

Are We Prepared for the Third Wave? - Knowledge, Attitude and Practice towards COVID-19 among Medical Practitioners in India

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ABSTRACT

Background: The second wave of the COVID Pandemic spread like wildfire, wreaking havoc on the healthcare system. Medical practitioners must have sufficient knowledge and practice to avoid getting infected and to limit the danger of disease transmission among patients. We conducted this study to assess the current Knowledge, Attitude, and Practice towards COVID-19 among medical practitioners in India.

Methods: An online cross-sectional questionnaire based study on COVID-19 was conducted among Medical practitioners using snowball sampling technique over 1 month period (16th April 2021 to 15th May 2021). Knowledge, Attitude, Practice score relation to independent variables and correlation between scores were analyzed.

Results: Out of 306 responses assessed, The Mean Knowledge score was 55.2 ± 10.5 and 52.9% had Knowledge above the mean. Overall attitude score was 62.5 ± 23.1 , Only 46.4 % were confident in managing a COVID patient. The Overall practice score was 89.8 ± 16 which is better compared to Knowledge and attitude. A statistically significant ($p=0.04$) higher knowledge was observed among Postgraduates. Males ($p=0.03$) and older people ($p=0.002$) had better attitude. Superspecialists had statistically significant better practice ($p=0.006$). Knowledge and attitude score correlation ($p=0.03$), symptom spread vs treatment outcome score difference ($p=0.0005$) were statistically significant.

Conclusion: Only half of the medical practitioners had good Knowledge about

COVID 19. Only less than half had confidence in managing COVID patients and also there was a lacuna in PPE usage. A unified treatment protocol and periodic training could improve clinical knowledge. Stronger healthcare and positive reinforcement of preventive practices could help in better handling of the pandemic in the future.

Keywords: COVID-19, Pandemic, Knowledge, Attitude, Practice, Medical Practitioners, India, second wave

INTRODUCTION

COVID-19 Pandemic which originated in Wuhan, Hubei province, China ⁽¹⁾ soon crossed the borders and spread across the world upending all sectors globally. India being the 2nd most populous country in the world bore the brunt of the Pandemic, challenging our health care system and economy. 6 months after the peak of COVID 19 in September 2020, cases started rising from middle of March 2021, ⁽²⁾ and sharply reaching the peak of the 2nd wave in May 2021. As on July 12th, 2021 India has reported 30874378 cases which is the second-highest in the world. (WHO)

The virus is undergoing various mutations and evolving continuously posing a threat to containment and treatment. During the second wave, there was a sharp rise in cases with a steeper curve owing to higher transmissibility of the mutated strains and a decline in COVID appropriate

behavior in the community.⁽³⁾ There were significant differences between the first wave and second wave with more flu-like symptoms, lesser oxygen requirement, and predilection towards older age group in the former, whereas more Gastrointestinal symptoms, more oxygen requirement, and an increase in younger population being affected were noted in the later.^(4,5) There was also a sudden increase in the incidence of Mucormycosis cases during the second wave further rising the morbidity and mortality due to COVID.^(6,7) This rampant rise in cases collapsed our healthcare system as evidenced by a shortage of oxygen supply, ventilators, beds, and drugs. Thus our healthcare workers had to deal with the dual challenge of changing dynamics of the disease and crumbling healthcare system with a shortage of resources. Working in such a scenario demands adequate knowledge, a positive attitude, and behavior towards the disease. A gap in knowledge and practice among the Professionals could be a serious threat during the already devastating Pandemic as this could lead to the propagation of disease by the people who are intended to treat it. Hence healthcare professionals must update their knowledge continuously to cope up with the ever-changing disease and treatment protocols.

To date, only very few studies have been done to evaluate the Knowledge, attitude, and practice of doctors in India, and whatever is available has been done during the first wave of COVID. Hence we conducted this study to know the Knowledge, attitude, and practice among Indian doctors during the second wave to assess the acquisition of knowledge and its implementation during an acute crisis. This is important as we are at present, uncertain about the occurrence of further waves and the end of the Pandemic. Hence we need to focus on measures to strengthen the healthcare system and improve the knowledge of healthcare workers to deal with forthcoming challenges.

METHODOLOGY

STUDY DESIGN: This cross-sectional study was conducted online using the snowball sampling technique over a duration of 1 month (April 16 2021, to, May 15 2021). An online questionnaire was created in survey hearts and the link was shared via WhatsApp and other social media after obtaining Approval from Institute Ethical Committee. Medical practitioners who have completed their under-graduation and residing in India were included in this study. The Participants were informed that their participation was anonymous, voluntary and the return of the completed questionnaire implied informed consent. The questionnaire consisted of four sections:

1. Demographic details 2. Knowledge about COVID 19 Pandemic 3. Attitude and 4. Practice

INDEPENDENT VARIABLES: Age, Gender, Education, Work Sector, Residence (Demographic details) were obtained.

DEPENDENT VARIABLES:

Knowledge: Knowledge was assessed using 11 questions regarding Symptoms, spread, prevention, treatment, and outcome of COVID 19 infection. 2 inter-related questions regarding PPE usage were given 5 points each, and all other questions were given 10 points. So the participant's knowledge score for 100 points was obtained. A subdivided score out of 50 for questions related to Symptoms and spread (50) vs Treatment and Outcome (50) was also obtained to identify the area of lacunae in Knowledge.

Attitude: Attitude towards winning the battle against COVID 19 was assessed using 5 questions with True, False or I don't know options. A score of 20 was given for True, 10 for I don't know, and 0 for False. So, an attitude score for 100 was obtained.

Practice: 5 questions with Yes or No regarding practice were asked. Yes was given a score of 20, No was given a score of 0.

Data Analysis

Data analysis was done using SPSS software. Frequency and percentage were computed for Independent variables. Mean and Standard deviation for Knowledge score, Attitude score, Practice score were calculated. Each score was compared against the basic independent variables

using a t-test for 2 variables and ANOVA for 3 or more variables. Knowledge and attitude correlation, Knowledge and practice correlation, Symptom score, and Treatment score difference were assessed. A p-value of less than 0.05 was considered statistically significant.

RESULTS

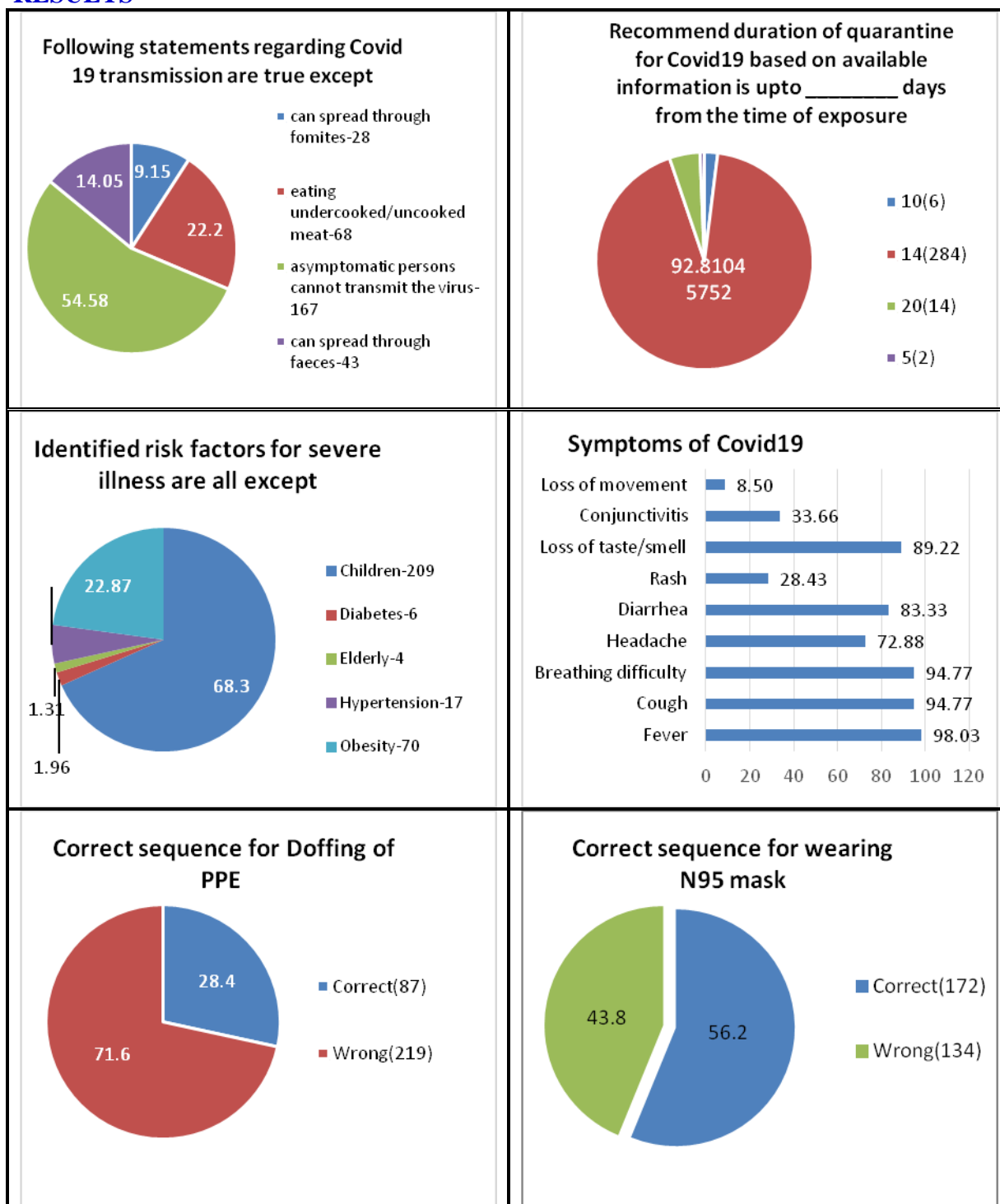


Figure 1:Response to Knowledge Questions

Table:1 Demographic Distribution of Respondents(N=306)

Variable	Respondents N(%)
Age	
21-30	153(50.0)
31-40	117(38.2)
41-50	14(4.6)
>50	22(7.2)
Gender	
Male	173(56.5)
Female	133(43.5)
Education	
Under-graduation	99(32.4)
Post-graduation	174(56.9)
Superspeciality	33(10.8)
Work Sector	
Government	105(34.3)
Private	189(61.8)
Other	12(3.9)
State of Residence	
TN	241(78.8)
Others	65(21.2)

A total of 308 responses were obtained over the one-month study duration. 306 responses were considered for analysis as 2 were from outside India. As shown in Table: 1 majority of the responses were from young people 21-30 years (50%), followed by 31-40 years (38.2%) with a

male preponderance (56.5%). Most of them were postgraduates (56.9%). Many were working in the Private sector (61.8%). People from most of the states responded but the majority were from Tamil Nadu (78.8%).

Fig: 1 and Table: 2 show the responses to Knowledge questions. The Proportion of correct responses were higher for questions related to symptoms, contagiousness, and quarantine. A knowledge gap in questions related to PPE use, treatment, and prognosis was observed. Also, only a lesser proportion knew that conjunctivitis, rash, and loss of movement could occur in COVID 19. The Mean and standard deviation for the total knowledge score was 55.2 ± 10.5 . 52.9% had a knowledge score above the mean. Symptoms and spread knowledge scores were 35.6 ± 7.1 , whereas Treatment and prognosis score was 19.5 ± 7.8 .

Table: 2 Responses to Knowledge questions(N=306)

Question	True-N (%)	False-N (%)	I Don't know-N(%)
80% infected with COVID19 recover on their own	267(87.25)	19(6.21)	20(6.54)
Higher rate of transmission with more spread is noted during second wave	298(97.39)	7(2.29)	1(0.33)
With appropriate treatment the outcome of Mucormycosis improves dramatically.	65(21.24)	227(74.18)	14(4.58)
Antivirals are a well-established cure for COVID 19	29(9.48)	240(78.43)	37(12.09)
Vaccination prevents COVID 19 infection	28(9.15)	215(70.26)	63(20.59)

Table: 3 Responses To Attitude Questions

Attitude Questionnaire	Yes	No	I don't know
I can confidently manage a COVID 19 patient	142 (46.41)	112 (36.60)	52 (16.99)
Do you feel that every patient attending your OPD could be a potential carrier of COVID 19 infection?	276 (90.20)	19 (6.21)	11 (3.59)
As vaccine is available it should be taken by all to decrease the morbidity and mortality due to COVID	236 (77.12)	49 (16.01)	21 (6.86)
I feel that with increasing number of cases, COVID appropriate behaviour has also increased in the community	87 (28.43)	176 (57.52)	43 (14.05)
Do u feel that Doctors are updating their knowledge about COVID continuously	131 (42.81)	134 (43.79)	41 (13.40)

Table 3 shows the responses to attitude towards COVID 19 Pandemic. The Overall attitude score was 62.5 ± 23.1 . Only 46.4% were confident in managing a COVID positive patient and only 28.4% believed that COVID appropriate behavior is adequate in the community. 90.2% felt that every patient could be a potential carrier of COVID 19. Only 77% opted for effective vaccination for all and only 42%

felt that Doctors are updating their knowledge continuously.

Table: 4 shows the practice responses for COVID 19. The Majority have avoided social gatherings (96.08%), practice hand washing (95.1%), and social distancing (94.12). Relatively wearing a mask/shield (87.25%) and wearing PPE (76.47%) is practiced by fewer respondents. The Overall practice score was 89.8 ± 16 .

Table: 4 Practice (N=306)

Practice	Yes-N (%)	No-N (%)
I have been wearing a mask, shield, and gloves before seeing any patient	267(87.25)	39(12.75)
I have avoided shaking hands and practiced social distancing in the workplace with my colleagues	288(94.12)	18(5.88)
I have avoided participating in family and social gatherings	294(96.08)	12(3.92)
I have washed hands / used hand sanitizer before and after seeing each patient	291(95.1)	15(4.9)
I have done Donning and Doffing of PPE in the correct sequence	234(76.47)	72(23.53)

Table: 5 Demographic Distribution of Knowledge, Attitude and Practice Score (N=306)

	Knowledge Score	Attitude Score	Practice Score
Male	55.1±10.7	65.0±23.6	90.3±16.4
Female	55.3±10.4	59.2±22	89.2±15.5
P-value	0.89	0.03**	0.49
21-30	54.9±10.8	59.6±22.8	88.5±15.7
31-40	55.9±10.3	62.2±23.5	89.6±17.7
41-50	54.4±10.2	73.6±22.4	97.1±7.3
>50	53.5±10.0	76.8±15.5	95.5±8.6
P-value	0.72	0.002**	0.80
UG	53.7±11.3	60.5±23.6	85.7±18.1
PG	56.5±9.7	63.2±23.2	91.5±13.5
SS	52.8±11.5	64.5±21.1	93.3±19.1
P-value	0.04**	0.56	0.006**
Govt.	56.6±10.4	60.7±22.7	88.4±18.1
Private	54.7±10.2	63.9±23.3	90.6±14.8
Others	50.8±14.9	55.8±22.7	90.0±13.5
P-value	0.10	0.31	0.53
TN	55.7±10.8	61.9±23.3	89.1±15.9
Others	53.3±9.1	64.6±22.1	92.3±16.1
P-value	0.11	0.40	0.16
Total score	55.2±10.5	62.5±23.1	89.8±16.0

Knowledge, attitude, and practice scores based on demographic variables are shown in Table: 5. Overall Knowledge, attitude, and practice score were 55.2±10.5, 62.5±23.1, and 89.8±16.0 respectively. A statistically significant higher knowledge (P-value -0.04) was observed among Postgraduates, Knowledge scores did not differ based on other demographic variables. The Attitude was better among Males (P-value -0.03) and the older age group (P-value -0.002) and it was statistically significant. A statistically significant better practice was observed among Super-specialists (P-value -0.006).

Knowledge and attitude score correlation was computed using T-test and was found to be statistically significant (0.03) with those having better Knowledge had a better attitude. Knowledge and Practice score correlation was also assessed but was not statistically significant (P-value -0.07).

Symptom, spread knowledge score and Treatment, Outcome knowledge score

difference was found to be statistically significant (P-value -0.0005).

DISCUSSION

The second wave of COVID 19 wreaked havoc in the country burdening the government, economy, and healthcare system. Medical practitioners on the forefront had to treat a large number of cases in a resource-limited setting. Decision-making in such a situation demands adequate knowledge about the disease. Insufficient knowledge could potentiate infection spread, injudicious use of resources, and pose a threat to contain the pandemic. Since vaccination became available only 5.3% population are vaccinated till July 2021 leaving the majority of the population vulnerable to severe disease in the future. Hence increasing vaccination coverage, strengthening healthcare infrastructure and training healthcare personnel are the crucial steps of disaster preparedness.

In our study, the total knowledge score was 55.2±10.5 which is much lesser than a study by Ronald Olum et al⁽⁸⁾ conducted among Health care workers of Uganda (mean-82.4) but in congruence with the results of Bhagavathula et al⁽⁹⁾ in which participants had poor knowledge on Ebola. This could be due to multiple options rather than direct-type questions in our study. A knowledge gap in treatment, outcome, use of PPE, and certain symptoms like conjunctivitis, rash was observed. This was similar to studies on SARS and MERS by Bener and Khan et al,⁽¹⁰⁾ in which poor knowledge about treatment was observed in 40% and 57.6% of participants respectively. This signifies the need to devise standardized treatment protocols in a Pandemic situation to improve knowledge among health care workers globally.

Further, continuing medical education and workshops on personal protective measures and treatment must be conducted online to overcome the lacuna in knowledge in these areas.

Despite having vast information available on WHO, CDC, and MOHFW websites, this low score on Knowledge is alarming. Hence medical practitioners must seek authentic information and should not be misguided by the malicious information on the internet and social media. In our study better Knowledge was observed among Postgraduates. Hence hospitals should assess the knowledge of their healthcare workers and special educational campaigns targeting those with insufficient knowledge must be planned.

The overall attitude score was 62.5 ± 23.1 and 43.7% of respondents had attitude higher than the mean. This is higher than Uganda⁽⁸⁾ where only 21% had a good attitude but lesser than a study by Gioa et al in Vietnam⁽¹¹⁾ where 90% had a good attitude. Only 46.4% were confident in managing a COVID positive patient which is similar to the study by Ronald Olum et al (44%).⁽⁸⁾ This could be due to a lack of personal protective equipment and healthcare resources, urging the healthcare system to improve its infrastructure to deliver better services during a Pandemic. Only 77.1% believed that effective vaccination could decrease morbidity and mortality and improve the situation. It is similar to the figure of 80% vaccine coverage (both doses) as on date among the healthcare staff. This is insufficient among medical professionals where 100% coverage is expected. Training on vaccine efficacy, adverse effects and special myths clearing section could improve vaccine acceptance among the fraternity as this is important to protect the warriors and also increase vaccine acceptance among the general public. Only 28.4% believed there is a proportionate increase in COVID appropriate behavior during the second wave. Such a low attitude in Professionals mandates more stringent control measures

across the country. Only 42% felt that medical practitioners are updating their knowledge continuously. This stresses the need for government and private sectors to train healthcare staff periodically to cope up with the changing disease. Males and older people had a better attitude. This could be due to increased economic burden among younger people and more worry about family members among females which also needs to be addressed during an acute global crisis. A significant correlation between Knowledge and attitude was observed thus further stressing the need to improve knowledge.

The Overall practice score was 89.8 ± 16 . The practice score is similar to the study conducted by Saqlain et al⁽¹²⁾ among health care professionals in Pakistan and higher than the study conducted by Olum et al⁽⁸⁾ in Uganda. Almost 95% practiced handwashing, social distancing, and avoided social gatherings. These are positive steps towards controlling the Pandemic but need further reinforcement to achieve a 100% practice rate which is crucial for a disease with no definitive cure. A relatively low practice score was noted for use of PPE which is in congruence with the low knowledge about PPE usage. Superspecialists had significantly better practices towards COVID 19 than undergraduates and postgraduates. This could be due to the better availability of PPE for this group. Despite low Knowledge and Attitude scores, the practice was good. This could be because almost 90% felt that every patient could be a potential carrier of COVID infection. A blind practice without adequate knowledge could be due to fear of contracting the disease which needs further evaluation and steps to mitigate the fear and associated psychological stress.

Our study has the following limitations. Firstly as it is a cross-sectional study causal effect relationship couldn't be established. Since the sampling was web-based larger numbers of responses were from the younger population. No standard tool was available for assessing Knowledge,

attitude, and practice, hence we formulated a questionnaire based on data from WHO, CDC, and various studies on Pandemics like COVID, swine flu, and ebola. The Majority of the responses were from South India particularly Tamilnadu which could be a selection bias of snowball sampling. Despite these limitations, this study is valuable as to our knowledge it is the first study assessing a large sample of doctors from various demographic backgrounds across India during the second wave. This study provides useful information about the knowledge, attitude, and practice among the medical practitioners whose contribution is vital in controlling the spread in a heavily populated country like India.

CONCLUSION

Our study suggests that only half of the doctors had sufficient knowledge about COVID 19 which urges the need for implementation of strategies to improve their knowledge. Specific areas like treatment, outcome, and certain symptoms like Conjunctivitis, rash, and loss of movement need special emphasis. We suggest the need for standard treatment protocols and continuing medical education to address the areas of lacuna in knowledge. Further knowledge assessment and special educational campaigns for those with poor knowledge are warranted. Less than 50 % were only confident in managing a COVID positive patient. We recommend that the healthcare systems must ensure the availability of personal protective equipment to improve the confidence in healthcare professionals, as poor confidence could adversely affect the management of both COVID and non-COVID cases during the Pandemic. Vaccine acceptance was around 80% which needs further studies to identify the reasons for hesitancy and hence plan strategies to overcome the same. Positive reinforcement towards preventive practices is necessary to curtail the transmission of the disease. Practice without sufficient knowledge could be a marker of fear which needs to be evaluated to address

the psychological stress among the community. We suggest further studies on a larger scale involving all cadres of healthcare workers to assess their knowledge attitude and practice towards COVID 19 to plan national-level strategies.

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