

Original Article

Knowledge, Attitude and Practices Survey: COVID-19 Pandemic and its Preventive Standard Operating Procedures in College Students

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ABSTRACT

Objectives: To evaluate the knowledge, attitude and practices of the undergraduate college students towards corona virus disease (COVID-19) and adoption of personal protective measures as per standard operating procedures (SOPs) stipulated by Federal government for reopening of educational institute.

Methodology: This was cross sectional survey conducted at Hyderabad and Faisalabad based colleges from 25 September to 15 October 2020. Prior to the study, permission was taken from principal of concerned colleges (vide no.TSS/22/2021, Kotri Jamshoro) Structured proforma comprised of 28 questions concerning knowledge, attitude and practices toward the COVID-19 and implementation of SOPs in educational institutes was used. Questionnaire was formed on Google form and its link was shared among 200 college students of various disciplines through WhatsApp. Results from the response summary were compiled and analyzed.

Results: Structured proforma was distributed among 200 undergraduate students of age range 18-20 years, only 170 students' submitted complete responses. Response rate was 85%. More than half (70.9%) of the subjects have good knowledge and positive attitude concerning COVID-19. Majority of the students (89.2%) were using masks, 88.6% were in habit of regular hand washing, while 84.3% of students preferred to use sanitizers, 91.6% practiced social distancing and avoided crowded places, 75.3% students avoided unnecessary travelling. 98-99% of students agreed that SOPs set by government was strictly followed in the colleges.

Conclusion: Majority of the students were aware of the preventive measures for COVID outbreak. Students have positive attitude and are adequately practicing precautionary measures to avoid contracting COVID-19. SOPs are following in the colleges to alleviate the risk of spread of lethal Corona.

KEYWORDS: COVID -19, College students, Pandemic, Standard operating procedures

INTRODUCTION

Corona virus disease (COVID-19) is an emerging public health challenge around the world causing acute respiratory illness leading to high mortality and morbidity.¹ It is caused by a novel coronavirus that is now named 'severe acute respiratory syndrome coronavirus 2' (SARS-CoV-2).² This disease was emerged in Wuhan, China in December 2019, spreading to many countries including Pakistan and

was declared a pandemic by the World Health Organization (WHO)³. According to an estimate by WHO, there have been 6,140,934 confirmed cases of COVID-19, including 373,548 deaths across the globe till the writing of this article.⁴ The Government of Pakistan also confirmed 76,352 cases and 1,621 deaths till August 2020.⁵ Whereas the active cases were 47,667 and total recoveries in Pakistan were 27,110. Healthcare Workers (HCWs) are frontline soldiers in this crisis, who also contracted the coronavirus and lost their precious lives to save their patients.⁶ In this worst situation, college students and their faculty members are also at risk of contracting the coronavirus in the pandemic chain as human-to-human transmission of COVID-19 is due to of overcrowding in colleges. COVID-19 crisis is an imminent threat for the public health and has posed as a challenge for research and medical communities. Thus special efforts and attention to protect or decrease transmission should be applied in overcrowded areas like educational institutes.

WHO and National Command Operation Center Pakistan (NCOC) have issued guidelines for preventing

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further spread of COVID-19. They recommend to avoid travelling to high-risk areas and contact with individuals who are infected with COVID-19 or come from the endemic zone.⁴ Travelers coming from abroad must be screened with thermal guns and are instructed to quarantine for 14 days.^{1,7}

NCOC has also provided special guidelines for Educational Institutions to protect the students from this crisis. These guidelines aimed to mitigate risk while providing the opportunity to resume educational activity for children, adolescents and young adults during the COVID-19 pandemic.⁸ These guidelines endorse maintaining social distances of about 6 feet, basic hand hygiene including frequent hand washing for 20 seconds and use of alcohol-based hand sanitizers. Use of the personal protective equipment (PPE), such as face masks are recommended for the students as well as people interacting in extensive crowded settings like colleges and institutes where widespread community transmission can possibly occur.⁸ Environmental disinfection using appropriate disinfectants, such as bleach and sanitizers is also recommended to deactivate the coronavirus. COVID positive students, staff or any person who has a positive contact-case at home are directed to stay at home and not attend the school or colleges to avoid spread of infection in other students.⁸ NCOC has made mandatory for all educational institutes to follow standard operating procedures (SOPs) while reopening the institutes, otherwise strict action will be taken for not following the SOPs.⁹ The NCOC has also performed an important role in educating the population about signs and symptoms of this pandemic. Now it is our duty to follow these guidelines and to address them promptly. Incorrect attitudes and practices augment the spread of this disease. This is likely to be intensified by the fact that college students have insufficient awareness for prevention and practices.¹⁰ Awareness of the COVID outbreak may influence college student's attitudes and practices towards prevention of this disease. All appropriate precautions must be ensured by the college management and students to control the spread of infection. Knowledge, attitudes, and practices (KAP) of college students concerning COVID virus and the factors that affect their attitudes and behaviors can be determined promptly during pandemic that helps in prioritizing protection and minimizing COVID-19 exposure and spread. This study aims to investigate the KAPs concerning COVID-19 among young students and whether they are following the SOPs set by the government.

METHODOLOGY

This cross-sectional survey included 170 undergraduate college students belonging to intermediate colleges of Hyderabad and Faisalabad. Prior to study, permission from the principal of the concerned colleges was taken (vide no.TSS/22/2021, Kotri Jamshoro). The survey was carried out from 25 September to 15 October 2020, the period in which colleges were re-open after lock down. Young students of the age group of 18-20 years who were willing to participate were enrolled in the study. The faculty members and other employees were excluded. The questionnaire comprised of total 29 questions regarding COVID-19. Twelve questions were related to knowledge, seven were related to attitude and ten were related to practices. All questions were prepared by the researchers using literature search from previous similar researches and NCOC guidelines.⁸ The proforma was circulated by means of Google forms by sharing link on WhatsApp among the study participants and the data was collected. The Google doc had two parts. In the first part, participant had to consent only after which they were allowed to access the second part of questions related to COVID survey where questions related to the knowledge, attitude and practice were asked. Questions related to awareness concerning preventive and control measures of the infection such as wearing masks, importance of social distancing and hand hygiene etc. were inquired. The questionnaire link was sent to 200 college students. One hundred and seventy nine students responded, out of which 170 filled out complete proforma. Students who filled complete proforma were included in this study. The data obtained from response summary of Google form were compiled and statistically analyzed. Results were presented as frequencies and percentages.

RESULTS

Questionnaire was distributed among 200 male and female college students, of which only 170 submitted complete response. Thus the response rate was 85%. Out of total respondents, 159 (93.5%) were females and 11 (6.5%) were males. More than half of the participating students 98 (57.64%) belonged to Matric system, and 42.6% belonged to Cambridge system. Out of these, majority of the intermediate students 53 (31.17%) were from pre medical, 41 (24.1%) from ICS and 35 (20.5%) from pre-engineering. A small number of students, 2 (1.17%) were from first year arts group, 4 (2.35%) and 3 (1.76%) were from I.Com and A

levels respectively. while 32(18.8%) were belonged to others discipline.

Knowledge: Small number of the study population (31.3%) knew that the SARS-CoV-2 was the virus responsible for corona infection, while 70.9% said that the COVID disease could be transmitted by droplets when an infected person coughs, sneezes or speaks. Most of the students (72.5%) were not satisfied with the government's decision of reopening of the educational institutes and business activities without controlling corona cases. Additionally, 80.8 % of the students believed that any type of group activity may spread this infection (Table1). A good number of respondents (66.3%) believed that people travelling to the infected areas were more prone to get COVID, while 69.9% believed that the subjects having exposure to infected person were more at risk. Additionally 53.3% agreed that health workers are at higher risk of being infected. Over all responses related to knowledge indicates that the majority of the students have adequate knowledge concerning spread and preventive measures of corona disease.

Attitude: Of the total participants, 82.7% believed that corona outbreak can be managed by taking precautions and good practicing such as; avoiding crowded areas, wearing masks, washing hands and using sanitizers. More than half of the students (72.3%) understand that it is a highly contagious infection. Similarly 85.6% of the participants realized that it is their responsibility to take safety measures for controlling the spread infection.(Table.1) On enquiring about the mental wellbeing, 70.4% of subjects agreed that COVID-19 had affected their social, mental and psychological well beings. Only 53.3% of population was satisfied by government strategies for prevention of COVID crisis. Additionally 80% of the respondents believed that reopening of institutes in phases according to age groups with implementation of SOPs was good decision of the government. All respondents agreed to staying home when required and also any student, staff or person who has a positive contact-case at home should not be allowed to attend college.(Table 1)

Practices: Most of the of students (89.2%) were using masks, 88.6% washed hands regularly, 84.3% of students preferred to use sanitizers, 91.6% practiced social distancing and avoided crowded places,75.3% students avoided unnecessary travelling. (Figure 1) (Table 2) Thus overall result indicates that majority of students have good practices concerning the adoption of the personal preventive measures. Additionally,

Table 1. Study participant's knowledge and attitude concerning COVID-19 pandemic. (n=170)			
Questions	Yes (%)	No (%)	Not sure/neutral (%)
Knowledge			
COVID-19 infection is caused by SARS-CoV-2.	31.8	59.7	8.6
COVID-19 infection is spread via respiratory droplets of the infected person:	70.9	2.3	26.8
All community members are equally at risk for COVID-19.	78.9	8.9	12.2
Children can be infected with COVID_19	84.6	6.1	9.3
It is a good decision to open educational institutes and business activities without controlling corona cases:	9.3	72.5	18.1
Any type of group activity may spread this infection	80.8	66.1	14.7
Closing teaching institutions and shopping malls are effective ways of social distancing	58.5	9.9	31.6
Lockdown all over the country will control the spread of this virus	69.8	8.9	21.3
The best way of preventing spread of COVID-19 is social distancing:	92.8	3	4.2
We can overcome this problem by taking precautionary steps:	82.7	0.3	17
Advising Quarantine to passengers coming from infected areas is a good practice to avoid spread of infection	77.5	5.9	16.6
Isolation period for infected people and those exposed to infection is 14 days	56	23.2	20.8
ATTITUDE			
We can overcome this problem by taking precautionary steps	82.7	0	17.3
I understand that this infection is highly contagious	72.3	4.2	23.5
It is my social responsibility to take safety measures in controlling spread of this infection.	85.6	2.4	12
COVID-19 is affecting my social, mental and psychological well beings:	70.4	29.6	0
I am satisfied with the government efforts for controlling this infection	53.3	17	29.7
Reopening of institutes in phases according to age group is good decision of government:	80	5	15
Did you agree: Staying home when appropriate? Any positive student, staff or any person who has positive contact-case at home will not allow to attend college	100	0	0

98-99% of students agreed that SOPs set by the government was strictly followed in the colleges such as shift arrangement of various classes,

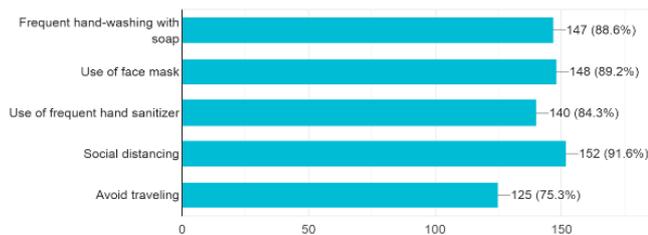
Table 2: Practices of Standard Operating Procedures stipulated by NCOC

Questions	Yes (%)	No (%)	Some-times (%)
I am avoiding meeting my friends and group fellows unnecessarily	47	7.1	45.8
I am avoiding to sit in crowded place in college	91.6	1.2	7.2
I prefer to walk by stairs then using lift	69	10.7	20.2
I am using face mask in college	89.2	2.4	8.4
I am using soap frequently for hand washing	91.7	3.2	5.1
Thermal scanners are used in college for screening in college	99	1	0
Various Classes were divided into shifts in colleges	98	0	2
Seat in class room are placed in at distance of 6 feet to maintain social distances,	99	0	1
Students are divided into sections to avoid overcrowding in one class	99	0	1
Class room are well ventilated	98.5	1	0.5

NCOC: National Command Operation Center Pakistan

screening of the students and teachers by thermal guns on college entrance, ventilated classes with seating arrangements with 6 feet distance. It was mandatory for all teachers and student to wear mask in college

Figure:1 Personal Protective measures practiced by students



campus. Facilities for hand washing with soap were available in the colleges. Frequent use of sanitizers was encouraged and sanitizers were provided by the college management. College floors were frequently disinfected for the provision of healthy and safe environment (Table2)

DISCUSSION

The second wave of corona infection has started and rapidly spread throughout the world due to person to person transmission.¹¹ Corona virus pandemic has severely stuck the educational system in Pakistan.

Some institutes started online classes during this crisis to acquire quality education from home during the lockdown. However it is not possible for many of government and private schools/colleges to provide this digital platform for their students thus resulting in educational loss. Therefore, federal and provincial governments decided to reopen educational institutes in phases, according to age groups with SOPs in order to restore the educational activities.^{8,9} However it is also necessary to control this fatal disease and to avoid its rapid transmission. NCOC Pakistan has provided special health guidelines and SOPs that were made mandatory to be implemented in educational institutes for safe learning environment and protection of students and their families from COVID-19. Primary preventive measures stipulated by WHO and NCOC Pakistan includes regular hand washing, social distancing, and use of mask ensuring respiratory hygiene by covering mouth and nose while coughing or sneezing.^{9,12} People’s adherence to preventive and control measures are crucial for effective corona outbreak control. This adherence is highly dependent on the populations’ knowledge, attitudes, and practices (KAP) towards COVID-19. This study was conducted to evaluate the knowledge, attitude and practices of the intermediate college students towards COVID infection and adoption of personal protective measures as per SOPs set by the government for reopening of educational institutes. Majority of participating students in the study were from matric system while only one third were from the Cambridge system. Intermediate students of pre medical, ICS , pre engineering, FA and students of A level recorded their responses. In this study females submitted greater responses than males. In current study 70.9% had adequate knowledge about the mode of transmission of COVID 19 and they knew that it is spread via respiratory droplets of the infected person and 69.9 % agreed that the non-infected subjects having contacts with infected patients were more susceptible for getting corona disease. Better results were reported by a similar study conducted in Karachi, documenting that according to 85.5% of participants most common mode of transmission for COVID-19 was respiratory droplet of the infected person. Whereas 89.65% of the participants believed that COVID infection was frequently transmitted from an infected person to a non-infected person, these findings are in accordance with current results.¹³ Ngwewondo et al reported that 84.19% of females participants of their study had adequate knowledge concerning COVID-19 mode of transmission.¹¹ Present results concerning attitude of students shows that 72.3% of the students understand

that COVID-19 is highly contagious in nature and unpredictable, while 23.5% were neutral and 4.2 % disagreed with this fact. Our results also revealed that 53.3% of the study subjects were satisfied with measures introduced by the government and appreciated their mitigation strategies for controlling the infection. Similar results have been reported by Ahmad et al study conducted at Karachi, documenting that 56.7% of their study population was satisfied with local and provincial governments strategies for controlling the risk of COVID-19.¹³ Majority of the responses related to attitude shows positive trend in students in this outbreak. In developing countries like Pakistan with poor health infrastructure and educational system, population gets negative impact on the psychological and social wellbeing. Results of current study showed that more than half of the students (70.4%) have negative psychological impacts of lockdown resulting in closure of the educational institutes and suppression of economical activity. Inconsistent results have been reported by Ahmed et al that documented, 32.3% of their young respondents felt isolated and depressed as a consequence of pandemic.¹³ Due to the lock down, parents are facing financial constraint but they are paying heavy college fees despite of closed institutes. Additionally, they are also paying internet charges, required for online classes. All above mentioned factors attributes to stress and depression in the parents as well as students. Concerning the practices of protective measures, wearing of face mask was practiced by 89.2 % of students while 8.4% sometimes used mask and 2.4% do not use mask. For ensuring hand hygiene, 91.7% of population washed hands frequently, 91.6 % avoided going in crowded places and practiced social distances. In contrast to our study , a study conducted at Cameroon, Central Africa showed better practices and reported that 100% of the population wore masks, 83.8% of their study population practice social distancing, or avoid crowded places, while 20% were restricted at the home and 94.5% of the Cameroon participants frequently washed hand with soap and used sanitizers for hand hygiene.¹¹ Study conducted at Mangalore in coastal South India evaluating the knowledge and practices of undergraduate student towards COVID also reported that 98.3% of the students adopted the habit of hand washing specially in public places.¹⁰ In contrast to our study, good practices have been adopted by the Chinese population as stated by Zhong et al, reporting that 95-97% of population has adopted the preventive measures such as avoiding the crowded areas and wearing a mask when going outside.¹⁴ Study from Karachi also reported

better practices than current results.¹³ Concerning the implementation of the SOPs for COVID-19 prevention, current results shows that 98-99% of the students agreed that in colleges all preventive measures were being implemented as per SOPs defined by government. Students and teachers were screened by thermal guns at entry point of the college, and those with fever or any symptoms were not allowed to enter the college and were encouraged to stay at home. Classes of various disciplines were arranged in shifts, class rooms were well ventilated and seats were placed at 6 feet distance for ensuring social distancing. It was mandatory for all teachers and student to wear mask in college campus. Facilities for hand washing and sanitizers were available in colleges. Efforts of the local, provincial and federal governments and managements of the educational institutes are highly appreciated for implementation of mitigation strategies for avoiding the spread of this lethal global health crisis, while reopening of the educational organizations and safer restoration of educational activities. Government and various non-government organizations can plan more public health strategies to reduce the burden of this global public health challenge.

Limitations: The main limitation of this study was that study population was restricted to only undergraduate college students. It would have been better if the present results could have been compared with graduate students.

Strength: The strength of this study lies in the fact that it provides a “real-time” assessment of the knowledge, attitudes and practices of college students during ongoing crisis, which helps policy makers to plan and provide an efficient and effective strategies to overcome COVID outbreak.

CONCLUSION

Majority of the students were aware of the preventive measures to be followed during the COVID outbreak. Students have a positive attitude and are adequately practicing the safe precautionary measures to avoid contracting COVID-19. SOPs are being followed in the colleges to alleviate the risk of spread of lethal Corona virus.

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Study design, acquisition of data and manuscript write up. Reviewed and approved the manuscript.

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Study design, manuscript writing, Reviewed and approved the manuscript. Data collection, manuscript writing, compiling and analysis of data, interpretation of results, formulate tables. Reviewed and approved the manuscript.

**Muhammad Afzal
Azka Maryam Zafar**

Study design, data analysis write up and interpretation of results. Revising manuscript critically for important intellectual content Data collection, revised manuscript and approved it.

All authors are responsible for research work, data integrity and the accuracy

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