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Research Article

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ASSESSMENT OF KAP (KNOWLEDGE, ATTITUDE AND PRACTICE) OF UNIVERSITY STUDENTS TOWARDS PREVENTION OF COVID-19

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Abstract: The present study was aimed to explore the KAP (knowledge, attitude and practice) adopted by the university students of Madhya Pradesh (India) towards prevention of Covid-19 pandemic. For this purpose, authors performed an online survey with 776 students using a self-designed semi-structured questionnaire. The results found that students had a moderate to a high level of knowledge about the Covid-19 and sufficient knowledge regarding its preventive measures. The authors could not find any significant correlation between attitude and the socio-demographic variable (sex, age, qualification, and level of education) at ($p < 0.05$). The majority of the respondents admitted that they always wore a face mask and adopted the practice of going to crowded places and washing their hands with soap or sanitizer before and after touching of objects and suspicious people. In conclusion, authors found that more than two-third of university students have adequate knowledge of the Covid-19. Authors could not detect any statistically significant difference in the level of knowledge about Covid-19 among the participants irrespective of their academic qualifications. Authors suggest conducting follow up studies involving teaching and non-teaching staff in the schools and colleges of the state and country.

Keywords: Awareness, COVID-19, KAP, Madhya Pradesh, University students.

INTRODUCTION

The pandemic coronavirus disease (COVID-19) is a highly infectious disease originated from Wuhan city of China and is still swiftly spreading and infecting public all over the world. It is caused by a virus known as severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (Shereen *et al.*, 2020, Rothan and Byrareddy, 2020, Khan *et al.*, 2020). On December 31st of

2019, the Chinese Government informed to World Health Organization (WHO) regarding the incidence of a number of pneumonia cases among retailers and merchants in the Huanan seafood market of Wuhan with strange and unknown etiology (Shereen *et al.*, 2020). Based on the sequence-based analysis, the National Health Commission of China identified this virus as a novel coronavirus (Wang *et al.*, 2020). On 30

January 2020, WHO declared this outbreak as a Public Health Emergency of International Concern and publicized a name for the new coronavirus disease as Covid-19 and on 11th of March 2020, WHO confirmed Covid-19 as pandemic. This gave severe impact on global and national economies irrespective of the level of virus impact on the people of individual nations. The novel corona virus has no border, no religion, beyond cast and creed (Kumari and Shukla, 2020). It is highly contagious in nature and unpredictable. World was never prepared for this kind of pandemic, where humans are in a race of developing a vaccine and its spread (Verma and Prakash, 2020).

The current Covid-19 guidelines of isolation and quarantine imply that individuals experienced major distress in the form of uneasiness, annoyance, uncertainty and post-traumatic stress symptoms (Sharma, 2020). Still, lots of the details keep on varying and many myths are also widespread in the general population on the subject of the prevention and management of SARS Cov-2 (Covid-19). Apart from this, prime channels, and social media continuously spreading fake news and myths about corona which further disturbing the public to become panic (Patel, 2020, La *et al.*, 2020; Brindha *et al.*, 2020).

The strict and effective lockdown rules and misleading information from the prime channels and social media further forced the public to become panic and anxiety. The massive and excessive and misinformation from prime and leading channels sometimes create a lot of concern for people leading to elevated levels of anxiety. Unquestionably, the people around the world are living through unusual and strange times due to coronavirus disease.

The strict and effective lock-down rules in many countries including India, to minimize Covid-19 are contributing most to the overall economy. It caused the stopping of services and broken the total supply chains which affected the overall economy harshly (Khan *et al.*, 2020). Lack of infrastructure in the health care industry in a

country like India which is a thickly populated country is a cause of another concern (Bajpai, 2014; Semwal *et al.*, 2019; Sarma, 2020). The knowledge and attitudes of the public are expected to largely influence the degree of adherence to the personal protective measures and ultimately the clinical outcome. A number of online and offline investigations among a variety of people groups have been carried out in worldwide to study the level of knowledge, attitudes, and practices (KAP) related to Covid-19 (Kamate *et al.*, 2020; Tomar *et al.*, 2020, Shereen *et al.*, 2020; Rothan and Byrareddy 2020; Khan *et al.*, 2020). In psychology, the term 'attitude' refers to a cluster of emotions and beliefs toward a particular object, person or disease. The study of attitudes help us to recognize how public distinguish the problem and processes in health care and resolve what they believe (Zikmund-Fisher 2019).

The fight against Covid -19 is still continuing in India and other countries. The final success will be guaranteed only if people adopt control measures drawn by ICMR and WHO which is mostly influenced by their knowledge, attitudes, and practices (KAP) towards Covid-19. The awareness and knowledge of health literacy skills permit patients to manage their own well-being by improving their communication with doctors and making smart healthcare decisions (Palumbo 2017; Virlée *et al.*, 2020). Nevertheless, public adherence to control Covid-19 is influenced greatly by their knowledge, attitudes, and practices (KAP). Therefore, the present study was aimed to explore the KAP (knowledge, attitude and practice) adopted by the university students of Madhya Pradesh (India) towards prevention of Covid-19 pandemic.

MATERIALS AND METHODS

Data Collection

On line data was collected with the help of link of the designed questionnaires. The link was sent to the registered participants or students via the known WhatsApp groups and requested the students to pass it to other groups. Authors avoided the enrollment of students below 15 years and above 35 years to evade a misinterpretation of online questionnaire.

Authors obtained the data from the students of other states of India also as a link was forwarded to many WhatsApp groups. The demographic variables consist of age, gender, employment, education level and residence, area of residence and knowledge of English.

Questionnaire

A self-designed questionnaire was prepared consisted of three parts to collect demographic particulars of the respondents along with KAP towards Covid-19. The questions were constructed on the basis of some published literature (Olum *et al.*, 2020; Maheshwari *et al.*, 2020; Kumar *et al.*, 2020) with some slight modifications. Knowledge was assessed using a 12-item questionnaire adapted from Kumar *et al.*, (2020) and Olum *et al.*, (2020) slightly customized to suit college students. The responses were fixed as agree, disagree, and not sure. Five types of practices like hand washing, avoiding crowded places, keeping social distance and avoiding unnecessary travelling etc. were assessed using five Likert-item questions. The questionnaire was constructed on the basis of the published literature from the WHO (<https://covid19.who.int>) and ICMR (<https://main.icmr.nic.in/>) for prevention of SARS-CoV2 transmission. The responses were fixed as always, occasional, and never respectively.

Data Analysis

All the eligible and complete questionnaires were downloaded from Google Forms and exported to Microsoft Excel 2016 for the coding and clean-up process. The statistical data was précisised as average and standard deviations and expressed as frequency and percentages. The cut-off of 70% was used (Bloom 1968) to establish sufficient knowledge (70%), positive attitude (4), and good practice (2-4) (Kaliyaperumal 2004). Student 'T' test was applied to find out the test of the significance of the data.

RESULTS

Demographic characteristics

Of the 1150 students approached, a total of 776 responded (response rate=67.47%). Most of the

participants were found to be female (n=776, 58.25%). Majority of the respondents were from Madhya Pradesh (n=776, 82.86%) and unmarried (94.59%). Four hundred and fifty-six respondents (58.86%) were doing undergraduate course and 249 (32.09%) were admitted in post-graduate courses in different semesters with different streams. A very small number of 71 students (9.15%) were engaged in research, diploma and other courses. The socio-economic status of two hundred and seventy-four (35.31%) participants was found to be low, 545 (70.23%) were belong to middle-income group while the socio-economic status of fifty-seven respondents (7.35%) was found to be high. Social media, TV channels, journals and print media also contribute to some extent as sources of information (Table 1).

Knowledge

The mean knowledge score was 61.64 ± 12.3 . Four hundred and twenty eighty participants (55.15%) scored 70% or more and were believed to have adequate knowledge. Factors associated with knowledge were found as age >27 and news media (Table 2). Male participants have shown higher mean knowledge score than female participants but it is statistically insignificant (85.2 vs. 64.3%). The intensity of knowledge among the university students was different with respect of the academic qualification and age. People who have no or limited English speaking and reading ability have been excessively affected by Covid-19 as they could not obtain adequate health information. This information gap can worsen health disparities. During this 2020 pandemic, patients have limited information to take preventive measures and look after themselves from infection. Such people don't know the symptoms of Covid-19 and how to contact the health care system when they need it. Above all, evidently, several people fear that seeking medical care will result in quarantine and loss of a job which is a horrible situation.

Table 1: Socio-demographic characteristics of participants (N=776).

	Frequency	Percentage (%)
Age		
16-21	254	32.99
22-26	292	37.63
27-32	174	22.42
32 > above	56	7.22
Gender		
Men	324	41.75
Women	452	58.25
Native place (State)		
Madhya Pradesh	643	82.86
Others	133	17.14
Marital status		
Single	734	94.59
Married	43	5.54
Education		
UG	456	58.76
PG	249	32.09
Others (part time job, Diploma, Ph.D.)	71	9.15
English Language		
Write/read/understand	152	19.58
Write/read only	552	71.13
Not sure	72	9.27
Sources of Covid-19 information		
WHO, CDC	274	35.31
Government sites, ICMR	323	41.62
Social media	122	15.72
TV and print media	57	7.35
Journals	66	8.51
Others	101	13.02
Social Economic status		
Low	274	35.31
Middle	545	70.23
High	57	7.35

Table 2: Assessment of Participant knowledge of COVID-19 (N = 4850).

Sl. No.	Questions	True	False	Not sure
1.	Fever, fatigue, dry cough, shortness of breath and body pains are main clinical symptoms of covid-19	(543) 69.97%	(82) 19.46%	(151) 10.57%
2.	Stuffy nose, runny nose and sneezing are less common in patients infected with covid-19	(402) 51.8%	(244) 31.44%	(130) 16.75%
3.	Not all persons with covid-19 will develop to severe cases. Only those who are elderly with Comorbidities are more likely to get infected	(331) 42.65%	(284) 36.6%	(161) 20.75%
4.	There is no effective cure for covid-19, but early symptomatic and supportive treatment can help to recover from infection	(584) 42.65%	(163) 36.6%	(20) 20.75%
5.	Eating or touching the wild animals would result covid-19 infection	(419) 53.99%	(314) 40.46%	(43) 5.54%
6.	Covid-19 transmission occurs through droplet infection	(397) 51.16%	276 35.57%	(101) 13.02%
7.	They Persons with covid-19 cannot transmit the virus if don't have the fever	412 53.09%	308 39.69%	66 8.51%
8.	The covid-19 virus is airborne	242 29.12%	431 55.54%	(143) 18.43%
9.	It is not necessary for children and young adults to take preventive measures against covid-19	(356) 45.88%	(347) 44.72%	(73) 9.41%
10.	Face mask can prevent the covid-19 infection	(408) 52.58%	(211) 27.19%	(157) 20.23%
11.	Isolation and quarantine are effective ways to prevent the spreading of virus	(554) 71.39%	(154) 19.85%	(68) 8.76%
12.	Isolation period of Covid-19 is 14 days in general	(426) 54.9%	(296) 38.14%	(54) 6.96%

Table 3: Assessment of participant attitudes during COVID-19.

Sl. No.	Questions	Agree	Disagree	Not sure
1.	Do you agree that covid-19 will be successfully controlled	(612) 78.87	(84) 14.69%	(80) 10.31%
2.	Do you have the confidence that India can win the battle against the Covid-19	(644) 82.99%	(92) 11.86%	(40) 5.15%
3.	Do the Indian government is handling the covid-19 health crisis very well	(652) 84.02%	(91) 11.73%	(33) 4.25%
4.	How Social Media shaping our fears	(554) 71.39%	(154) 19.85%	(68) 8.76%

Table 4: Practices of participants during COVID-19.

Sl. No.	Questions	Always	Occasional	Never
1.	Did you avoid going to the crowded places	(589) 75.9%	(162) 20.88%	(25) 3.22%
2.	Do you wear face mask when leaving home	(466) 60.05%	(212) 27.32%	(98) 12.63%
3.	Did you practice hand hygiene frequently with sanitizer	(423) 54.21%	(223) 28.74%	(130) 16.75%
4.	Do you cover cough and sneeze with a tissue, handkerchief, etc. during corona outbreak	(586) 75.51%	(96) 12.37%	(104) 13.4%
5.	Did you avoid unnecessary travel or outing corona during the outbreak	(568) 73.19%	(156) 20.1%	(52) 6.7%

Attitude

The mean attitude score 3.4 ± 0.45 . On the whole, the results reveal that there was a good attitude among the university students towards COVID-19 ($n=567$, 73.06%). Of these, 87.96% ($n = 285$) consists of male respondents and 62.8% ($n=282$) female respondents. A big percentage of ($n=612$, 78.87%) participants believe and confident that COVID-19 disease will be successfully controlled. A majority of the respondents ($n=644$, 82.9%) have shown the confidence that India can win the battle against the COVID-19 (Table 3). Another big percentage of respondents 652 (84.02%) believes and confident that the Indian government is handling the COVID-19 health crisis very well. Statistical analysis revealed that participants ($n=554$, 71.39%) social media is responsible for shaping their fears. We could not found any significant correlation between attitude and the socio-demographic variable (sex, age, qualification, and level of education) at ($p < 0.05$).

Practices

A sum of 589 respondents (75.9%) has adopted the avoiding of going to the crowded places due to Covid-19 pandemic. A quantity of 466 (60.05%) of the respondents admitted that they always wore a face mask when go out of the home and coming into contact with the public. A total of 423 participants (54.21%) adopted the practice of washing their hands with soap or sanitizer before and after touching of objects and suspicious people (Table 4). A sum of 586 (75.51%) participants developed the practice of covering

the cough and sneeze with a tissue, handkerchief, etc. during corona outbreak. Similarly, a sum of 568 respondents (73.19%) stood away from unnecessary travel or outing during the outbreak of coronavirus (Table 4).

DISCUSSION

University students play an imperative role in civilizing the humanity and society. During the Covid-19 pandemic crisis, university students are expected to spread attentiveness of key health and hygiene messages amongst communities and neighbourhoods. Even staying at home, retaining social distance, wearing face masks, washing hands, etc are quite a few measures that the governments' health departments are propagating. It is therefore of top importance that university students across the country have ample knowledge and awareness about all aspects of the disease including prevention strategies.

Based on the current analysis, authors were competent enough to reveal about seven in 10 of the university students had ample knowledge about Covid-19. Results also revealed that the level of knowledge regarding this pandemic was not much varied significantly with respect of the age, sex, academic qualification or profession. However, the socio-economic status and knowledge in the English language negatively correlated with knowledge of Covid-19.

Most of the participants were reasonably attentive to the basic fundamentals of the Covid-19. Out of the total respondents, 69.97% ($n= 543$) answered

that the common symptoms of coronavirus are fever, fatigue, dry cough, shortness of breath and body pains. A sum of 584 (75.26%) believed that right now there is no effective cure for Covid-19, but early symptomatic and supportive treatment can help to recover from infection and 71.39% (n=554) believed that isolation and quarantine are effective ways to prevent the spreading of coronavirus. The mean knowledge score obtained in the present survey reflects excellent knowledge among university students. The results of an online survey of Zhong *et al.*, (2020) displayed a similar range of knowledge score among the residents of Hubei (China). Nevertheless, here score was somewhat lower than the score of health care workers (91%) in Henan, China (Zhou *et al.*, 2020) and in 80.64% India (Tomar *et al.*, 2020). In contrast, the study of Kashid *et al.*, (2020) shown a low knowledge score (48.9%) among the dental college students. This low score is possibly due to the lack of command over the English language as the questionnaire was constructed in the English language which clearly reflected in demographic studies also. Another possible reason for the high knowledge scores in the above studies perhaps the differences in questionnaire pattern (Direct or multiple choices). In general, the majority of Indian students displayed adequate knowledge regarding Covid-19, which is in line with findings of Maheshwari *et al.*, (2020) and Kamate *et al.*, (2020). About 60.5% of participants used to wear face masks. The results of this current study show that practices adopted by the majority of university students (>75%) have shown were excellent Covid-19 prevention practices. Authors' results are in according to the findings of Maheshwari *et al.*, (2020), Kamate *et al.*, (2020) and Roy *et al.*, (2020). Results confirmed that the majority of the university students are following Covid-19 prevention and control practices like regular hand hygiene, social distancing and wearing a face mask as suggested by the Ministry of Health and Family Welfare of India. Similar studies can be extended to other communities to spread awareness of Covid-19 and other infectious diseases.

Limitations

The first limitation lies in the data collection which was mainly based on convenient and easily

available educated (student) sample through the networks of various social media. Uneducated and deprived populations were not included in the study. Accordingly, there is a risk of inequality may exist as disadvantaged residents may not have been able to participate in the study. Furthermore, as the age of the study sample (students) used in this study was found to be below 35 years which limits the correct prediction of the findings. Therefore, an extra methodical, comprehensive sampling method is necessary to improve the perfectness, and generalizations of the findings.

The next constraint is associated to the KAP tool used in this survey which was modified and tested by many authors (Shereen *et al.*, 2020; Rothan and Byrareddy, 2020; Khan *et al.*, 2020; Patel 2020; La *et al.*, 2020; Brindha *et al.*, 2020). Nevertheless, a more systematic measurement of instrument validity and reliability would have produced a stronger tool. Further, due to time limit, lack of field survey due to effective lockdown rules, the KAP analysis could not be repeated and tested with other samples. Moreover, we could not assess the factors that are responsible for such knowledge, which could have been a valuable answer in accepting the knowledge, attitudes and practices (KAP) of COVID-19 in Madhya Pradesh (India).

CONCLUSION

In conclusion, authors found that more than two-third of university students have adequate knowledge on the Covid-19 and prevention of its transmission. Authors could not detect any statistically significant difference in the level of knowledge about Covid-19 among the participants irrespective of their academic qualifications. Approximately twenty-five per cent of the participants had a poor attitude toward Covid-19 and just over 70% of the respondents had good practices toward Covid-19. Results revealed that further awareness training should be conducted frequently in the institutions to gain knowledge related with not only Covid-19 but also for infectious diseases. Authors suggest conducting follow up studies involving teaching and non-teaching staff in the schools and colleges of the state and country.

ETHICS STATEMENT

The study was conducted according to the signed declaration certificate from all participants.

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