Research Article

COVID-19 Pandemic Knowledge & Perception: A Quiz Based Survey on Students in India

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Abstract

Emergence and spread of COVID-19 pandemic which is caused by novel coronavirus (SARS-CoV-2) is threatening the whole world. The virus originated in bats and was transmitted to humans through unknown intermediate animal host in Wuhan, Hubei province, China in December 2019. Coronavirus disease 2019 (COVID-19) outbreak needed to be put to an end and we can do this by understanding the situation better. It was of prime importance that masses particularly youngsters should have maximum knowledge of this disease in detail to check its rapid spread. Thus, this study aimed to investigate the knowledge and perceptions of students about COVID-19. With this kind of awareness, each respondent updating one's scientific realization about this deadly virus and how to cope with this. For this purpose, an online survey was conducted using a semi-structured questionnaire using a multiple-choice questions method. A total of 1,111 responses were received. total 840 (75.60%) students from different colleges/universities and 271 (24.39%) school students have participated in this survey. The responders had a moderate level of knowledge about the COVID-19 infection and adequate knowledge about its preventive aspects. The attitude towards COVID-19 showed students' willingness to follow government guidelines on quarantine and social distancing. There is a need to intensify the awareness and address the issues of safety of students about this COVID-19 pandemic as this is still spreading at an alarming rate in India.

Introduction

Coronaviruses (CoV) are a large family of viruses that cause illness ranging from the common cold to more severe diseases such as Middle East Respiratory Syndrome (MERS) and Severe Acute Respiratory Syndrome (SARS) World Health Organization. CoVID-2019/About COVID-19 (http://www.emro.who.int/healthtopics/corona-virus/about-covid-19.html/). Coronaviruses are zoonotic in origin, i.e., transmitted from animals to humans (Li *et al*, 2020) Coronaviruses are enveloped, single stranded RNA viruses ranging from 60 nm to 140 nm in diameter with spike like projections on its surface giving it a crown like appearance under the electron microscope; hence the name coronavirus (Richmann *et al*., 2016). The first such instance was in 2002–2003 (SARS) affected 8422 people mostly in China and Hong Kong and caused 916 deaths (mortality rate 11%) before being controlled (Chan-Yeung and Xu, 2003)and in 2012, the MERS-CoV, also of bat origin, emerged in Saudi Arabia with dromedary camels as the

intermediate host and affected 2494 people and caused 858 deaths (fatality rate 34%) (Middle East Respiratory Syndrome Coronavirus (https://www.who.int/emergencies/mers-cov/en/). In December 2019, the current outbreak of novel coronavirus (COVID-19) in Wuhan, capital city of Hubei province has emerged as a global outbreak and was a significant concern to public health issue (Lai *et al*., 2019). Environmental samples from the Huanan sea food mark*et al*so tested positive, suggesting that the virus may have originated from there. (Xinhua.China's CDC detects a large number of new coronaviruses in the South China seafood market in Wuhan (https://www.xinhuanet.com/2020-01/27/c_138735677.htm). The number of cases increased exponentially, some did not have any exposure to the live animal market, pointing towards occurrence man-to-man transmission (Huang *et al*., 2020). Gradually virus spread to most of the countries throughout world. SARS-CoV-2 is transmitted from one person to another through droplets or direct contact and has an incubation period of 2-14 days (World Health Organization Novel coronavirus (COVID-19) situation (https://experience.arcgis.com/experience/685d0ace52164 8f8a5beeeee1b9125cd). The clinical features of COVID-19 are varied, ranging from asymptomatic state to acute respiratory distress syndrome and multi organ dysfunction. The common clinical features include fever (not in all), cough, sore throat, headache, fatigue, headache, myalgia and breathlessness. In a subset of patients, by the end of the first week the disease can progress to pneumonia, respiratory failure and death. This progression is associated with extreme rise in inflammatory cytokines including IL2, IL7, IL10, GCSF, IP10, MCP1, MIP1A, and TNFα (Chen *et al*., 2020).The median time from onset of symptoms to dyspnea was 5 days, hospitalization 7 days and acute respiratory distress syndrome (ARDS) 8 days. The first step which is of prime importance is to ensure adequate isolation to prevent transmission to other contacts. Antiviral drugs such as ribavirin, lopinavir- ritonavir have been used based on the experience with SARS and MERS. Other drugs proposed for therapy are Arbidol (an antiviral drug available in Russia and China), intravenous immunoglobulin, interferons, chloroquine and plasma of patients recovered from COVID-19 (Jin *et al*., 2020; Zhang & Liu, 2020; He Hu Xi Za Zhi *et al*., 2020) Additionally, recommendations about using traditional Chinese herbs find place in the Chinese guidelines (Jin *et al*., 2020)However, as of now, there is no approved treatment for COVID-19.

Now when no treatment is available, transmission is from human to human spreading very rapidly and the prevention is the only option. One needs to know that frequent hand washes, wearing masks, avoiding social gatherings are the only means to prevent the transmission of disease. In such a situation it is of utmost importance that the general public is well aware of this critical situation and become a part of the campaign to check the spread of this pandemic. Thus, it becomes the responsibility of educators to disseminate the scientific knowledge about the disease, the causative virus and its preventive measures amongst their students, because students are the best ambassadors to spread a word in the society, keeping all these in mind this quiz-based study was designed to investigate the level of knowledge and perceptions of students during this global health crisis and aim was to sensitize them about the current pandemic situation. In addition, we aim to explore the role of different information sources in shaping student's knowledge and perceptions during this peak period of COVID-19 in India.

Materials & Methods

This study was performed for insight brainwave recognition of the entire conceptualization of this globally spread coronavirus amongst the School & College/ Universities going students. For this quiz analysis, we made an online Quiz Forum with a much admired, Google Survey app i.e. Google Forms, with an authorization form appended to it, which is included in the Google drive along with the Google Slides. Google forms is a tool that allows to collect information from users via a personalized survey or quiz. The information is then collected and automatically connected to a spreadsheet. The spreadsheet is populated with the survey and quiz responses. The link of this forum was sent through e-mails, WhatsApp and other social media to the contacts of the investigators. The participants were encouraged to roll out the survey as maximum, with the offering reward of an E (Electronic)-certificates according to their personalized information dispatched through E-mails after their successful execution (Minimum Score 60 %). Thus, the link was forwarded to people apart from the first point of contact and so on. On receiving and clicking the link, the participants got auto directed to the information about the study and informed authorization. After they accepted to take the survey, they fifter up the personalized details. Then a set of several questions appeared sequentially, which the participants were to answer. It was an online study and the participants with access to the internet could participate in the study. Participants with age more than 16 years, able to understand English and willing to give informed consent were included. The data collection was initiated on May 22, 2020 at 5 PM IST and closed on June,15 2020 at 5 PM IST. We are able to collect data from across various states of India including various school students from Punjab Doaba region. The fundamental variables included name of the participant, their e-mail id, contact number and name of the institution.

Thus, in this context, an online quiz COVID-19 awareness program was developed by the investigators**.** For this awareness campaign, we have designed the form with number of questions in accordance to different aspects of this COVID-19 pandemic. Such as virus awareness and

structure, history, origin and mode of spread, it's pathogenicity, clinical features (symptoms), treatment (therapies and drugs), and prevention (by social distancing, other preventive measures and government launched surveillance apps). Various multiple-choice questions were designed according to the above-mentioned parameters of 2 marks each, and e-certificates were dispatched to only those participants who scored at least 60% score.

Results

This is an effort to create awareness and disseminating the right information about COVID-19 amongst school, college and university students. Total 1,111 responses were generated from different Indian educational institutions, out of total 1,111 responses, total 840 students from different colleges/universities has participated in this and 271 school students has participated in this survey & shows contrasting percentages respectively on each parameter according to their knowledge and perceptions (Fig. 1).

Students of varied age groups enthusiastically participated in this quiz. A significant number of responders were probably aware about the basic knowledge of virus which included the virus general awareness and structure. In general, it was presumed that every student must be known to these points like SARS-CoV-2 is thought to be a new virus strain, causes respiratory illness and originated in China ; Structurally coronavirus got its name due to their Crown like projections; COVID-19 name given to corona pandemic by WHO. In accordance to these parameters 93.21% of College/ University students and 74.16 % of school students (Table 1), have the knowledge of this.

From (Table 2), it is depicted that 83.9% of College/ University students and significantly 71.95 of school

students have idea about this deadly virus that it is first reported in December 2019 in China & other diseases related to this virus i.e SARS & MERS.

Table 1: Percentage Distribution of Students About Virus Awareness and its Structure

Students	Number	Percentage
College/ University	783/840	93.21
School	201/271	74.16

Table 2: Percentage Distribution about History of Coronavirus amongst Students

Students	Number	Percentage
College/ University	705/840	83.92
School	195/271	71.95

Majority 98.21 % of College/ University students & almost 75.64 % of school students are aware that, first case of novel coronavirus was identified in Wuhan, Hubei and the spreading of COVID-19 occur in all ages, in children and person with pre-existing medical issues(Table 3).

Table 3: Percentage distribution on origin and spread of disease.

Students	Number	P ercentage
College/ University	825/840	98.21
School	205/271	75.64
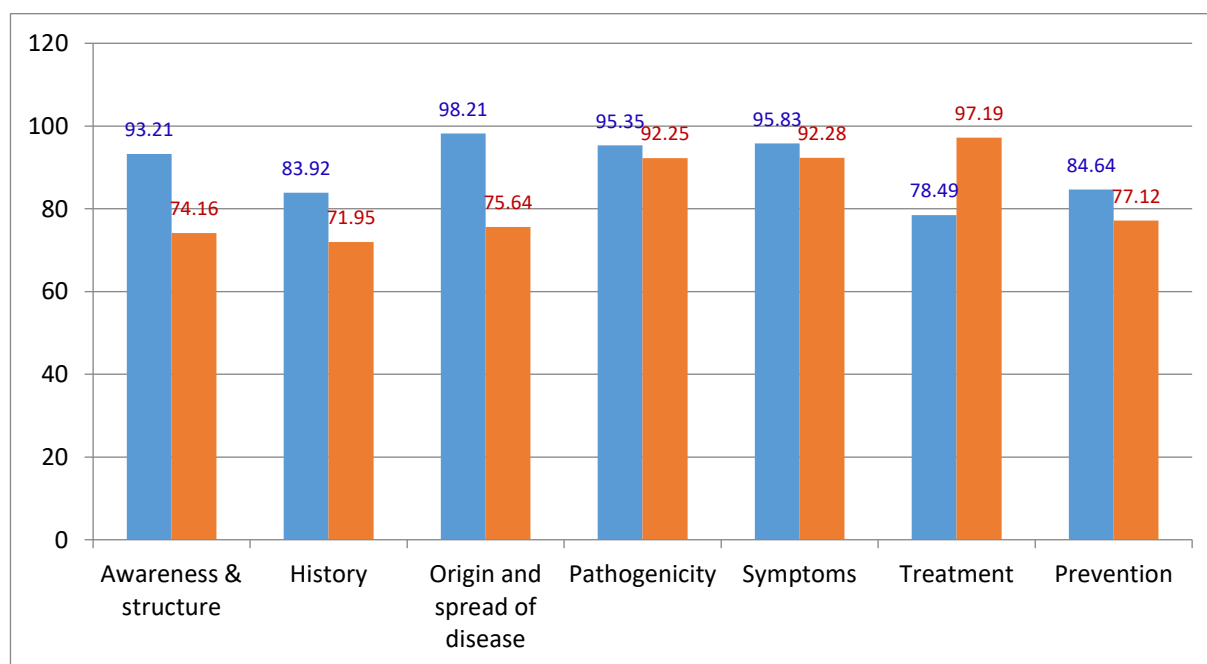
Fig. 1: This graph refers to percentage of college/universities students Vs School students about knowledge & perception on different parameters.

From the (Table 4), it is inferred that, 95.35 % of the college / universities & 92.25% of school students are aware that, COVID-19 is transmitted through infected person or coming in contact with objects touched by infected persons.

Table 4: Percentage distribution of pathogenicity in students

Number	Students	Percentage
801/840	College/ University	95.35
250/271	School	92.25

Table 5 concludes that 95.83% of College/ university students and almost 82.28 % of school students have the knowledge of symptoms like difficulty in breathing, fever and cough and the incubation period of COVID-19 is of 14 days; mainly upper respiratory tract firstly affected by entry of coronavirus.

Table 5: Percentage distribution of clinical features (symptoms) in students

Students	Number	Percentage
College/ University	805/840	95.83
School	223/271	82.28

About 78.45% of college/ universities students & moderately low 57.19% of school students have the knowledge of plasma therapy done for critical conditions of patients (Table 6).

Table 6: Percentage distribution of treatment (therapies & drugs) amongst students

Students	Number	Percentage
College/ University	659/840	78.45
School	155/271	57.19

About 84.64% of college/ university students and 77.12 % of school respondents are aware and they are in practice of washing hands with soap, running water or alcohol-based rub (sanitizer) which is effective in killing the virus; and downloaded the *Arogya-Setu* app (Table 7) which is mandatory by the Government of India.

Table 7: Percentage distribution of prevention in students

Students	Number	Percentage
College/ University	711/840	84.64
School	209/271	77.12

Discussions

Presently, COVID-19 is worldwide matter of discussion in media and among the public. With the presently stage COVID-19 spreading raising tensions for everyone, including students in this lockdown period. The main question arises regarding how we manage information to help students in times of public health crisis. For this purpose, we investigated students' knowledge and perceptions of the prevention and control of COVID-19 during this pandemic. Knowledge and perceptions of COVID-19 varied across different categories (College/University & School) of students. Our study revealed that students have moderate knowledge about COVID-19 but showed positive perceptions of the prevention of COVID-19 transmission. We also found that most of the students used official government websites as a prime source of information about COVID-19. This indicates that the COVID-19-related updates posted online by official government health authorities had useful inference for improving students' knowledge levels. Trust on authentic sources is a cue factor in believing transparent information about the emerging COVID-19 infection and is essential for student's preparedness and response. Now a days, heterogeneity of information available through the Internet, including unverified information, can spread quickly and can misguide students. In particular, health authorities and scientists have warned that widespread misinformation about COVID-19 is a serious concern causing xenophobia worldwide. In this regard, students should carefully evaluate COVID-19-related information and should use scientific and authentic content as information sources. The observations of this study suggest significant knowledge gaps between the amount of information available about COVID-19 and the depth of knowledge among students, particularly about the mode of transmission and incubation period of COVID-19. This is unfortunate but through all these results it's very clear that still a small segment of students was not aware of some vital information of this deadly infectious disease. However, we hope that after attempting this quiz those students must have gained basic knowledge how of this virus which is pertinent to check the rapid spread of this pandemic.

Conclusions

During this coronavirus pandemic, most of the students are aware of this infection, possible preventive measures, the importance of social distancing and initiatives taken by government to limit the spread of infection. However, there are increased worries and apprehensions among the students regarding acquiring the COVID-19 infection. Students have higher perceived needs to deal with their difficulties. There is a need to intensify the awareness programs and address the issues during this highly infectious pandemic.

This study describes how preventive, supportive and awareness-building measures for the recent outbreak of the COVID-19 portrayed the satisfaction and trust of students over government, local authorities, and institutions. It is a prime duty of each and every citizen to follow the instructions issued by public authorities in order to help check the spread of this highly infectious disease which is spreading very fast in India. In terms of content, this study shows that preventive and supportive measures with awareness building are the two profound dimensions of satisfaction directly related to the trustworthiness for authorities.

Acknowledgement

Author's Contribution

Anita Pathania, designed the research plan, performed experimental works & collected the required data. Archana Saini analysed the data; Anita Pathania prepared the manuscript. Archana Saini critical revised and finalized the manuscript. Final form of manuscript was approved by all authors.

Conflict of Interest

The Authors declares that there is no conflict of Interest with present publication.

References

Chan-Yeung M and Xu RH (2003) SARS: epidemiology. *Respirology* **8**: S9–14. DOI: 10.1046/j.1440-1843.2003.00518.x

Chen N, Zhou M, Dong X, *et al*. (2020) Epidemiological and clinical characteristics of 99 cases of 2019 novel coronavirus pneumonia in Wuhan, China: a descriptive study. *Lancet* **395**: 507–513. DOI: 10.1016/S0140-6736(20)30211-7

He Hu Xi Za Zhi and Zhonghua Jie He (2020) Multicenter Collaboration Group of Department of Science and Technology of Guangdong Province and Health Commission of Guangdong Province for Chloroquine in the Treatment of Novel Coronavirus Pneumonia. [Expert consensus on chloroquine phosphate for the treatment of novel corona virus pneumonia]. [Article in Chinese] **43**: E0

Huang C, Wang Y, Li X, *et al*. (2020) Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China. *Lancet* **395**: 497–506. DOI: 10.1016/S0140-6736(20)30183-5

.

Jin YH, Cai L, Cheng ZS, *et al*. (2020) A rapid advice guideline for the diagnosis and treatment of 2019 novel coronavirus [2019-nCoV] infected pneumonia [standard version]. *Mil Med Res* **7:** 4.

Lai CC, Shih TP, Ko WC, Tang HJ, Hsueh PR. (2020) Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) and coronavirus disease (2019) (COVID-19); the epidemic and the challenges. *International Journal Antimicrobial Agent*. 105924. DOI: 10.1016/j.ijantimicag.2020.105924

Li Q, Guan X, Wu P, Wang X, Zhou L, Tong Y, Ren R, Leung KS, Lau EH, Wong JY and Xing X (2020) Early transmission dynamics in Wuhan, China, of novel coronavirus–infected pneumonia. *New England journal of medicine* DOI: 10.1056/NEJMoa2001316

Middle East Respiratory Syndrome Coronavirus. Available at: https://www.who.int/emergencies/mers-cov/en/. Accessed 16 June 2020.

Richman DD, Whitley RJ and Hayden FG (2016) *Clinical Virology* (4th Eds). ASM Press, Washington

Richmann DD, Whitley RJ and Hayden FG (2016) *Clinical virology* (4th ed). Washington: ASM Press. DOI: 10.1128/9781555819439

World Health Organization. CoVID-2019/ About COVID-19. Available at: http: //www.emro.who.int/health-topics/corona virus/about -covid-19.html

World Health Organization. Novel coronavirus (COVID-19) situation. Available online: https://experience.arcgis.com/experience/685d0ace521648f8a5beeeee1b9125cd

Xinhua. China's CDC detects a large number of new coronaviruses in the South China seafood market in Wuhan. Available at: https://www.xinhuanet.com/2020-01/27/c_138735677.htm. Accessed 20 June 2020.

Zhang L and Liu Y (2020). Potential interventions for novel coronavirus in China: a systemic review. *J Med Virol* **92**(5): 479-490. 10. 1002/jmv.25707