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## Knowledge towards COVID-19 among Medical and Non-Medical Graduates and Postgraduates of Telangana State-A Questionnaire Study

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**Abstract-** Coronavirus disease (COVID-19) is a public health emergency of international concern. Due to its alarming spread across the globe, many countries have imposed drastic lockdown. To mitigate the overburdening of the country's health system, public knowledge regarding the effective control measures towards COVID-19 and their ability to delineate right information from the prevailing myths/misinformation plays pivotal role. Hence the present cross-sectional study is undertaken to assess the knowledge of non-medical and medical, graduates and postgraduates of Telangana state. 17 questions evaluating demographic variables, knowledge and awareness towards COVID-19 were included in the questionnaire and circulated through the electronic mode. Data was collected from 504 participants and their Knowledge score was assessed and statistically analysed. The knowledge of Postgraduates is higher than the graduates and the knowledge of participants belonging to Medical field is higher than Non-Medical graduates with P value of  $<0.001$  which is statistically significant.

**Keywords:** COVID-19, graduates, knowledge, medical, non-medical, postgraduates, telangana state.

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# Knowledge towards COVID-19 among Medical and Non-Medical Graduates and Postgraduates of Telangana State-A Questionnaire Study

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**Abstract-** Coronavirus disease (COVID-19) is a public health emergency of international concern. Due to its alarming spread across the globe, many countries have imposed drastic lockdown. To mitigate the overburdening of the country's health system, public knowledge regarding the effective control measures towards COVID-19 and their ability to delineate right information from the prevailing myths/misinformation plays pivotal role. Hence the present cross-sectional study is undertaken to assess the knowledge of non-medical and medical, graduates and postgraduates of Telangana state. 17 questions evaluating demographic variables, knowledge and awareness towards COVID-19 were included in the questionnaire and circulated through the electronic mode. Data was collected from 504 participants and their Knowledge score was assessed and statistically analysed. The knowledge of Postgraduates is higher than the graduates and the knowledge of participants belonging to Medical field is higher than Non-Medical graduates with P value of <0.001 which is statistically significant.

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## I. INTRODUCTION

Coronaviruses are a large family of enveloped RNA viruses that mostly infect birds and mammals, with humans being particularly vulnerable to infection and transmission of the virus.<sup>1</sup> The previous outbreaks of coronaviruses such as Severe Acute Respiratory Syndrome-Coronavirus (SARS-CoV) and Middle East Respiratory Syndrome-Coronavirus (MERS-CoV) show similarities to the novel coronavirus.<sup>2</sup> Coronavirus disease 2019 (COVID-19) outbreak, caused by the new coronavirus strain SARSCoV-2, has become a serious public health concern worldwide.<sup>3</sup> The outbreak was first revealed in Wuhan city, in the Hubei Province of China, in late December 2019.<sup>4</sup> The severity of COVID-19 had been underestimated until the national health commission classified it as a B type infectious disease and took actions to fight against this disease on 20 January 2020.<sup>5</sup> Additionally, the World Health Organization (WHO) declared the COVID-19 outbreak a public health emergency of international concern on 30

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January 2020.<sup>6</sup> The outbreak soon spread to the whole country, reached beyond the border, and eventually, the World Health Organization (WHO) declared the outbreak a pandemic on March 11, 2020.<sup>8,9</sup> Lockdown measures were perceived as necessary to control the spread of the virus as rapid human-to-human transmission occurred and much about the virus remained unknown.<sup>10</sup> Due to the obscurity of this novel virus, there has been a lot of confusion and misunderstanding about the virus, how it can spread and the necessary precautions that should be taken to prevent infection. This becomes increasingly challenging with the vast amount of misinformation and disinformation shared on social media that is clouding people's understanding of COVID-19.<sup>11,12</sup> To halt the spread of covid-19, public adherence towards infection control measures is much expected and their knowledge and practices towards this infection is the key to mitigate the outbreak, hence the present study is undertaken to assess the knowledge of non-medical and medical graduates and postgraduates of Telangana state.

## II. MATERIALS AND METHODS

The survey was prepared in the form of an online questionnaire (google form) and was circulated among medical and non-medical graduates and postgraduates of Telangana state. The self-administered questionnaire consists of 17 questions based on knowledge and awareness related to COVID-19 disease which were adapted from Coronavirus disease (COVID-19) advice for the public: Myth busters (By WHO). The main instrument to collect data was an online questionnaire using Google forms and it is available at: <https://forms.gle/KZwNYLoRChbwzT2c7>. A standardized general description about the survey was given in the WhatsApp message before the link was provided to both English and Telugu versions of the questionnaire. so as to ensure linguistic and conceptual equivalence.

Convenient sampling method was used for data collection, and the distribution of responses was presented as frequencies and percentages. Sub-groups were classified on the basis of gender, age (<25, 25-35, 36-45, and >45 years), educational qualification (Medical/Non-Medical-Graduate/Postgraduate). Data was tabulated in excel, we analyzed the data from about

504 participants using SPSS (Statistical Package for Social Sciences) 25.0. Descriptive statistics and Student's t test were performed. Confidence interval was set at 95%. P value < 0.05 was considered statistically significant. Knowledge score was computed for questions 1 to 16. Knowledge score was computed, Correct answer was coded as 3, Don't know as 2 and Wrong answer as 1. A participant can score a minimum of 16 points and maximum of 48 points based on his/her responses. Finally in the 17<sup>th</sup> question, the source of the individuals' information about COVID-19 was recorded.

### III. RESULTS

A total of 504 individuals from the state of Telangana, India, responded to the survey. The majority

of the responders were from the age group of 25-35 years, which is about 54.6%, followed by <25 years which is about 27.2%. Among all the responders, 58.1% were females, 41.9% were males and 51% were from medical field and 49% were from non-medical field and 57.5% were graduates and 42.5% were postgraduates.

#### a) The comparison of knowledge scores between Males and Females

The mean knowledge score among females ( $37.58 \pm 5.52$ ), which is slightly higher than the mean knowledge score of males ( $37.17 \pm 5.99$ ), with the p value of 0.42, which is not statistically significant (Figure 1), (Table1).

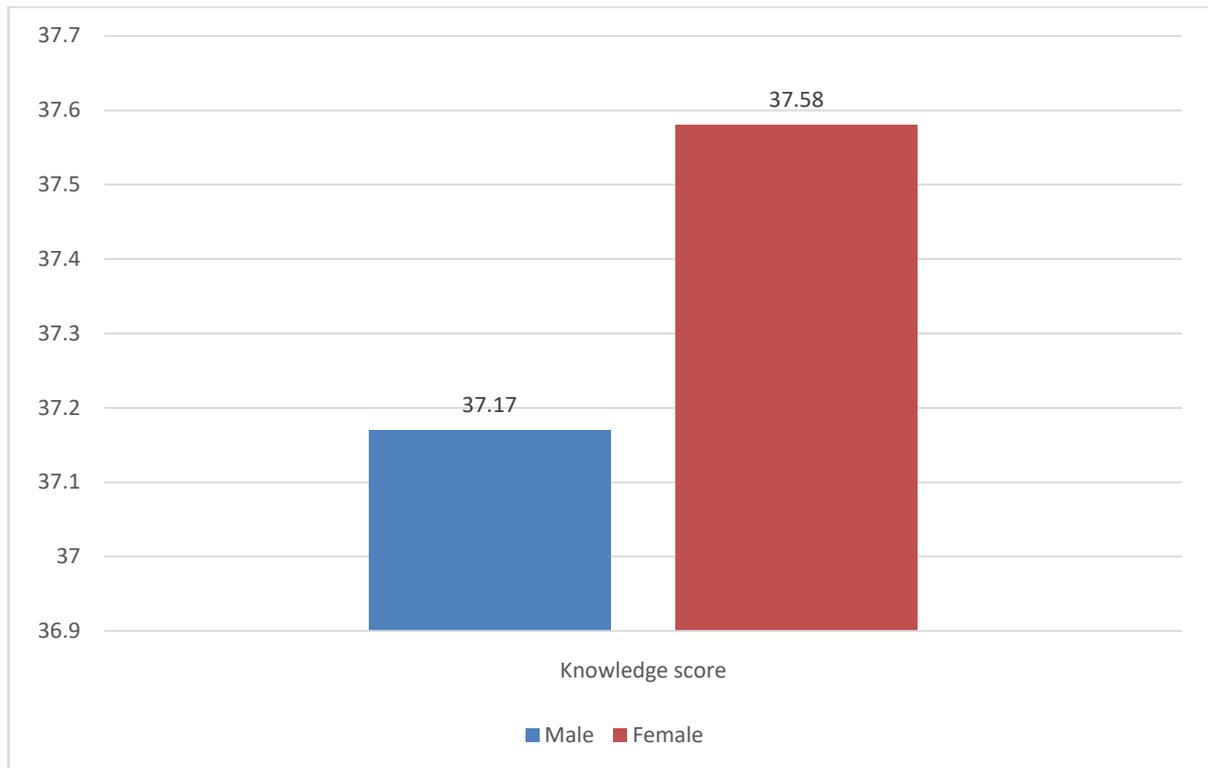


Fig. 1: Graph shows the comparison of knowledge scores between Males and Females

Table 1: Shows the comparison of knowledge scores between Males and Females

Variable	Male		Female		t	P value
	Mean	SD	Mean	SD		
Knowledge score	37.17	5.99	37.58	5.52	-0.808	0.42

#### b) Comparison of knowledge score of participants of Medical and Non-Medical field regarding COVID-19

The mean knowledge score among participants of medical field ( $38.87 \pm 5.50$ ), which is higher than the mean knowledge score among participants of non-medical field ( $35.89 \pm 5.57$ ) with the p value < 0.001, which is statistically significant (Figure 2), (Table2)

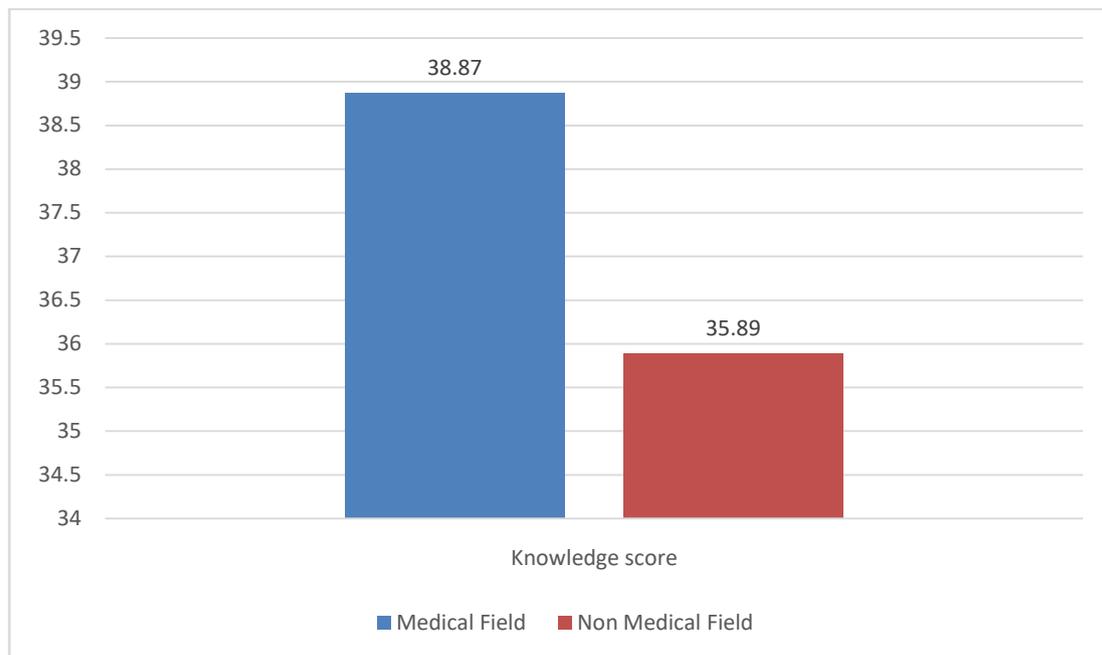


Fig.2: Graph shows the comparison of knowledge scores between participants of Medical and Non-Medical fields

Table 2: Shows the comparison of knowledge scores between participants of Medical and Non-Medical fields

Variable	Medical Field		Non-Medical Field		t	P value
	Mean	SD	Mean	SD		
Knowledge score	38.87	5.50	35.89	5.57	6.04	<0.001*

c) Comparison of knowledge score of graduates and postgraduates of Medical field regarding COVID-19

The mean knowledge score among postgraduates of medical field ( $39.65 \pm 5.79$ ), which is

slightly higher than the mean knowledge score among graduates of medical field ( $38.29 \pm 5.22$ ) with the p value of 0.05, which is not statistically significant (Figure 3), (Table3).

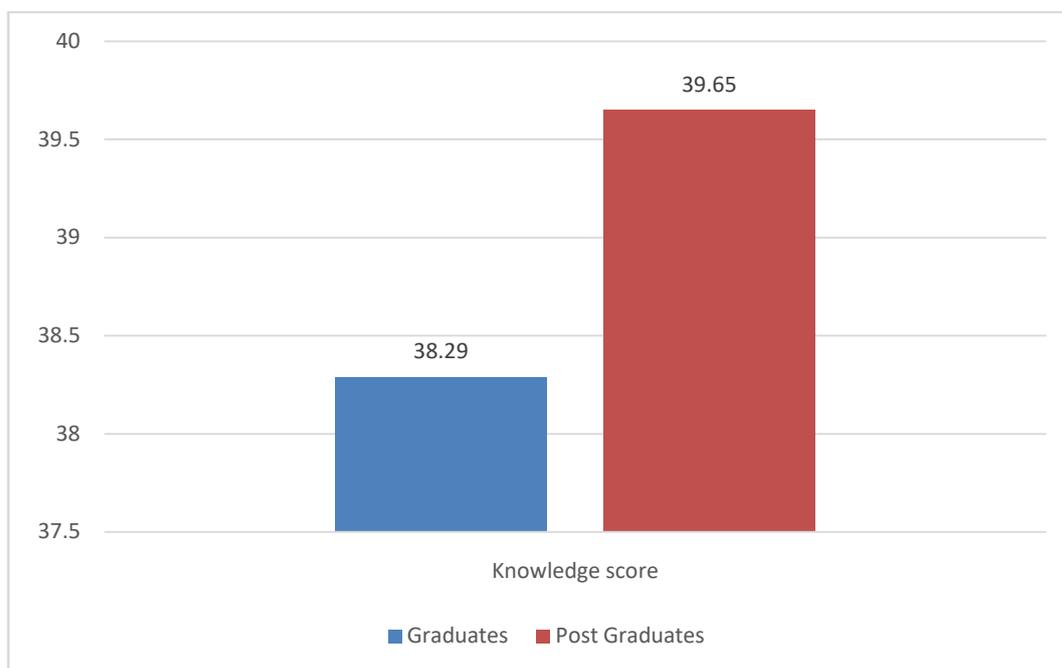


Fig.3: Graph shows the comparison of knowledge scores between Graduates and Postgraduates of Medical field

Table 3: Shows the comparison of knowledge scores between Graduates and Postgraduates of Medical field

Variable	Graduates			Postgraduates			t	P value
	N	Mean	SD	N	Mean	SD		
Knowledge score	148	38.29	5.22	109	39.65	5.79	-1.97	0.05

d) Comparison of knowledge score of graduates and postgraduates of Non-Medical field regarding COVID-19

The mean knowledge score among postgraduates of non-medical field ( $36.21 \pm 5.75$ ), which

is slightly higher than the mean knowledge score among graduates of non-medical field ( $35.65 \pm 5.43$ ) with the p value of 0.44, which is not statistically significant (Figure 4), (Table 4).

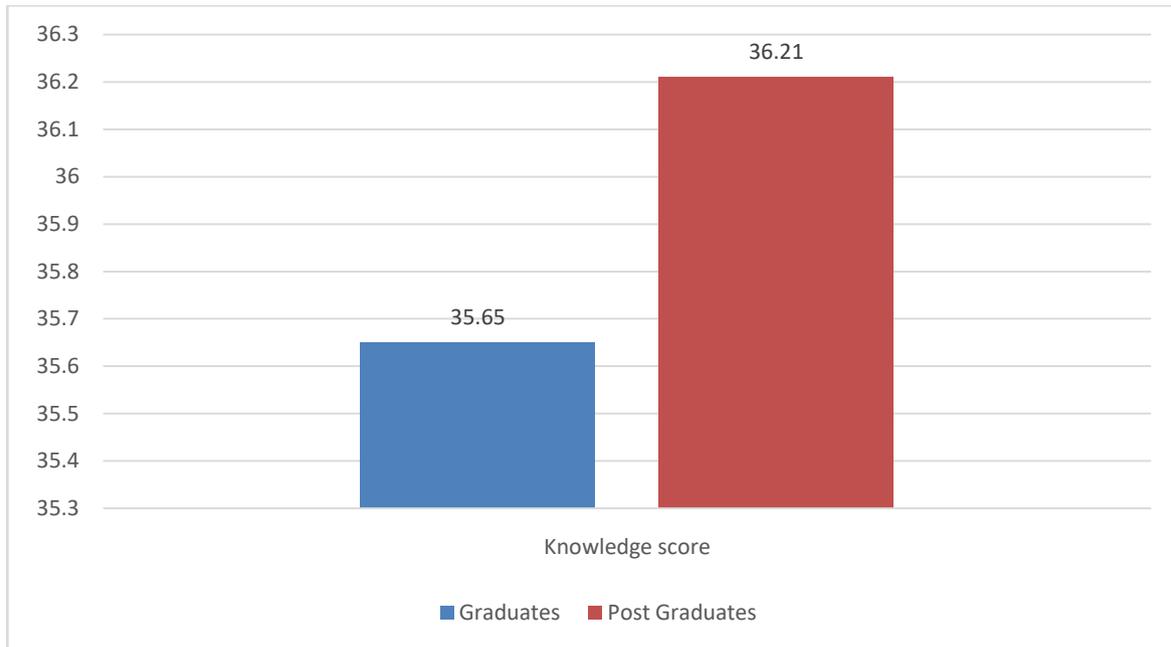


Fig. 4: Graph shows the comparison of knowledge scores between Graduates and Postgraduates of Non-Medical field

Table 4: Shows the comparison of knowledge scores between Graduates and Postgraduates of Non-Medical field

Variable	Graduates			Postgraduates			t	P value
	N	Mean	SD	N	Mean	SD		
Knowledge Score	142	35.65	5.43308	105	36.21	5.75409	-0.773	0.44

#### IV. DISCUSSION

Although health authorities have been consistently disseminating correct information regarding COVID-19 since the inception of the disease, there has also been an upsurge in false and inaccurate information. The overload of information/opinions without scientific basis may have caused confusion and difficulty ascertaining correct information. The novelty COVID-19, along with its uncertainties, make it critical for health authorities to plan appropriate strategies to prepare and manage the public.<sup>12</sup> WHO reports that the best measure to prevent and slow down the transmission of COVID-19 is to precisely and widely inform the public about the disease, the causes, mode of transmission, and simple prevention methods.<sup>13</sup> The primary step to fight any disease which is pandemic in

nature is to evaluate and improve the knowledge and preventive practices about the disease among the public.

The present study evaluated the knowledge score of graduates and postgraduates of Telangana state, the participants expressed poor knowledge (38.3%) regarding the fact that being able to hold breath for 10 seconds or more without coughing or feeling discomfort does not mean that we are free from the coronavirus disease (COVID-19) or any other lung disease. This finding is in accordance with the study conducted by G. Narayana et al.<sup>14</sup> in which only 37.9% of the participants expressed that breath holding test is not a right test to diagnose COVID-19. In the present study 58.9% of respondents agreed the fact that COVID-19 virus cannot be transmitted in areas with hot and humid climates, this fact was accepted by 57.8% of the

participants in the study conducted by G. Narayana et al.<sup>14</sup> 60.9% of the participants of the present study rightly perceived the fact that Cold weather and snow cannot kill the new coronavirus. 66.5% of the participants of the present study rightly answered that Taking a hot bath will not kill the new coronavirus inside the cells. This finding of the study is in line with the findings of the study conducted by G. Narayana et al.<sup>14</sup> in which 64.9% of the participants acknowledged that hot bath cannot protect the person from COVID-19. 48% of the participants of the present study agreed the fact that Inhalation of steam cannot kill new coronavirus inside the cells and 52% of the participants of the present study rightly perceived that regularly rinsing the nose with saline will not help prevent infection with the new coronavirus. 77.4% of the participants of the present study agreed the fact that COVID-19 virus infection could not only affect older age group and patients with co-morbidities but affects any age group. 65.7% of the participants of the present study rightly perceived that hand dryers are not effective in killing the new coronavirus. This finding is in accordance with the finding of the study conducted by G. Narayana et al.<sup>14</sup> who reported that 65.5% of the study participants accepted that hand dryers are not effective in killing virus. Only 38.3% of the participants of the present study agreed the fact that ultraviolet disinfection lamp cannot kill the new coronavirus. 60.1% of the participants of the present study rightly reported that Thermal scanners are ineffective in detecting people infected with the new coronavirus. 78.6% of the participants of the present study rightly accepted that fact that People without any symptoms of COVID-19 can also shed the virus and infect the people nearby. Only 34.1% of the participants of the present study rightly acknowledged that Individuals with symptoms of COVID-19 virus infection, with history of travel from effected regions are not considered as positive cases. 54.6% of the participants of the present study rightly agreed that antibiotics are ineffective in preventing and treating the new coronavirus. This finding is in accordance with the finding of the study conducted by Narayana et al.<sup>14</sup> in which 60.9% agreed that antibiotics are not effective against COVID-19. 73.4% of the participants of present study agreed that there are no specific medicines to prevent or treat the new coronavirus. This finding of the study is in agreement with the study conducted by Narayana et al.<sup>14</sup> in which 75.4% rightly perceived that there is no medication available to treat COVID-19. 68.1% of the participants of the study accepted that we cannot self-treat for COVID-19 by taking Chloroquine or Hydroxychloroquine. 61.3% of the participants of the present study rightly agreed the fact that vaccines against pneumonia cannot protect against the new coronavirus. All the above discussed facts are cited from-Coronavirus disease (COVID-19) advice for the public: Mythbusters.<sup>15</sup>

In the present study the knowledge score of postgraduates is slightly higher than the knowledge score of graduates which is in accordance with the study conducted by G. Narayana et al.<sup>14</sup> in which they found a positive correlation between higher education level and high knowledge scores. The knowledge score of participants of Medical field is higher than the knowledge score of participants of Non-Medical field which is in accordance with the study conducted by G. Narayana et al.<sup>14</sup> in which they concluded that Respondents belong to the health care profession have high knowledge and perception scores than non-healthcare profession and also in accordance with the study conducted by Defar A et al.<sup>16</sup> who observed that Being a health professional was associated with better knowledge about COVID-19.

In the present study the knowledge score of females is slightly higher than the knowledge score of males towards COVID-19. These findings are also in agreement with the study conducted by Erfani A et al.<sup>17</sup> on Knowledge, attitude and practice towards the novel coronavirus (COVID-19) outbreak-a population-based survey in Iran and concluded that a significant correlation exists between female gender, higher age, and higher education with knowledge, attitude, and practice towards COVID-19. In the present study the knowledge score of both medical and non-medical postgraduates is slightly higher than the knowledge score of graduates respectively. This finding of the present study is in agreement with the study conducted by Zhong B-L et al.<sup>18</sup> in Chinese residents and concluded that there is a significant positive association between education levels and COVID-19 knowledge scores.

## V. CONCLUSION

The result of the present study displayed a significant correlation between female gender, higher education and pursuing medical profession with higher knowledge levels towards COVID-19 and also revealed that there still exists a larger percentage of population who strongly believe in myths/misinformation that are prevailing in the social media which indeed is misleading/misguiding people regarding control measures, practices and treatment of COVID-19. Information from social media serves as a double edged sword as it serves to disseminate facts as well as myths. The findings of the study are useful for public health policy-makers and health workers to identify target populations for COVID-19 prevention, control and health education.

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