lockdown starting from April 15 to July 15, 2020.

Sample Size Estimation

The sample size for this study was calculated using online sample size calculator (http://www.raosoft.com/samplesize.html) by assuming larger population size with a margin of error ±5% and a confidence level of 95% which results in to sample of 384 individuals.[12] During this lockdown period and the strict actions of government authorities, we were unable to conduct the study with larger sample size, hence we opted online questionnaire. The study included adults aged above 18 years, who were living in Hyderabad city and able to read in English. Whereas those living outside the capital of Telangana and unable to read in English were excluded from the study.

Questionnaire Design and Data Collection

The questionnaire used in this study was adopted from the previous studies published in this regard.[13-15] The questionnaire composed of four themes. First theme composed of demographics which include, gender age, qualification, employment status; source of COVID-19, the second part consisted of knowledge questions with a total of 11 items on the binary scale (Yes/No). In the knowledge part. Four items were related to clinical presentation of COVID -19, while the three items asked about routes of transmission of the COVID-19. Last four items were assessing participant's knowledge about possible prevention and control of the COVID-19. Similarly, the third part of the survey consisted of attitude questions towards COVID-19 such that participants were asked whether they agreed or disagreed or not sure. The last part of the survey was assessing practice of participants towards COVID-19 which includes, visiting too crowded place during these days, and wearing face mask to get protection from COVID-19 on a binary scale (Yes/No). The questionnaire was prepared and evaluated by the department research team, which consists, one researcher and one professors of pharmacy who were experts in the field. To check the validity of the questionnaire, a pilot study was conducted among randomly selected individuals (in 10 numbers). The results were excluded from the main findings. A Cronbach's alpha value of 0.81 was found. We calculated the overall correct knowledge score by adding up all the corrected knowledge numbers, dividing by total number of the questions then multiplying by the total responses.

To reach the required sample size in our estimated duration of study we have followed several strategies, which include communicating to professional and personal networks and utilizing social media platforms to display and share the questionnaire. We have mainly focused on Facebook, twitter and WhatsApp as the platforms to collect the data, as all individuals were more familiar with these applications not only in India but all over the world. A total of 400 participants were targeted to achieve the desired responses. The questionnaire sent electronically to the phone number of peoples who were residing in Hyderabad'. Study objectives were clearly communicated in the questionnaire invitation and individuals were informed that their contribution is voluntary and anonymous. The present investigation was conducted according to the guidelines of Checklist for Reporting Results of Internet E-Surveys (CHERRIES).[16] In the questionnaire, there was short introduction paragraph illustrating the objective of the research and its importance, also a statement about the importance of participation in this research, and the full right of participants to withdraw from the study at any point of time. Participants were assured that their data will be used only for the research purpose and confidentiality of the data will be considered. Also participant's informed consent was required prior to answering questions and participants were requested to provide authentic answers.

Statistical Analysis

Descriptive statics were performed using frequencies and percentages. A chi-square test was used to find out the difference between the variables and a significance level of 0.05 was used for statistical testing. The SPSS statistical package version 22 (SPSS Inc., Chicago, IL, USA) was used for statistical analysis.

RESULTS

Most of the respondents were male (65.1%) and most were 21-30 years old (220 out of 384). Most of them were single (66. 4%). More than half of them were holding bachelor's degree (57.8%), while (73.4%) were employed (Table 1). The most common source of information for the COVID-19 was social media and internet (195 out of 384) followed by television (96 out of 384) as shown in Figure 1. Further detailed information is provided in Table 1 and Figure 1.

Table 2 shows the respondents knowledge regarding the COVID -19. The correct answers were indicated in bold letters. Almost 78% of the respondents knew that COVID-19 associated with dry cough, body pains fever. Majority of them also knew the disease can transfer from the respiratory droplets of the infected patients (87%). In addition most of them (85%) were in agreement that wearing facemask can help in controlling the infection. Moreover, nearly 83% of them agreed that avoiding going to crowded place will help in controlling the infection. Additionally, almost all (92%) of the respondents agreed that isolation

Table 1: Demographic distribution of participants (*n*=384).

Demographic data	Number of participants (n)	Frequency (%)
Gender		
Male	250	65.1
Female	134	34.8
Age group		
21-30	220	57.2
31-40	95	24.7
41-45	58	15.1
Over 46	11	2.8
Marital status		
Married	126	32.8
Unmarried	255	66.4
Widowed or divorced	3	0.7
Education		
Primary school	30	7.8
Secondary school	72	18.7
Bachelor's degree	222	57.8
Master's degree	60	15.6
Employment Status		
Employed	282	73.4
Unemployed	102	26.5

and treatment of COVID-19 patients may help in controlling the spread of virus.

Respondents' Attitude and Practice Regarding COVID -19

Majority of the respondents believed that COVID -19 would be successfully controlled (82.5%), while 7.5% of them disagreed about this statement. Also most of them agreed (84.1%) that COVID-19 would be completely eradicated (Table 3). Regarding the practice towards COVID-19 we asked three questions. For the first question majority of the respondents (77.3% of them) agreed that they avoided going to crowded places, while 22.6% did not avoid visiting crowded places. The second scenario of the practice was about wearing a face mask when leaving the home. Majority (78.6%) also confirmed wearing the mask when going outside the home. Lastly, the third question was about adherence to hand hygiene practice a more than half of the respondents (67.9%) were strictly adhering to hand washing practice using hand sanitizer (Figure 2).
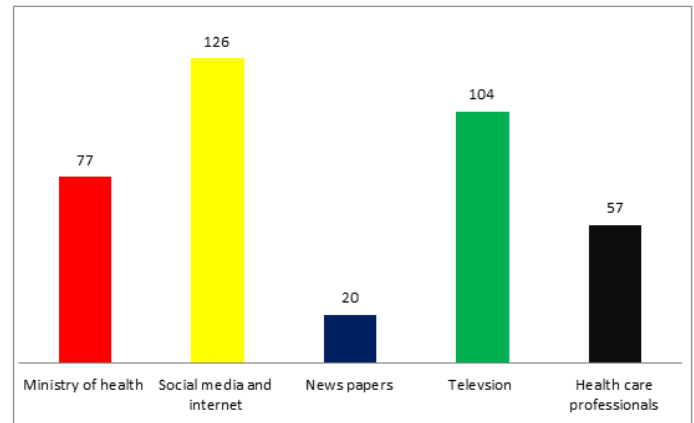
DISCUSSION

Globally there was a chronic fear of COVID-19 among the public due to its uncontrollable spread in a very short period of time and causing increased morbidity and mortality. As of the time of submission this
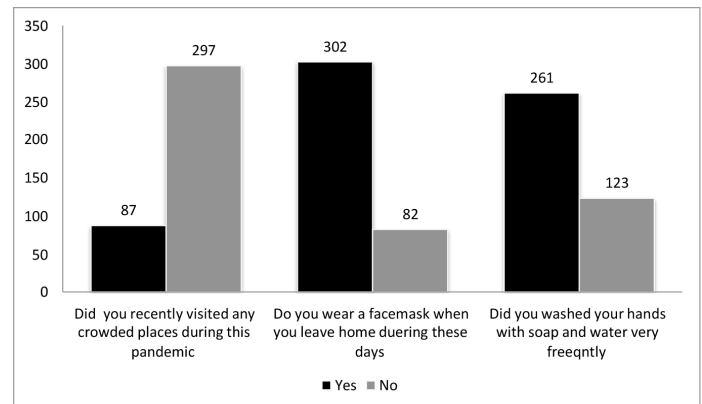
Table 2: Participant knowledge of COVID-19 (*n*=384).

Question	Yes	No	I am not sure
COVID-19 is associated with fever, fatigue, dry cough, and body pains.	298 (77.6%)	31 (8.7%)	55 (14.3%)
Stuffy nose, runny nose, and sneezing are not the symptoms of COVID-19.	292 (76%)	27 (7.3%)	65 (16.9%)
As of now, there is no effective treatment for COVID-19, but early symptomatic and supportive treatment can help most patients to recover.	290 (75.5%)	23 (5.9%)	71 (18.4%)
Not all persons with COVID-19 will develop serious symptoms. Only those who are elderly or have chronic illnesses are more likely to develop the disease.	293 (76.3%)	35 (9.1%)	56 (14.5%)
Eating meat or coming in contact with animals could result in an infection by COVID-19.	287 (74.7%)	29 (7.5%)	68 (17.7%)
Persons with COVID-19 cannot transmit the virus to others when a fever is not present.	200 (52%)	149 (38.8%)	35 (9.1%)
COVID-19 is transferred via respiratory droplets of infected individuals.	333 (86.7%)	21 (5.4%)	30 (7.8%)
Individuals can wear facemasks to prevent an infection from COVID-19.	327 (85.1%)	22 (5.7%)	35 (9.1%)
It is not compulsory for children and young adults to take measures to prevent the infection.	18 (4.6%)	301 (78.3%)	65 (16.9%)
To prevent being infected by COVID-19, individuals should avoid going to crowded places.	316 (82.2%)	30 (7.8%)	38 (9.8%)
Isolation and treatment of people with COVID-19 are effective ways to reduce the spread of the virus.	352 (91.6%)	4 (1.0%)	28 (7.2%)

Table 3: The attitudes of participants about COVID-19.

Question	N	%	*p*-value
Do you think that COVID-19 will be successfully controlled?	317	82.5	<.001
Agree Disagree	29	7.5	
I don't know	38	9.8	
Do you believe that COVID-19 will ultimately be eradicated?	323	84.1	<.001
Agree Disagree	34	8.8	
I don't know	27	7.0	

Figure 1: Shows source of information for COVID-19.

Figure 2: Practice of respondents towards COVID-19.

manuscript, there is no vaccine or treatment that is considered the best solution to prevent or cure of this disease. Despite that, adequate prevention and control of virus can be achieved through elaborating the community knowledge, attitude and practice towards the disease. This study found 73.5 % of an overall correct knowledge score of a COVID-19 among studied population. Our study results were lower than a previous study published by Zhong *et al.* who studied knowledge, attitude and practice during the early stages of the pandemic and reported higher overall knowledge scores of 90% among Chinese population.[13] In Iran another recent study by Erfani *et al.*[14] among general population identified an average knowledge score of (90%) of the studied population. Furthermore, our study results were still lower than previous study by Azlan *et al.* who conducted similar study among Malaysian population

and found an overall knowledge score of 80.5%.[15] Nevertheless, our results were comparable to previous study by Srichan *et al*. among Thai population in early period of COVID-19 outbreak and reported that 73.4% of the population had knowledge about COVID-19.[17] The reason for the difference in the overall knowledge score in this study was due to difference in the study time and the composition of used questionnaire. All the above cited studies were conducted during the early stages of the pandemic. Additionally, during the early stages many countries and their government bodies have taken a strong effort to control the spread of the disease, and during that time population were exposed to lot of information about disease prevention and control ways through proper advertisement channels.

In this study about 77.6% of the respondents correctly identified the symptoms of COVID 19. This number is lower than a previous study by Maheshwari *et al*. who studied knowledge and practice of COVID-19 among medical students (*n*=354) and reported an 86.7% of the study population had correct knowledge about the COVID-19 symptoms.[5] Similarly, another study by Kebede *et al*. among university students reported that 83% of them had correctly identified the main clinical symptoms of the COVID 19.[18] Our study found out that nearly 87% of the population correctly identified COVID-19 transferred mainly via respiratory droplets of infected individuals. While in Ethiopia, Kebede *et al*. reported 95.1% of them identified it correctly.[18] Although only 39% of the participants in this study knew that COVID-19 can transfer even from the patient who do not have fever, these results were superior to Kebede's who reported only 31% of them identified it correctly.[18] The reason for lower knowledge in this regard might be attributed to the lack of availability of the disease clinical knowledge among the participants. Another possible reason in knowledge deficiency could be the differences in the educational qualification as suggested by other studies.[13,14]

In this study the main source of information for COVID-19 was social media and internet 51%, followed by television 25%, while that of the study among Iranian population was 82.9% of social media.[13] Similarly, Bhagavathula *et al*. reported social media (60%) as preferred resource for COVID-19 8. However, another Ethiopian study by Akalu Y *et al*. reported television and radio 59% as the main source of knowledge about COVID-19.[19] The underlying difference between the studies and results were due to difference in the study population, socio-economic status and academic qualification.

Majority of the respondents believed that COVID-19 will be successfully controlled (82.5%), while 7.5% of them disagreed about this statement. The other 9.8% were uncertain about it. Also most of them (84.1%) agreed that COVID -19 will be completely eradicated. Regarding the practice of COVID-19 we asked three questions. For the first question majority of the respondents 77.3% agreed that they avoided going to crowded places, while 22.6% did not avoid visiting crowded places. The second question of the practice was about wearing a face mask when leaving the home, and majority (78.6%) confirmed wearing the mask when going outside the home. The third question was about adherence to hand hygiene practice. More than half of the respondents (67.9%) were strictly adhering to hand washing practice using hand sanitizer.

Although previous studies suggested that knowledge, attitude and perception towards COVID-19 varied based on the study population and residential status, age group, educational status and economic status as potential contributing factors, the current study was not aimed to assess that.[13,14,19] However, the current study results showed that population had positive attitude towards controlling COVID-19. For example, majority of the studies respondents agreed that covid-19 would be successfully controlled, and completely eradicated from country (82%, 84%). These results were almost similar to earlier studies conducted in Malaysia and china who reported similar attitude towards COVID -19.[13,14] These

acceptable attitude towards the virus might be due to the strict and rapid actions towards control of the disease taken by government authorities of the respective countries.

In this study majority of the respondents avoided visiting or going outside during the pandemic (73%), which was lower than that in previous studies conducted among a sample of Chinese population by Zhong *et al*. (96.4%),[13] and Iranian community by Erfani *et al*. (89%),[14] Malaysian community by Azlan *et al*. (83.4%),[15] university visitors of Ethiopian by Kebede *et al*. (90.3%).[18] The variation in the findings might be attributed to different cultural and social status of the respective countries. However, in this study about 78.6% of the respondents were wearing facemask when they left home, which is superior to the results shown by azlan (51.2 %)[15] and Akalu (36.6 %).[19] Although our results were lower than an earlier study by Zhong *et al*. (98%), wearing facemask was significantly associated with its availability in the country, and affordability of the individuals.[13] Although it is evidenced that COVID-19 is the major public health problem both national and international levels, there is yet more effort needed to develop therapies and vaccines for the complete eradication and control of the disease.

There are some limitations to our study. First the population sample was limited to Telangana state of Hyderabad region only thus the findings of this study wouldn't be representative of the whole country. Second, this study relied on self-reported practices during this rapid raise of the pandemic that could influence the results of the practices. Overall, the current study shows the importance of public knowledge for the management of the disease which can be achieved by governmental and non-governmental facilitated-educational programs that create more awareness about the disease.

CONCLUSION

In conclusion current study findings reveled that Indian residents of a Hyderabad region of Telangana, have had adequate knowledge aboutCOVID-19 during the COVID-19 outbreak. In addition, good knowledge of the disease is associated with good levels of attitude and appropriate practices towards the disease, suggesting that health education programs aimed at improving corona virus knowledge are helpful for encouraging a positive attitude and maintaining safe practices. Hopefully soon COVID-19 will disappear both national and international levels.

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CONFLICT OF INTEREST

The authors declare no conflict of interest.

ABBREVIATIONS

COVID-19: Coronavirus disease 2019; **CHERRIES:** Checklist for Reporting Results of Internet E-Surveys; **WHO:** World Health Organization; **USA:** United States of America; **MERS-CoV:** Middle East respiratory syndrome coronavirus.

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