Level of Awareness among Staff and Students of Academic Institutions towards COVID-19 in India

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Authors' contributions

This work was carried out in collaboration between both authors. Author SK designed the study, performed the statistical analysis, wrote the protocol and wrote the first draft of the manuscript. Author VA managed the analyses of the study and managed the literature searches. Both authors read and approved the final manuscript.

Original Research Article

ABSTRACT

Aim: The conducted survey aims to assess the level of COVID-19 awareness among staff and students of medical and non-medical academic institutions in India.
Methods: The survey was conducted online by consenting students and staff from 02 April-2020 to 16 July 2020, participants completed and submitted COVID-19 questionnaire. A total of 300 participants responded by taking the self-administered questionnaire.
Results: Of 300 participants, almost 83.45% had good knowledge that the disease is contagious; 99% observe acceptable practices regarding COVID-19 and (83%) majority seek knowledge from social media. Learning about symptoms of COVID-19 and its spread was marginally higher (p<0.05) among medical participants as compared to non-medical participants. Awareness about

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the preventive measures was insignificant ($p < 0.063$) between medical and non-medical respondents. The responses collected for treatment options were also negligible though 83% believe that there is a treatment vaccine and medicine available. Mention single percentage from all participants or mention separate for medical and non medical institutions.

Conclusion: The study concluded that academic institutions had good knowledge and awareness towards COVID-19 symptoms and its prevention though there are gaps in specific aspects of knowledge, prevention practices and treatments that should be addressed in future awareness and educational campaigns. The study recommends the ministry of health and family welfare to promote all precautionary and preventive measures of COVID-19 consisting of a well-organized approach to include students, institutions and society: including under privileged, geriatric and people with limited information, in order to effectively implement these precautionary and awareness measures.

1. INTRODUCTION

The recently reported virus infection in Wuhan city of China is caused by a member of Coronaviridae family named as Coronaviruses (CoV-2). The disease was diagnosed first time in human and become pandemic since December 2019. The virus causes Severe Acute Respiratory Syndrome (SARS) which are much resembles with SARS-CoV-1 and Middle East Respiratory syndrome corona virus (MERS-CoV) Syndromes. The disease is characterized by cold, mild fever, headache, and some other respiratory complication, including death in severe condition. The virus is transmitted to human from their host animal like Bat, Camels, Cats, and Civet [1-2]. Moreover, the virus has described much closely related to SARS-CoV-1, the major causative pathogen responsible for a large number of deaths in the Middle East in 2002. Many deaths of human including male, female and children have also been reported with COVID-19 disease [3]. In India, 2701604 cases and 53023 deaths, Pakistan 289215 cases and 6175 deaths and Bangladesh 282344 cases and 3694 deaths have been recorded till 17 August, 2020. Many previously conducted studies suggested the significant role of FDA approved antimicrobials and chemotherapeutics repurposed drugs have been evaluated for their ability to treats the disease. However, these are still experimental, including therapeutic approach, developed until now to manage the disease [4].

It has been reported that, the virus disease is transmitted human to human and continuously speeded throughout the world. Therefore, the primary preventive measures like physical distancing, hygiene and diagnosis are the effective ways to minimizing the spread of disease. The antigen-antibody immunological test, lungs imaging and RT-PCR based molecular analysis are preferred methods of the disease diagnosis. Additionally, Screening of highly prone areas, quarantine of infected person, and adequate treatment, for the high risk, have significant benefits to maintain public health in a better and effective way [5-6]. Moreover, transmission awareness educational programs, social distancing, regular sanitization of exposed surfaces, and proper utilization of the available health care facilities potentially contribute to the control of the disease. Thus, this survey aims to evaluate the level of awareness among academic institutions staff and students toward COVID-19, in India.

2. MATERIALS AND METHODS

This cross-sectional, self-administered survey was circulated online through email and social media among 800 potential staff and students at academic institutions including health sciences, community colleges, technical and engineering colleges in India. A digital questionnaire (https://tinyurl.com/y6xu5r48) was designed on Google forms and it was validated in two stages. In the stage one, the study questionnaire was discussed with medical and health sciences researchers and professionals to collect their expert feedback about its ease of understanding, relativity and relevance. Stage two, a pilot study was conducted by selecting a small sample (n = 30) to make a simple and more comprehensive questionnaire. The questionnaire was modified on the basis of the feedback from the participants and its consistency with the available literature about COVID-19 from WHO and MOHFW, India. After a detailed discussion, the authors finalized the questionnaire and then distributed it to the participants for their response. A sample size of

300 was estimated using Raosoft software (Raosoft.Inc., USA, 2011) based on 0.82 Cronbach's alpha coefficient with a 5% margin of error.

Anonymous responses were recorded after the consent of participants from 02 April-2020 to 16 July 2020 to assess the level of awareness about COVID-19 using a self-administered questionnaire. The average number of participants to be enrolled from medical and non-medical institutes were planned to be equally distributed.

2.1 Statistical Analysis

The distribution of responses was presented as frequencies and percentages. Sub-group analysis of responses was based on medical-related courses and non-medical courses. The received responses were tabulated in Excel (Microsoft Excel 2010, USA) chi-square test was calculated using graphpad (website https://www.graphpad.com/quickcalcs/chisquared1/?Format= (accessed on 10 June 2020). $p < 0.05$ was considered statistically significant.

3. RESULTS AND DISCUSSION

3.1 Demographic Distribution of Respondents

A total of 300 people participated in the study. Demographic distribution of participants were classified based on educational, age, profession, qualification and monthly income groups and responses were observed accordingly as represented in Fig. 1.

3.2 Age Range

Percentage distribution of various participants age are grouped which was observed to be 10.79 % for 36-45 years; 56.83 % for 18-25 years; 30.94 % for 26-35 years; 0.72 % for 46-55 years, and from 56 years and above the aged group was 0.72 % (Fig. 1A).

3.3 Qualification

Among participants majority of respondents were highly qualified. The percent qualification of participants analyzed was 35.04% Ph.D; 18.89% Masters; 20.44% Bachelors; 20.44% High school, and 5.11% Diploma.

3.4 Professional Role

Professionally, 58.65% faculties and 44.35% students have observed to be participated in completion of this survey on COVID-19 disease.

3.5 Socioeconomic Profile

The socioeconomic profile of the participant completing the designed survey was analyzed according to monthly income in INR as they responded, The percent responses for different income group were 37.41%; for no income source, 22% for <8000, 2.88%; income more than 65000; 11.51% has responded to income group 15000-24000 while 5.04% responded to income group 25000-34000; 5.76% responded to 35000-44000; 2.88% responded to 45000-54000; 1.44% responded to 55000-64000, and 10.79% 8000-14000 (Fig. 1B).
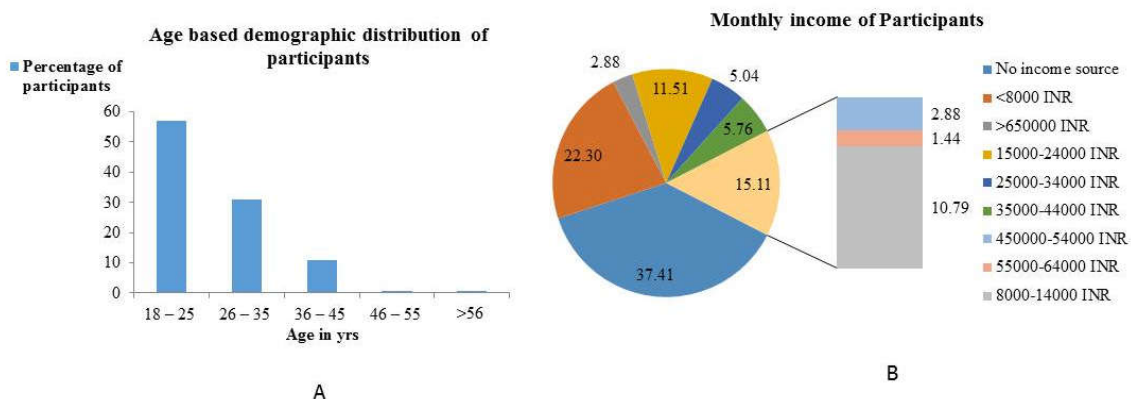

Fig. 1. A: Demographic distribution of respondents based on age; B: Demographic distribution of respondents based on monthly salaries

This study was conducted to check the level of awareness among the medical and non-medical professionals of Indian educational institutes including students and staff of colleges. The analyzed results of this survey found that social media are the major source to COVID-19 awareness among the participants and compare the different sources graphically.

Overall social media and television was followed by 61.82; 66.67 of the surveyed population.

Medical professional marginally followed WHO web resources for seeking information. 20% medical and 14.26% non-medical professionals got information from University/College.

There was an insignificant difference for seeking the information between the two streams.

When the asked about the main reason for COVID-19 spread, 28.57% medical responses and 27.92% non-medical participants agreed that lack of public awareness is the preliminary cause of COVID-19 spread. The responses observed from medical and non-medicals professionals for the main reason for COVID-19 spread were insignificant (*P value*;0.27) (Fig. 2B).

Both non-medical and medical groups have responded significantly and they considered

that disease is highly contagious. The total responses received were 83.45%while responses received from medical participants for highly contagious nature of disease were (86.79%) and 81.40% responded by non-medical for the same. The observed responses for the contagious nature of disease were found to be insignificant as observed *P value* was 0.28 (Fig. 2C).

Majority of medical responses (31.19%) agreed that antiviral drugs are the best treatment of the disease while non-medical professional considered rest and sleep (21.69%) as an effective treatment. The responses analyzed are represented in Fig. 2D. The observed *P value* for the available treatment options was 0.06 which was significant.

Different age groups can affect the severity or frequency of COVID infection. The responses of this survey stated that that elderly with other illnesses (immunodeficiency, renal failure, Chronic lung disease) are at maximum risk of the infection with recorded responses of 67.56% medical and 57.81% non-medical. The other risk groups considered by medical colleges were, Young (30-60 years) (12.16%) while for non-medical group it was recorded as; 20.31%). (Fig. 3A).The analyzed *P value* was found to be insignificant 0.365 (Fig. 3A).
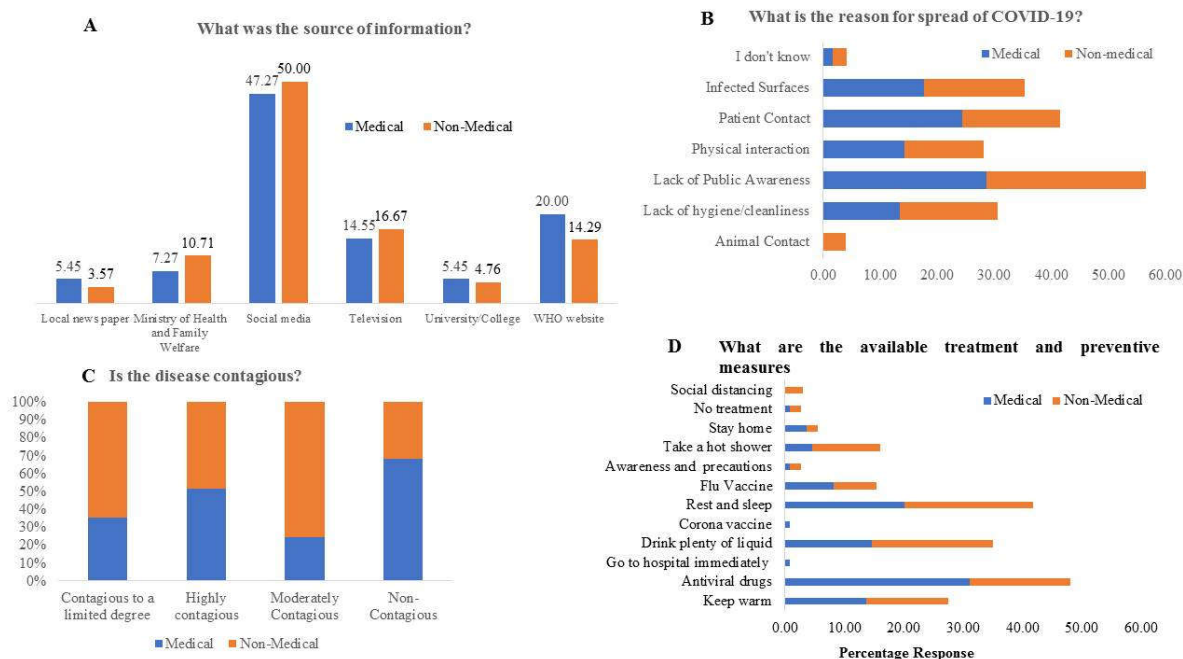

Fig. 2. The responses from medical and non medical professionals A; What was source of information, B: What is the reason for COVID-19 spread, C; Is the disease contagious, D; What are the available treatment and preventive measures

Maintaining hand hygiene is one of the key steps to prevent the spreading of infection. The 28.24% responses were received from both medical as well as non-medical groups for hand hygiene, washing hands regularly for 20 seconds, with soap and water or alcohol-based hand rub. The medical group responded for other were, stay home and self-isolate from others in the household if you feel unwell (25.88%); cover your nose and mouth with a disposable tissue or flexed elbow when you cough or sneeze 23.53, and avoid close contact (1 meter or 3 feet) with people who are unwell (22.35%) . The responses for others factors analyzed from non-medical group were followed to be similar as medical groups. The analyzed responses were found to be insignificant as *P value* was 0.854.The analyzed responses are shown in Fig. 3B.

The medical participants considered symptoms fever, cough, shortness of breath were 92% responses while it was 76.75% in non-medical. From the analyzed results, it was found that non-medical participants considered it as the primary

symptoms of the COVID-19 disease. Overall the considerations were statistically significant (P-value; 0.0400) (Fig. 4A).

To a large extent, 1-14 days incubation period of COVID-19 in humans was rightly considered by medical participants (81.13%) and non-medical participants (84.88%). Overall the considerations were statistically insignificant (P-value; 0.75). The analyzed results for incubation are shown in Fig. 4B.

The responses from medical participants about the places where the infection clustered most included Social setting (67.92%)> Healthcare setting (22.64%)> Commercial setting (9.43%). Similarly, non-medical participants when asked about the same question, the order of most responses were Social setting (81.40%) > Healthcare setting (13.95%) > Commercial setting (4.65%). Overall the considerations were statistically insignificant (P-value; 0.18). The analyzed results for both the responses are shown in Figs. 4C and 4D.
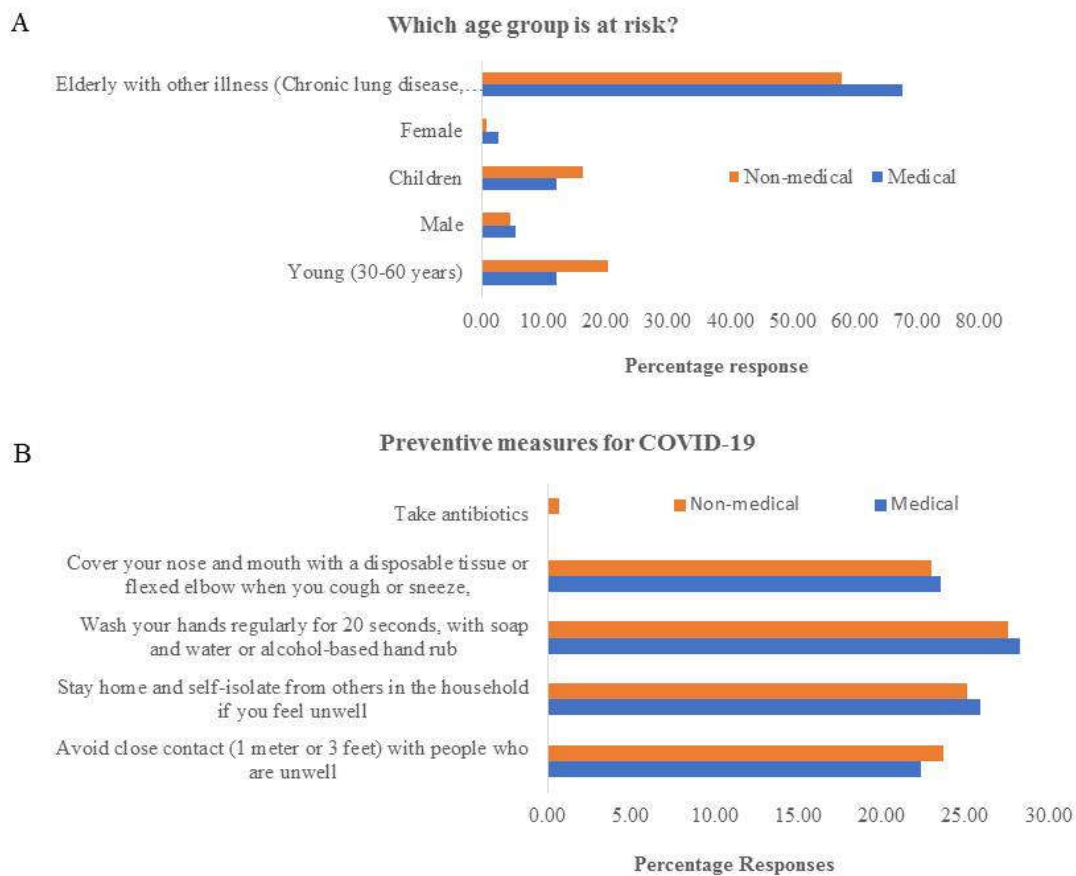

Fig. 3. Responses analyzed for, A: What age group is at risk; B: Preventive measure for COVID-19

73.58% of medical responses did not consider that it is safe to consume raw or insufficiently cooked animal products, including dairy products; in contrast, 26.41%% thought it is secure. 77.90 % of respondents did not agree to consume raw or insufficiently cooked animal products, including dairy products, while 22.09 % non-medical responded that it is safe to consume. (Fig. 5A) The calculated P-value for the responses was 0.560.

82% of the participants considered it's not safe to visit the workplace, markets, or entertainment venues, while 9.35% responded as it is safe to visit these places (Fig. 5B). Overall the considerations were statistically significant (*P-value*; 0.0003).

90.57% of medical professionals thought that a vaccine is not available for COVID-19.. Comparatively, 84.88% of the total responses from non-medical participants have said that vaccine is not available (Fig. 5C). Overall the considerations were statistically insignificant (P value; 0.332).

77.36% responses from the medical participants suggested that there is non-availability of medicine for COVID-19, likewise 80.23% of non - medical responses agreed about it Fig. 5D).

Overall the considerations were statistically insignificant (*P value*; 0.685).

4. DISCUSSION

Since the outbreak of pandemic COVID-19, World Health Organization and Centre for Disease Control have issued guidelines for containing the spread of the disease. This disease is spread by contact with an infected person and respiratory droplets. The research and development of vaccines and drugs has been accelerated worldwide to combat this disease. The scientifically published information and literature are openly available to facilitate the drug development strategy. Moreover, awareness tools and preventive/ treatment strategies include many resources including online, and offline trainings are developed and distributed to tackle the disease by government agencies like WHO, Ministry of Health and family welfare at regular intervals [7,8].

Online resources of information are widely used by population to access the information. In the present survey the participants are heavily dependent on Social media and television (83.82%) irrespective of whether they are from medical or non-medical institution. These findings are in agreement with a study from
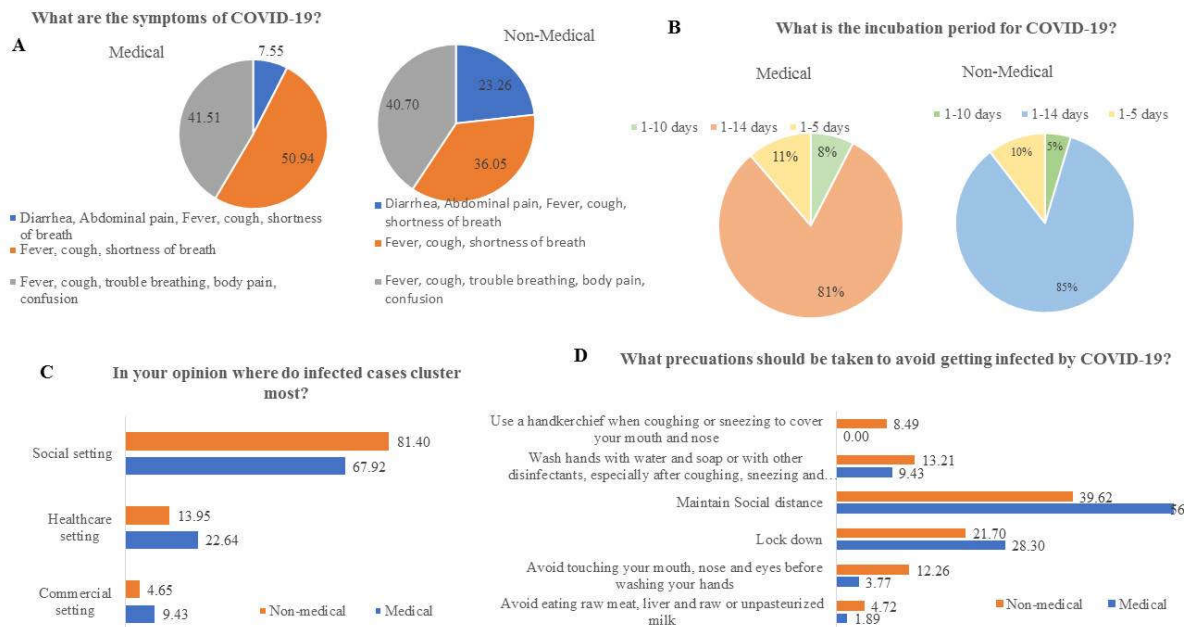

Fig. 4. Analyzed responses from medical and non medical participants for COVID-19, A: What are the symptoms; B: What is the incubation period; C: In your opinion where do infected cases cluster most; D: What precautions should be taken to avoid getting infection
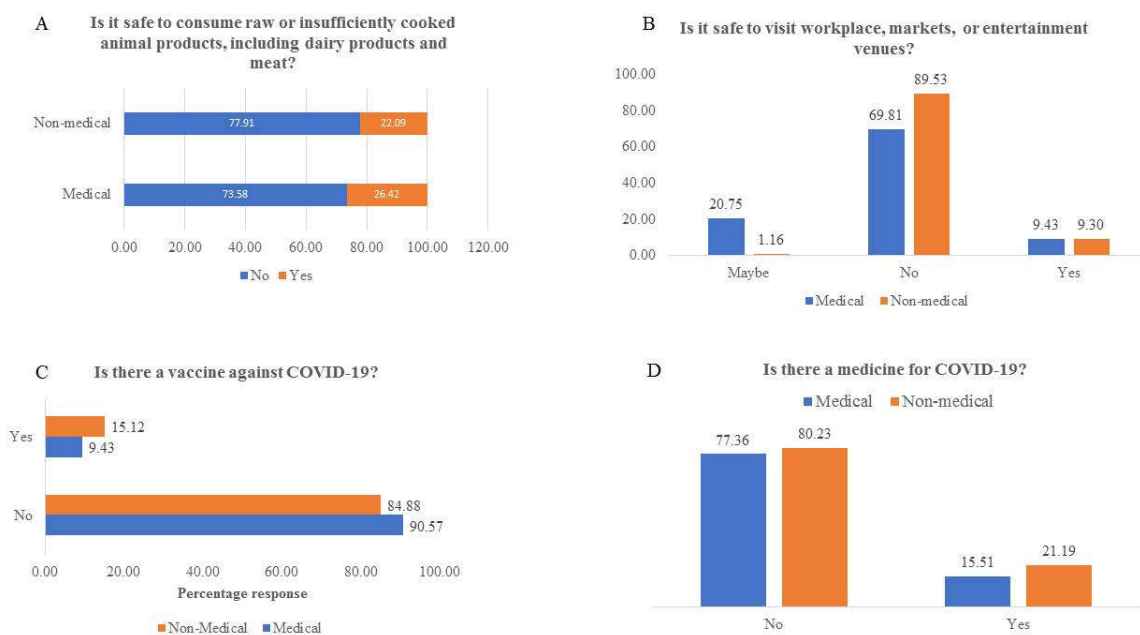
Fig. 5. Analyzed responses from medical and non-medical professionals for COVID-19, A: Is safe to consume raw or insufficiency cooked animal products, including dairy products and meat; B: Is safe to visit work place, market or entertainment venues

Pakistan where 66.62% of general population relied on Social media as the main source to obtain information on COVID-19. These findings have the effect that while social media can be an easily accessible source, there is a risk of misinformation. COVID-19, there is also an epidemic of misinformation on the Internet leading to negative public response [9].

This study stated that 81.8% of participants can recognize the symptoms Overall the considerations were statistically significant (*P-value*; 0.04), and show a significant level of awareness for the disease cause, spreading, symptoms, diagnosis, preventive measures, and available treatments among the medical and non-medical respondents from India.

Majority of medical responses (31.19%) agreed that antiviral drugs are the best treatment of the disease while rest and sleep (21.69%) was the major response responded by non-medical professional. The observed *P-value* was found to be 0.06 which was significant. Mainly, misleading information regarding the potential benefits of certain drugs (e.g.hydroxychloroquine, antivirals, azithromycin) and vaccines promoted irrational use of these drug by populations, which lead to a

shortage of these medicines and unavailability to patients in need [10].

Only 43.46% of medical participants considered it is not safe to visit the workplace, markets, or entertainment venues. 4.9% responded as it is safe to visit these places. Overall the considerations were statistically significant (*P-value*; 0.0003).

Empowering knowledge and awareness are critical factors among the population of the country to the control of the disease. The level and nature of education have increased knowledge and awareness of the disease. The present study observed that the responses from the medical and allied institutions were better than non-medical. Recently published studied from India suggest that level of education, age, and income are correlated with the outbreak of disease among the population and concluded that medical group and high income could help to manage the COVID-19 pandemic transmission by communicating and managing information correctly to non-medical professionals [11].

The 74.78% responses from the Medical and the 62.71% responses from the non-medical

participants suggested that the elderly with co-morbidities were most at risk of the disease. It was also previously described that senior citizens are incredibly vulnerable than the different age groups, and chances of the disease have reported increasing with age up to 14% [12]. Moreover, patients with comorbidities like immune-compromised, cardiac, and diabetic are prone to high mortality with this disease [11,13].

There was significant awareness about hand washing up to 20 seconds, with soap and water or alcohol-based hand rub helps protections against COVID-19. These findings are further in confirmation with Goswami 2020 [14].

Participants from medical and allied institutions were relatively more aware of the primary symptoms, incubation period of the disease, clusters where the chances of infection are most as compared to the non-Medical participants. The medical and non-medical respondents have found to be a significant level of awareness about the incubation period of the disease.

Although medical and allied institutions were marginally better informed about the available treatments and vaccine as compared to the non-medical respondents. These findings are in line with the results of Zhong et al., that the majority (>90%) of participants were following precautionary measures. Although there is speculation of a higher rate of compliance to good practices by population despite only 50% population had good knowledge about the campaigns launched by Government describing causes, symptoms, and route but these awareness campaigns primarily focused on highlighting precautionary measures such as wearing a facemask, social distancing, and hand hygiene practices[15-16].

5. CONCLUSION

Staff and students of academic institutions showed adequate 86% awareness and prevention of COVID-19. A higher percentage of awareness were from Medical and allied staff & students as compared to non-medical medical colleges. However, study still represents poor awareness among both medical and non-medical respondent related to typical symptoms, and precautions to be taken to avoid getting infected of COVID 19.

Our research is also able to identify gaps in specific areas of knowledge and practice that need to be addressed in developing future awareness and educational campaigns.

This study shows that Social media is most common platform for seeking information among all These findings also show that a limited reliable sources are used by people, misinforming source of information must be discussed and clarified as soon as possible because they ultimately are reflected in attitudes and practices.

In conclusion, there is a need to implement periodic awareness campaigns and training programs on management of COVID-19 across all academic institutions**.**

CONSENT

Online informed consent was taken from all participants before collecting responses in the survey.

ETHICAL APPROVAL

The Biomedical Ethics Research Committee at King Abdulaziz University (IRB No.35-20) approved the study-related documents

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

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