The Journal of Phytopharmacology 2022; 11(3):173-187
Online at: www.phytopharmajournal.com

Research Article

ISSN 2320-480X
JPHYTO 2022; 11(3): 173-187
May- June
Received: 29-03-2022
Accepted: 10-04-2022

doi: 10.31254/phyto.2022.11308

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Knowledge and attitude towards COVID-19 among university students

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ABSTRACT

The present study aimed to assess the knowledge and attitude of university students about the new evolving coronavirus COVID-19. In this connection, the study was carried out among the students of SKUAST-K. A descriptive survey method was used to conduct the study. Under the jurisdiction of SKUAST-K, Shalimar, Srinagar, Faculty of Fisheries was selected by purposive sampling technique. The target population of the study comprised of the students of Faculty of Fisheries, Rangil, Ganderbal with total population size of 193. The sample of study constituted 100 students. Stratified random sampling technique was used for present study and the samples were taken proportionally with the total number of undergraduate and postgraduate students, with 62 students from U.G, 25 students from masters and 13 students from Ph.D. respectively. A self-administered questionnaire was developed to obtain information from the respondents. The data collected from the survey was analyzed using standard statistical tools like descriptive statistics such as frequency and percentage and inferential statistics such as Chi-square test. PAST 4.0 and SPSS version 20.0 was used for analysis of data. From the present study, it was concluded that majority of the respondents were having good knowledge towards COVID-19 and were very much aware about general information, cause, symptoms, transmission routes and prevention of the coronavirus disease. However, the respondents in the study were also having certain misconceptions pertaining to certain aspects of COVID-19. Majority of the respondents were of the opinion that imposing restrictions on travel to and from COVID-19 contaminated areas, closure of all educational institutes, limiting access to religious sites, isolating COVID-19 patients in special isolation wards, maintaining social distancing and locking down and quarantining whole population was a good decision by government. The respondents also showed a positive attitude towards role of media in covering COVID-19 pandemic. Furthermore, from the study, majority of the respondents disagreed that the government took all the necessary steps to tackle COVID-19 virus successfully.

Keywords: Coronavirus, COVID-19, Pandemic, Knowledge, Attitude, Students.

INTRODUCTION

Handling a pandemic is a difficult task. However, in contrast to other natural disasters, pandemics' destructive effects can be effectively shaped and alleviated by managers, through correct and convenient choices. Choices are significant to deal with the spread of the pandemic, and the adequacy of these decisions rely on the ability to make, share, gather, move and elaborate information, that is by a compelling and productive process of knowledge management in pandemics [1,2].

Influenza pandemics fall in natural disasters typology. The pandemic word originates from the Greek word "pandemos" which in a real sense makes an interpretation of to "common to all individuals". "In contrast to occasional influenza, pandemic is portrayed by the contagion that spreads from one human to another, can be deadly and is fit for a fast overall expansion. The contagion is probably going to be, in spite of the fact that doesn't need to solely be, novel influenza and it will be an illness for which people have no resistance. It creates panic among the populace and, additionally, there is no vaccine available and potentially no successful anti-viral drug either" [3]. The World Health Organization expresses that the worldwide spread of a new disease is referred to as pandemic. "An influenza pandemic happens when a new influenza virus arises and spreads all throughout the world, and most people do not have immunity. Viruses that have caused past pandemics ordinarily started from animal influenza viruses" [4].

Verifiable pandemic frameworks report several pandemics deserving of note like the Black Death (1347 to 1351, with assessed fatalities of 75 million over a 450 million worldwide total populace); Spanish flu (1918 to 1919, accounted 50 million deaths); Asian flu (1957 to 1958) and Hong Kong flu (1968 to 1969) had a combined global mortality of 3 million; HIV/AIDS tainted around 60 million people and 35 million deaths [3]. Other exotic diseases showed up later, like Ebola, Bovine Spongiform Encephalopathy

(Also known as mad cow disease), severe acute respiratory syndrome (SARS) which appeared in 2002-2003, to H1N1 happened in 2010, and finally COVID-19 in 2020 [5].

Coronavirus (COVID-19) contagion can be thought one about the quickest spreading viral contaminations. As it got found in Wuhan, China, towards the end of 2019, more than one million people were infected in excess of 200 countries in under four months [6,7]. Corona is a Latin expression that implies crown. It's an enormous ribonucleic acid (RNA) positive single-stranded encompassed virus, one of Beta coronavirus family [6-9]. After H1N1 in 2009, Polio and Ebola in 2014, Zika in 2016, and Ebola once again in 2019, COVID-19 was announced as a flare-up, by the World Health Organization (WHO) on January 30th, 2020, turning into the sixth general well-being crisis of worldwide concern [7,8].

The infection spreads starting with one individual then onto the next by droplets or by direct contact and it could take up to 14 days (regularly five days) since the infection by the virus to foster indications [8,10,11]. Old and individuals with diminished immunity because of a disease or drug are at high danger of contamination [10-12]. The preliminary signs and symptoms of COVID-19 disease are fever, dry cough and breath shortness. Other symptoms may include, body pain, fatigue and headache [8,10,13].

Knowledge of contamination pathways and important insurances to take is expected to control the pandemic. While mainstream researchers keep on exploring potential immunizations or medications for the viral disease, it is normal that satisfactory information will persuade people to settle on choices which may forestall and control the epidemics. Knowledge such as customary hand washing, utilizing hand sanitizers, wearing face masks, respiratory etiquettes, social distancing and self-isolation when sick is essential to reducing widespread contamination [14]. Studies [15-17] uncovered that individuals' degree of knowledge about an infectious disease can cause them to act in manners that may forestall infection. Hence, individuals may need to be informed about the possible hazards of contaminations in order to implement the correct preventive measures [18].

MATERIALS AND METHODS

Location of study area

The location of the study was Faculty of Fisheries, SKUAST-K, Rangil, Ganderbal.

Research design

The present study employed a descriptive research design that used a survey strategy for data collection. The research aimed to accurately and systematically describe a population, phenomenon or situation and used a wide variety of research methods to investigate one or more variables.

Sampling procedure

Selection of college

Sher-e-Kashmir University of Agricultural Sciences and Technology of Kashmir, Shalimar, Srinagar, comprises of 7 colleges/faculties and out of these 7 colleges, Faculty of Fisheries was selected for the study by purposive sampling method.

Selection of respondents

Population of study

The target population of the study comprised of the students of Faculty of Fisheries, Rangil, Ganderbal with total population size of 193.

Number of selected respondents

The sample of study constituted 100 students. Stratified random sampling technique was used for the study. Samples were taken proportionally with the total number of undergraduate and postgraduate students, with 62 undergraduate students, 25 masters students and 13 Ph.D. students respectively.

Data collection

The study was accomplished by scheming a well-designed questionnaire. Each question was set up carefully with the help of experts. To facilitate the respondents, the researcher personally visited the sample students and distributed the questionnaire to the fishery students for primary data collection, requesting the students to participate in the study, explaining the object of the study and providing directions on how to answer various sections of the questionnaire. The respondents were assured about keeping their identity confidential. The questionnaire comprised of the questions which measured the required knowledge and attitude of the students towards the pandemic. The questions were close ended (Yes/No).

Data analysis

The data collected was tabulated into the coding sheet (Microsoft Excel was used for tabulation of data) and then appropriate analysis of data was made. The standard statistical tools and approaches which were used in the study were as under:

Descriptive statistics:- Percentage and Frequency.

Inferential statistics:- Chi-square test.

Analysis of data was carried out with the statistical softwares namely SPSS-Statistical Package for the Social Sciences, version 20.0 and PAST 4.0.

RESULTS

Socio-demographic characteristics of the population under study

Gender

The data presented in Table 1 revealed that a total of 100 students studying in Faculty of Fisheries, SKUAST-K participated in the study, of which 27% of the

respondents were male students and 73% of the respondents were female students.

Age

The age of the male respondents ranged from 20-25 years, of which maximum (37.04%) were aged 21, followed by 22 (18.52%), 23 (18.52%) and 20 years (14.81%) and least number of respondents were 25 years old (7.41%). The female respondents age ranged from 19-30, out of which maximum (24.66%) were having 21 years of age, followed by 23 (15.07%), 24 (13.70%), 22 (12.33%), 20 (9.59%), 28 (8.22%), 27 (5.48%), 26 (4.11%) and 25 years (4.11%) and also the least number of respondents were 19 (1.37%) and 30-year-old (1.37%). Also, none of the female respondents age was 29 years (0%).

Religion

Regarding their religion, majority (92.59%) of the male respondents were Muslims followed by Hindu (3.70%) and Christian (3.70%). Among the female respondents, majority (98.63%) were Muslims followed by Christian (1.36%).

Education level

With respect to the education level of the male and female respondents, the majority of the respondents were from U.G (male= 81.48%., female= 54.79%), followed by masters (male=18.52%., female = 27.40%) and Ph.D. (male= 0%, female= 17.81%).

Place of residence

Concerning the residence of male respondents, majority (70.4%) lived in rural area followed by urban area (29.60%), while in case of female respondents, majority (53.42%) resided in urban area followed by rural area (46.58%).

Knowledge of students towards COVID-19 pandemic

The following questions were asked to the respondents i.e., students to assess their knowledge regarding pandemic.

Table 1: Socio-demographic characteristics of the population under study

N=100 (Male N=27, Female N =73)

S. No.	Characteristics	Category	Frequency (%)	
			Male	Female
1.	Age (in years)	19	0 (0.00)	1 (1.37)
		20	4 (14.81)	7 (9.59)
		21	10 (37.04)	18 (24.66)
		22	5 (18.52)	9 (12.33)
		23	5 (18.52)	11 (15.07)
		24	1 (3.70)	10 (13.70)
		25	2 (7.41)	3 (4.11)
		26	0 (0.00)	3 (4.11)
		27	0 (0.00)	4 (5.48)
		28	0 (0.00)	6 (8.22)
		29	0 (0.00)	0 (0.00)
		30	0 (0.00)	1 (1.37)
2.	Religion	Muslim	25 (92.60)	72 (98.63)
		Hindu	1 (3.70)	0 (0.00)
		Sikh	0 (0.00)	0 (0.00)
		Christian	1 (3.70)	1 (1.37)
3.	Education level	U.G	22 (81.48)	40 (54.79)
		Masters	5 (18.52)	20 (27.40)
		Ph.D.	0 (0.00)	13 (17.81)
4.	Place of residence	Urban	8 (29.60)	39 (53.42)
		Rural	19 (70.40)	34 (46.58)

Awareness of the novel coronavirus

The data presented in Table 2, collected from respondents of the faculty, regarding their knowledge towards COVID-19 revealed that all (100%) of the male and female respondents were aware of the novel coronavirus epidemic.

Cause of COVID-19

All (100%) of the male and female respondents knew that COVID-19 epidemic is caused by a virus.

COVID-19 is contagious

About 92.59% of the male respondents and over 94.52% of the female respondents stated that COVID-19 is a contagious disease.

COVID-19 is curable

Around 77.78% of the male and 61.64% of the female respondents said that COVID-19 is curable.

Corona virus is the deadliest virus

66.67% male respondents and 64.38% female respondents thought that coronavirus is the deadliest virus in the world.

Corona infection means inevitable death

About 70.37% of the male respondents and 64.38% of the female respondents stated that corona infection doesn't lead to inevitable death.

Person with coronavirus infection can recover completely

Around 81.48% of the male respondents and about 84.93% of the female respondents thought that the person infected with coronavirus could recover completely.

The virus can affect all the age groups

Majority of the male (96.30%) and the female (98.63%) respondents said that coronavirus might affect all the age-groups.

Children and the elderly are more likely to have complications

Additionally, the respondents were of the opinion that children and the elderly were more likely to have complications (92.59%=male respondents, 93.15% =female respondents).

The disease is more dangerous in pregnant women

About 85.19% of the male respondents and over 89.04% of the female respondents were of the opinion that COVID-19 is more dangerous in pregnant women.

COVID-19 is dangerous in people with diabetes, cancer and chronic respiratory diseases

All (100%) of the male respondents and over 98.63% of the female respondents agreed that the coronavirus disease is more dangerous in people with diabetes, cancer and chronic respiratory diseases.

Health workers are among the most vulnerable groups to get infected with coronavirus

Majority of the male (96.30%) and the female respondents (95.89%) said that health workers are most prone to get infected with this coronavirus.

All COVID-19 patients need ventilator to survive

88.89% of the male respondents and 95.89% of the female respondents said that all COVID-19 patients do not need ventilator to survive.

The prevalence of COVID-19 disease is increasing in India

About 92.59% of the male respondents and 82.19% of the female respondents felt that the prevalence of COVID-19 disease is increasing in India.

The virus is transmitted through the air over long distances

Among the male respondents, almost 77.78% and among the female respondents, around 68.49% knew that the coronavirus is not transmitted through air over long distances.

The virus is transmitted from person to person through a handshake

Majority (96.30%) of the male and female (90.41%) respondents knew that the virus could be transmitted through a handshake from person to person.

The virus is transmitted through contact with infected surfaces

Majority (96.30%) of the male and female (98.63%) knew that the virus could be transmitted through contact with infected surfaces.

The virus is transmitted directly through contact with infected individuals (hugging, kissing)

All (100%) of the male respondents and over 98.63% of the female respondents knew that the coronavirus is transmitted directly through contact with infected individuals (hugging, kissing).

COVID-19 disease transmits through household pets to humans

About 59.26% of the male respondents and nearly 67.12% of the female respondents knew that the COVID-19 disease is not transmitted through household pets to humans.

Incubation period for the COVID-19 virus ranges from 3 to 5 days

Almost 51.85% of the male respondents believed that the incubation period for the coronavirus ranges from 3-5 days and almost 52.05% of the female respondents stated that the incubation period for the coronavirus does not range from 3-5 days.

Symptoms of coronavirus include fever, cough and shortness of breath

All (100%) of the male respondents and about 98.63% of the female respondents stated fever, cough as well as shortness of breath as coronavirus symptoms.

Diarrhea or constipation is a symptom of coronavirus infection

Nearly, 66.67% male respondents didn't believe that diarrhea or constipation is a symptom of COVID-19, however, 57.53% female respondents believed that diarrhea or constipation is a symptom of COVID-19. The Chi-square analysis revealed that statistically, significant difference was observed between male and female respondents in response to the statement, Diarrhea or constipation is a symptom of coronavirus infection ($p<0.05$).

Sore throat is a symptom of COVID-19

All (100%) of the male respondents and 93.15% of the female respondents said sore-throat being a symptom of COVID-19.

Body pain is a symptom of COVID-19

Nearly, 85.19% of the male respondents and 86.30% of the female respondents stated body pain as COVID-19 symptom.

Loss of taste and smell is a symptom of COVID-19

Majority (92.59%) of the male and 86.30% of the female respondents agreed that loss of taste and smell being a symptom of COVID-19.

Weight loss is a symptom of COVID-19

Around 55.56% of the male respondents and 64.38% of the female respondents thought that weight loss not being a COVID-19 symptom.

Frequent washing of hands reduces the chance of infection by the virus

All (100%) male respondents and around 97.26% of the female respondents knew that frequent hand wash might reduce the chance of infection by the virus.

The surgical mask protects the person from getting infected with the virus

Majority (92.59%) of the male respondents and all (100%) female respondents hoped that the surgical mask would protect the person from getting this infection. The Chi-square analysis revealed that statistically, significant difference was observed between male and female respondents with respect to the statement, Does the surgical mask protect the person from getting infected with the virus ($p<0.05$).

Washing the nose with saline solution helps to prevent the virus

Approximately, 59.26% of the male respondents and 69.86% of the female respondents believed that washing the nose with saline solution would help in preventing the viral infection.

Transmission of the virus can be reduced by isolating the infected person

All (100%) male respondents and over 97.26% female respondents were aware that isolating the coronavirus infected person could reduce its transmission.

The infected patients must receive intensive treatment

Majority (88.89%) of the male respondents and 91.78% of the female respondents thought that the COVID-19 infected patients must receive intensive treatment.

In suspecting infection with COVID-19, you would primarily visit a physician

On having suspicion of getting COVID-19 infection, the respondents stated that they primarily would visit a physician (81.48% = male respondents, 90.41% = female respondents).

In suspecting infection with COVID-19, you would avoid unnecessary daily activities

The respondents further stated that they would avoid doing unnecessary daily activities upon suspicion of getting infected with COVID-19 (100% = male respondents, 89.04% = female respondents).

Early detection of COVID-19 could improve treatment and outcome

Majority (96.30%) of the male respondents and all (100%) of the female respondents believed that early detection of COVID-19 could improve treatment and outcome.

All COVID-19 patients can be treated at home

Among the male respondents, 81.48% and among the female respondents, 89.04% were of the opinion that all COVID-19 patients cannot be treated at home.

Coronavirus can be treated with antibiotics

Around 81.48% of the male respondents and over 52.05% of the female respondents stated that coronavirus can't be treated with antibiotics. Moreover, the Chi-square analysis revealed that statistically, significant difference was observed between male and female respondents with respect to the statement, Can the coronavirus be treated with antibiotics ($p<0.01$).

Health education can help to prevent COVID-19

All (100%) of the male respondents and 98.63% of the female respondents agreed that health education can help in preventing COVID-19 infection.

COVID-19 disease can be prevented by balanced nutrition

Around half (51.85%) of the male respondents and more than half (54.79%) of the female respondents believed that balanced nutrition can help to prevent coronavirus infection.

Eating garlic can help to prevent infection with the virus

Among the male respondents, 59.26% and among the female respondents, 54.79% didn't agree that eating garlic helps in preventing the disease.

Vitamin C and Vitamin D are important in COVID-19 treatment

Majority (74.07%) of the male and female (86.30%) respondents believed that Vitamin C and Vitamin D are important in the treatment of COVID-19.

A vaccine is currently available to protect against infection with the virus

Around 81.48% male respondents and 89.04% female respondents said that a vaccine is currently available in order to protect oneself against the coronavirus infection.

Attitude of students towards COVID-19 pandemic

The following questions were asked to the respondents i.e., students to comprehend their attitude towards COVID-19 pandemic.

The authorities should restrict travel to and from COVID-19 disease areas to prevent contamination

Regarding the respondent's attitude towards COVID-19, the data presented in Table 3 revealed that majority (92.59%) of the male respondents and 97.26% of the female respondents agreed that authorities should restrict travel to and from COVID-19 disease areas to prevent contamination.

The authorities should quarantine COVID-19 patients in special wards in order to serve and treat them more effectively

The respondents further agreed that COVID-19 patients should be quarantined in special wards to serve and treat them more effectively (100%= male and female respondents).

Media coverage (newspaper, television, online) gives much exposure to the news about the COVID-19 virus

About 62.96% of the male respondents and 79.45% of the female respondents agreed that media coverage (newspaper, television, online) gives much exposure to the news related to COVID-19 virus.

Government is taking all necessary steps to tackle COVID-19 virus successfully

88.89% of the male respondents and 79.45% of the female respondents believed that the government is not taking all necessary steps needed to tackle COVID-19 virus successfully.

Maintaining social distance is must during the ongoing pandemic

Majority (92.59%) of the male and 98.63% of the female respondents feel that social distancing is must to follow during the ongoing pandemic.

It is necessary to store in your phone any helpline number to inform the authorities about the COVID-19 suspect

Around 92.59% of the male respondents and 95.89% of the female respondents were of the opinion that it is necessary to store any helpline number in their mobile phone to inform the authorities about the COVID-19 suspect.

The authorities took all the necessary steps and protocols for the safety of students by closing all educational centers (kindergartens, schools, colleges and universities)

About 59.26% of the male respondents and 75.34% of the female respondents said that the higher authorities have taken necessary steps and protocols for the safety of students by closing all educational institutions (kindergartens, schools, colleges and universities).

The authorities were right in restricting the access to religious sites, shrines and mosques in the event of COVID-19 cases increment

Moreover, the respondents said that the authorities were right in restricting the access to religious sites, shrines and mosques in the event of COVID-19 cases increment (70.37% = male respondents, 86.30% = female respondents).

Wise on behalf of the authorities to lockdown and quarantine the whole population

About 62.96% of the male respondents and 82.19% of the female respondents were of the opinion that the authorities were wise in locking down and quarantining the whole population. The Chi-square analysis revealed that statistically, there is a significant difference between male and female respondents in response to the statement, was it wise on behalf of the authorities to lockdown and quarantine the whole population ($p<0.05$).

Arogya Setu App will help in the fight against COVID-19

Around 55.56% of the male respondents felt that the Arogya Setu App would help in the fight against COVID-19, while as around 53.42% of the female respondents felt that the App would not help in the fight against COVID-19.

Table 2: Knowledge of students towards COVID-19 pandemic

S. No.	Statements	Frequency (%)				Chi-square	p-value
		Male (N=27)		Female (N=73)			
		Yes (%)	No (%)	Yes (%)	No (%)		
1.	Are you aware of the novel coronavirus epidemic?	27 (100.00)	0 (0.00)	73 (100.00)	0 (0.00)	NA	NA
2.	COVID-19 is caused by a virus	27 (100.00)	0 (0.00)	73 (100.00)	0 (0.00)	NA	NA
3.	COVID-19 is a contagious disease	25	2	69	4	0.129	0.718

		(92.59)	(7.41)	(94.52)	(5.48)		
4.	Is COVID-19 a curable disease?	21 (77.78)	6 (22.22)	45 (61.64)	28 (38.36)	2.286	0.130
5.	Is the corona virus the deadliest virus in the world?	18 (66.67)	9 (33.33)	47 (64.38)	26 (35.62)	0.045	0.831
6.	Does corona infection mean inevitable death?	8 (29.63)	19 (70.37)	26 (35.62)	47 (64.38)	0.314	0.574
7.	A person with coronavirus infection can recover completely	22 (81.48)	5 (18.52)	62 (84.93)	11 (15.07)	0.174	0.676
8.	Can the virus affect all the age groups?	26 (96.30)	1 (3.70)	72 (98.63)	1 (1.37)	0.547	0.459
9.	Are the children and the elderly more likely to have complications?	25 (92.59)	2 (7.41)	68 (93.15)	5 (6.85)	0.009	0.922
10.	Is the disease more dangerous in pregnant women?	23 (85.19)	4 (14.81)	65 (89.04)	8 (10.96)	0.277	0.598
11.	Is the disease more dangerous in people with diabetes, cancer and chronic respiratory diseases?	27 (100.00)	0 (0.00)	72 (98.63)	1 (1.37)	0.373	0.541
12.	Are the health workers among the most vulnerable groups to get infected with this coronavirus?	26 (96.30)	1 (3.70)	70 (95.89)	3 (4.11)	0.008	0.926
13.	Do all COVID-19 patients need ventilator to survive?	3 (11.11)	24 (88.89)	3 (4.11)	70 (95.89)	1.713	0.190
14.	The prevalence of COVID-19 disease is increasing in India	25 (92.59)	2 (7.41)	60 (82.19)	13 (17.81)	1.672	0.195
15.	Is the virus transmitted through the air over long distances?	6 (22.22)	21 (77.78)	23 (31.51)	50 (68.49)	0.825	0.363
16.	Is the virus transmitted from person to person through a handshake?	26 (96.30)	1 (3.70)	66 (90.41)	7 (9.59)	0.927	0.335
17.	Is the virus transmitted through contact with infected surfaces?	26 (96.30)	1 (3.70)	72 (98.63)	1 (1.37)	0.547	0.459
18.	Is the virus transmitted directly through contact with infected individuals (hugging, kissing)?	27 (100.00)	0 (0.00)	72 (98.63)	1 (1.37)	0.373	0.541
19.	Does COVID-19 disease transmit through household pets to humans?	11 (40.74)	16 (59.26)	24 (32.88)	49 (67.12)	0.535	0.464
20.	The incubation period for the COVID-19 virus ranges from 3 to 5 days	14 (51.85)	13 (48.15)	35 (47.95)	38 (52.05)	0.120	0.728
21.	Coronavirus symptoms include fever, cough and shortness of breath	27 (100.00)	0 (0.00)	72 (98.63)	1 (1.37)	0.373	0.541
22.	Diarrhea or constipation is a symptom of coronavirus infection	9 (33.33)	18 (66.67)	42 (57.53)	31 (42.47)	4.619	0.031
23.	Sore throat is a symptom of COVID-19	27 (100.00)	0 (0.00)	68 (93.15)	5 (6.85)	1.946	0.162
24.	Body pain is a symptom of COVID-19	23 (85.19)	4 (14.81)	63 (86.30)	10 (13.70)	0.020	0.886
25.	Loss of taste and smell is a symptom of COVID-19	25 (92.59)	2 (7.41)	63 (86.30)	10 (13.70)	0.738	0.390
26.	Is weight loss a symptom of COVID-19?	12 (44.44)	15 (55.56)	26 (35.62)	47 (64.38)	0.651	0.419
27.	Does frequent washing of hands reduces the chance of infection by the virus?	27 (100.00)	0 (0.00)	71 (97.26)	2 (2.74)	0.754	0.384
28.	Does the surgical mask protect the person from getting infected with the virus?	25 (92.59)	2 (7.41)	73 (100.00)	0 (0.00)	5.517	0.018
29.	Does washing of the nose with saline solution	16	11	51	22	1.002	0.316

	helps to prevent the virus?	(59.26)	(40.74)	(69.86)	(30.14)		
30.	Do you think the transmission of the virus can be reduced by isolating the infected person?	27 (100.00)	0 (0.00)	71 (97.26)	2 (2.74)	0.754	0.384
31.	Do you think the infected patients must receive intensive treatment?	24 (88.89)	3 (11.11)	67 (91.78)	6 (8.22)	0.201	0.653
32.	In suspecting infection with COVID-19, will you primarily visit a physician?	22 (81.48)	5 (18.52)	66 (90.41)	7 (9.59)	1.488	0.222
33.	In suspecting infection with COVID-19, will you avoid unnecessary daily activities?	27 (100.00)	0 (0.00)	65 (89.04)	8 (10.96)	3.216	0.072
34.	Can early detection of COVID-19 improve treatment and outcome?	26 (96.30)	1 (3.70)	73 (100.00)	0 (0.00)	2.731	0.098
35.	Can all COVID-19 patients be treated at home?	5 (18.52)	22 (81.48)	8 (10.96)	65 (89.04)	0.995	0.318
36.	Can the coronavirus be treated with antibiotics?	5 (18.52)	22 (81.48)	35 (47.95)	38 (52.05)	7.111	0.007
37.	Can health education help prevent COVID-19?	27 (100.00)	0 (0.00)	72 (98.63)	1 (1.37)	0.373	0.541
38.	Can COVID-19 be prevented by balanced nutrition?	14 (51.85)	13 (48.15)	40 (54.79)	33 (45.21)	0.068	0.793
39.	Do you think eating garlic can help to prevent infection with the virus?	11 (40.74)	16 (59.26)	33 (45.21)	40 (54.79)	0.159	0.689
40.	Do you think Vitamin C and Vitamin D are important in COVID-19 treatment?	20 (74.07)	7 (25.93)	63 (86.30)	10 (13.70)	2.088	0.148
41.	Is a vaccine currently available to protect against infection with the virus?	22 (81.48)	5 (18.52)	65 (89.04)	8 (10.96)	0.995	0.318
Total		834 (75.33)	273 (24.67)	2284 (76.31)	709 (23.69)	NA	

DISCUSSION

Socio-demographic characteristics of the population under study

Gender

The socio-demographic characteristics data presented in Table 1 with respect to gender of the respondents who participated in the study, revealed that majority of the respondents from Faculty of Fisheries comprised of females in contrast with the male participants. The reason for having more female respondents was because the faculty has a greater number of female students on roll as compared to male students. The findings have been supported by [19-21] Bhattacharjee *et al.* (2021), Olaimat *et al.* (2020) and Bolarinwa *et al.* (2020).

Age

The distribution of the male and female respondents, according to their age, revealed that greater part of the respondents was young and were 21 years old. This is because the respondents in the study comprised of U.G and P.G students who usually fall in the age range of 19-30 years and are considered to be youth.

Religion

Concerning the religion of the respondents enrolled in Faculty of Fisheries, it was concluded that majority of the male and female respondents belonged to Muslim community owing to the fact that the region is having a Muslim majority population. Also, least number of male respondents belonged to both Hindu and Christian community while as least number of female respondents belonged to Christian community only. These respondents were non-Kashmiris/non-Muslims belonging to other parts of India. The findings are in line with [19,22,23] Bhattacharjee *et al.* (2021), Habib *et al.* (2021) and Mahmud *et al.* (2021).

Education level

With regards to the education level of the male and female respondents, it was revealed that majority of the male and female respondents were from U.G level. As greater number of students are enrolled in undergraduate degree level program at the Faculty of Fisheries in comparison to postgraduate degree level programs, therefore, proportionately more students were selected from U.G. The results have been supported by [20,24] Olaimat *et al.* (2020) and Boladale *et al.* (2015).

Place of residence

Regarding the place of residence of the male respondents, it was revealed that majority of the respondents enrolled at the faculty were the inhabitants of rural areas while as majority of the female respondents dwelled in urban areas. The results are in corroboration with [25-27] Mozid *et al.* (2021), Reuben *et al.* (2021) and Rahman *et al.* (2021).

Knowledge of students towards COVID-19 pandemic

To the best of our information, this was the first study conducted at Faculty of Fisheries, SKUAST-K, Rangil, Ganderbal, Kashmir which investigated the knowledge towards COVID-19 amongst the male and female students. The sample consisted of 100 students from the faculty. The total number of questions being asked to the respondents about their knowledge towards COVID-19 were 41. The questions which the respondents answered correctly have been discussed below.

All the male and female students from the faculty were very much aware and had heard about the novel coronavirus. The findings are in corroboration with studies conducted by [28,29] Erfani *et al*., 2020 and Alrubaiee *et al*., 2020, in which majority of the respondents were aware of COVID-19. Also, in our study, all the male and female respondents knew that the disease is caused by a virus which causes an infection in the nose, sinuses and upper throat. The results are in line with the studies conducted by [30,31] Singh, M. *et al*., 2020 and Galle *et al*., 2020 which revealed that major part of the respondents very well knew the cause of COVID-19 is a virus. Majority of the male and female respondents in our study were familiar with the novel COVID-19 being a communicable disease which can get transmitted through respiratory droplets when an infected person coughs, sneezes or talks. Similar findings have been reported by [28,32,33] Erfani *et al*., 2020; Zegarra-Valdivia *et al*., 2020 and Gohel *et al*., 2021 in which a high proportion of participants provided the correct response about COVID-19 disease being contagious.

Furthermore, more than half of the male and female respondents in our study answered that COVID-19 disease is treatable with certain treatments available to help manage it. The results are corroborated with studies done by [28,32,34] Erfani *et al*., 2020; Zegarra-Valdivia *et al*., 2020 and Bautista Jr. *et al*., 2020, in which more than half of the participants reported COVID-19 disease is curable. Greater percentage of male and female respondents in our study knew and didn't believe that corona infection would lead to unavoidable death. However, in a study done by [35] Alraqche *et al.,* 2020, it was reported that around half of the respondents didn't believe that corona infection will lead to inevitable death.

In our study, majority of the male and female respondents were aware that a person who contracts COVID-19 infection will make a complete recovery. The findings are in line with the studies carried out by [35,36] Alraqche *et al.,* 2020 and Hasan *et al.,* 2021, in which around half and more than three-fourths of the participants respectively, concurred that complete recovery can be achieved in a person infected with COVID-19. Most of the male and female respondents in our study stated that people of all ages can be infected by the COVID-19 virus. The results are in agreement with studies done by [31,35] Galle *et al.,* 2020 and Alraqche *et al.,* 2020, in which majority of the respondents knew that COVID-19 may affect all the age groups. In addition, a higher percentage of the male and female respondents agreed with the statement that children as well as the elderly were more likely to have complications, leading to hospitalization and even death for young and middle-aged adults. Similar results have been reported by [35] Alraqche *et al.,* 2020 in their study, in which majority of the respondents agreed that the virus may be more dangerous in children and the elderly.

Major portion of the male and female respondents in our study were aware that pregnant women are at a very high risk for severe illness with infection of COVID-19 and the disease being more dangerous in them. The results are in corroboration with studies done by [28,37-38] Erfani *et al*., 2020; Khasawneh *et al*., 2020 and Alahdal *et al*., 2020, in which majority of the participants reported that pregnant women are more susceptible to COVID-19 disease. Besides, all the male respondents and major part of the female respondents in our study knew that the COVID-19 disease is likely more dangerous in people with medical conditions like diabetes, cancer and long-lasting respiratory diseases. Similar findings have been reported by [28,39] Erfani *et al*., 2020 and Badi *et al*., 2021, in their studies, which revealed that majority of the respondents were aware that the virus is more dangerous in patients with underlying health conditions for example diabetes, cancer and chronic respiratory diseases.

Greater number of the male and female respondents in our study were conscious that health workers are among the most vulnerable groups to get infected with COVID-19 as they are in direct contact with undiagnosed as well as diagnosed patients. Similar findings have been revealed by [35,40] Alraqche *et al*., 2020 and Giao *et al*., 2020, in which around half and major portion of the respondents respectively, knew that healthcare workers are at a higher risk of getting coronavirus infection. Additionally, larger part of the male and female respondents in our study answered that all COVID-19 patients do not need ventilators or life-support machines to stay alive. Majority of the male and female respondents in our study said that the occurrence of COVID-19 disease is rising in India, owing to its high caseload daily.

According to the W.H.O, [41] COVID-19 can travel through the air for short distances (around 1 meter), instead travelling through the air over long distances. This was known to greater percentage of the male and female respondents in our study. However, in studies carried out by [35,42] Alraqche *et al*., 2020 and Iqbal and Younas, 2021, only less than half of the respondents were aware about the same. Larger number of the male and female respondents in our study knew that the coronavirus could be transferred from person to person through handshaking. The findings are in line with studies done by [35,37,43] Alraqche *et al*., 2020; Khasawneh *et al*., 2020 and Ngwewondo *et al*., 2020, in which it was reported that majority of the participants knew that handshaking could transmit the virus. Major part of the male and female respondents in our study very well knew that the coronavirus could also be transmitted

to people upon touching and coming into contact with infected surfaces. The results are in agreement with studies done by [28,34,37,43] Erfani *et al*., 2020; Bautista Jr. *et al*., 2020; Khasawneh *et al*., 2020 and Ngwewondo *et al*., 2020, in which major portion of the respondents were aware about the fact that disease could be transmitted through touching contaminated surfaces.

Furthermore, in our study, all of the male respondents and majority of the female respondents identified that the transmission of the coronavirus occurs directly through coming into contact with infected persons (hugging, kissing). Similar findings have been corroborated by [28,34,37,43] Erfani *et al*., 2020; Bautista Jr. *et al*., 2020; Khasawneh *et al*., 2020 and Ngwewondo *et al*., 2020, in their studies, in which it was revealed that majority of the participants knew that the disease could be transmitted through hugging, kissing an infected person. Greater part of the male and female respondents in our study also knew that the COVID-19 disease is not transmitted through household pets to humans. Similar results have been put forth by [28,38,44] Erfani *et al*., 2020; Alahdal *et al*., 2020 and Shukla and Deotale, 2020, in which majority of the respondents reported that COVID-19 cannot be transmitted from pets to humans.

With respect to incubation period range for the novel coronavirus, around half of the male respondents and more than 50% of the female respondents in our study knew that the incubation period for the coronavirus does not range from 3-5 days, the actual incubation period for the coronavirus reaches up to 14 days [41] (W.H.O, 2020). Similar findings have been put forth by [28,35] Erfani *et al*., 2020 and Alraqche *et al*., 2020, in which around less than half and more than half of the respondents respectively were aware about the incubation period of COVID-19. However, around half of the male respondents in our study said that the incubation period for the virus ranges from 3-5 days indicating that they were not having proper knowledge regarding the same. The findings have been supported by [35] Alraqche *et al*., 2020, in which majority of the respondents said the same.

With regard to signs and symptoms of the COVID-19 virus, in our study, all of the male respondents and majority of the female respondents correctly identified the common symptoms of COVID-19 virus like cough, fever, and shortness of breath. Similar findings have been noted by [30,35,39] Singh, M. *et al*., 2020; Alraqche *et al*., 2020 and Badi *et al*., 2021, in their studies, in which majority of the respondents knew the common COVID-19 symptoms. All of the male respondents and majority of the female respondents in our study were aware that itchy, scratchy sore-throat is one of the potential symptoms of COVID-19.The results are in corroboration with [28,32,34] Erfani *et al*., 2020; Zegarra-Valdivia *et al*., 2020 and Bautista Jr. *et al*., 2020, where majority of the respondents knew sore throat being a COVID-19 symptom. Also, most of the male and female respondents in our study were aware that body or muscle ache is a symptom of coronavirus. The results are in line with [28,32,34,45] Erfani *et al*., 2020; Zegarra-Valdivia *et al*., 2020; Bautista Jr. *et al*., 2020 and Labban *et al*., 2020, where majority of the respondents identified body or muscle pain as a COVID-19 symptom.

Furthermore, most of the male and female respondents in our study knew that loss of smell accompanied by loss of taste is one of the symptoms of COVID-19.The results have been supported by [46,47] Kempker *et al*., 2021 and Menni *et al*., 2020. Less than half of the male respondents and more than half of the female respondents in our study knew that diarrhea or constipation is a symptom of COVID-19.The results are in line with [28] Erfani *et al*., 2020, where around half of the respondent's reported diarrhea or constipation as a COVID-19 symptom. However, more than half of the male respondents in our study stated and believed that diarrhea or constipation is not a symptom of COVID-19 which actually is, indicating that they were not having proper knowledge regarding the same. The findings are in agreement with [28,32] Erfani *et al*., 2020 and Zegarra-Valdivia *et al*., 2020, where less than half and more than half of the respondents believed the same.

As stated by W.H.O, [48] in order to protect oneself from COVID-19 infection, frequent handwashing should be done, social distancing of at least 1 meter should be maintained. One should avoid touching the face and cover the mouth and nose while coughing or sneezing. One should wear a mask which is necessary in public places, where there is community transmission and where physical distancing is not possible. In our study, all of the male respondents and majority of the female respondents knew that frequent handwashing might lessen the chance of infection by the virus as handwashing being one of the common and best ways to prevent the spread of coronavirus. The findings are in line with studies done by [39,49] Badi *et al*., 2021 and Shaikh *et al*., 2020, where majority of the respondents knew about the same. Major portion of the male respondents and all of the female respondents in our study stated that the surgical mask would protect the person from getting coronavirus infection. The findings are in line with [33,39] Gohel *et al*., 2021 and Badi *et al*., 2021, where a high majority of the participants stated that wearing a surgical mask is a considerable approach to prevent COVID-19. Moreover, all of the male respondents and major part of the female respondents in our study were conscious that isolating the coronavirus infected person could reduce its transmission. The results are in agreement with [50] Rahman *et al*., 2021, where majority of the respondents knew that immediate isolation of infected person could reduce the spread of the virus. In another study done by [35] Alraqche *et al*., 2020, it was revealed that around half of the respondents were aware that isolation of the infected person reduces the virus transmission.

All the male respondents and greater part of the female respondents in our study stated that they would avoid doing unnecessary daily activities like attending mass gatherings and crowded places, venturing into someone's home such as of relatives and friends, attending weddings and parties, opting public transportation, visiting restaurants upon suspicion of getting infected with COVID-19, in order to prevent others from getting this infection. The findings have been supported by [28,34] Erfani *et al*., 2020 and Bautista Jr. *et al*., 2020, where majority of the respondents reported the same. Majority of the male respondents and all of the female respondents in our study said that early detection of COVID-19 could improve both treatment and outcome. The findings have been put forth by [28,34] Erfani *et al*., 2020 and Bautista Jr.

et al., 2020, where majority of the respondents stated the same.

Moreover, in our study, major part of the male and female respondents was aware that all COVID-19 patients cannot be treated at home. Greater part of the male respondents and more than half of the female respondents in our study were aware that antibiotics have no role in treating coronavirus infection. The findings have been supported by [31,38] Galle *et al*., 2020 and Alahdal *et al*., 2020, where majority of the participants recognized that antibiotics have no role and were not effective for treating COVID-19. Besides, all of the male respondents and greater number of the female respondents in our study were aware that health education can help in inhibiting COVID-19 infection. The findings are in line with studies conducted by [28,34] Erfani *et al*., 2020 and Bautista Jr. *et al*., 2020, where major part of the respondents reported the same.

More than 50% of the male and female respondents knew that eating garlic cannot help in preventing the coronavirus disease. However, in studies conducted by [33,35] Gohel *et al*., 2021 and Alraqche *et al*., 2020, revealed that less than 50% of the respondents were aware that eating garlic cannot help to prevent infection with the virus. Besides, most of the male and female respondents in our study were aware that a vaccine against COVID-19 is currently available. The findings have been supported by [30,35] Singh, M. *et al*., 2020 and Alraqche *et al*., 2020, in their studies, where majority of the participants stated the same.

The reason behind the respondents having good knowledge about COVID-19 could be attributed to the fact that the government and non-government agencies have done a lot of work towards creating awareness about COVID-19 through various awareness programmes both through mass media like T.V, radio, newspapers etc. The pandemic caused a havoc all over the world and there were lot of mortalities and as it is a highly contagious disease, so people were themselves interested to know about the disease so that they could follow all the measures to save themselves. Students falling in the category of educated lot also were interested to gain knowledge.

The questions which the respondents did not answer correctly are discussed below.

Majority of the male and female respondents in our study said that coronavirus was the deadliest virus in the world (Ebola virus being the deadliest virus) [51-52]. The findings are in line with a study conducted by [35,53] Alraqche *et al*., 2020 and Swetha *et al*., 2020, in which around more than half and less than half of the respondents, respectively said COVID-19 is the deadliest virus in the world. More than 50% of the both male and female respondents in our study stated that weight loss is not a symptom of COVID-19 which actually is a COVID-19 symptom. The results have been supported by [32] Zegarra-Valdivia *et al*., 2020, where more than half of the participants stated the same. Moreover, more than half of the male and female respondents in our study stated that washing of the nose with some saline solution would help in preventing the viral infection which is not true. The findings are in agreement with [35,54] Alraqche *et al*., 2020 and Mannan and Farhana, 2020, where more than half of the total respondents stated the same.

Majority of the male and female respondents in our study said that the coronavirus infected patients must receive intensive treatment. The findings are in corroboration with [35] Alraqche *et al*., 2020, where majority of the respondents said the same. Besides, a larger part of the male and female respondents in our study also stated that primarily visiting a physician is necessary on having suspicion of getting COVID-19 infection. The findings have been supported by [28,34] Erfani *et al*., 2020 and Bautista Jr. *et al*., 2020, in their studies, where majority of the participants reported the same.

Around half of the male respondents and more than half of the female respondents in our study said that balanced nutrition can help to prevent coronavirus infection. Moreover, most of the male and female respondents were not aware and believed that Vitamin C and Vitamin D are important in the treatment of COVID-19.

The reason behind the respondents for not having enough knowledge in the above questions pertaining to COVID-19 could be attributed to the fact to certain misconceptions surrounding COVID-19. Apart from the useful information, a lot of false information was also propagated through various communication channels and students like other people also fell prey to such false information.

The Chi-square analysis of the statements, Diarrhea or constipation is a symptom of coronavirus infection and regarding the surgical mask being effective means from protecting a person from virus revealed statistically significant difference between both the male and female responses ($p<0.05$). The Chi-square analysis of the statement that coronavirus could be treated with antibiotics, revealed statistically significant difference between the male and female responses with $p<0.01$.

Attitude of students towards COVID-19 pandemic

With regard to the respondent's attitude towards COVID-19, the questions asked have been discussed below.

The authorities should restrict travel to and from COVID-19 disease areas to prevent contamination

The data presented in Table 3 divulged that majority of the male and the female respondents agreed with the statement that the authorities should make sure to restrict travel to and from COVID-19 disease areas to prevent contamination. The risk of catching COVID-19 depends on where you are and more specifically, whether there is a COVID-19 outbreak unfolding there. For people living in and or visiting these areas, the risk of catching COVID-19 is higher. Therefore, one should be sure to comply with any local restrictions on travel, movement or large gatherings because cooperating with disease control efforts would reduce the risk of catching or spreading COVID-19. The findings are in line with studies done by [28,34] Erfani *et al*., 2020 and Bautista Jr. *et al*., 2020, where majority of the respondents agreed to the above statement.

The authorities should quarantine COVID-19 patients in special wards in order to serve and treat them more effectively

All of the male and female respondents also agreed that the authorities should implement quarantining and isolation of the COVID-19 patients in special isolation wards for serving and treating them more efficiently so as to reduce the transmission of the virus from the community. The results have been supported by [28,34,40] Erfani *et al*., 2020; Bautista Jr. *et al*., 2020 and Giao *et al*., 2020, where majority of the respondents said that authorities should keep COVID-19 patients in special hospital wards.

Media coverage (newspaper, television, online) gives much exposure to the news about the COVID-19 virus

A high percentage of male and female respondents showed a positive attitude towards the role of media in covering COVID-19 pandemic. This could be attributed to the fact that mass media being the major source of information about the novel coronavirus and it kept people informed, therefore, playing an important part in order to slow down the spread of coronavirus. The results are in corroboration with [55] Maheshwari *et al*., 2020.

Government is taking all essential steps to tackle COVID-19 virus successfully

Majority of the male and female respondents did not agree that the government is taking all the necessary steps to tackle COVID-19 virus successfully. This could be due to the reason that the government never expected such grave situation coming out of this pandemic and it could not cater to the needs of the people in these difficult times. Shortage of essential health care services and supplies could also be one of the reasons. In a study done by [34] Bautista Jr. *et al*., 2020, majority of the respondents reported the same.

Maintaining social distance is must during the ongoing pandemic

Maximum number of the male and female respondents felt that social distancing is must to follow during the ongoing pandemic as physical distancing helps in limiting the spread of COVID-19. Also, by keeping a distance of at least 1 m from each other and by avoiding spending time in crowded places or in groups protects own self and others by breaking the chain of transmission. The findings are in agreement with [56-57] Singh *et al*., 2020 and Alduraywish *et al*., 2020.

It is necessary to store in your phone any helpline number to inform the authorities about the COVID-19 suspect

An appreciable number of the male and female respondents accepted that it is compulsory to store any helpline number in their mobile phone so as to inform the authorities about the COVID-19 suspect. In an effort to strengthen the containment of this disease, the government has made these coronavirus helpline numbers available to its citizens to address the queries regarding the disease and to report any suspected coronavirus cases including family members and neighbours to the local district surveillance units.

The authorities took all the necessary steps and protocols for the safety of students by closing all educational centers (kindergartens, schools, colleges and universities)

Higher percentage of the male and female respondents agreed with the statement that the authorities had taken all the necessary measures and protocols by closing all educational institutions (kindergartens, schools, colleges and universities) so as to make sure the safety and protection of students which is very important in order to contain the spread of COVID-19. If the educational institutions were kept open, then the students could have served as the major source of spreading the viral outbreak as young students up to higher secondary level are carefree and ignorant and also could not have maintained necessary protocols for COVID-19. The findings have been supported by [38] Alahdal *et al*., 2020.

The authorities were right in restricting the access to religious sites, shrines and mosques in the event of COVID-19 cases increment

Major part of the male and female respondents agreed that the authorities were correct in limiting the access to religious sites, shrines and mosques in the event of COVID-19 cases increment. In these sites, people remain in close proximity during prayer meetings, sometimes for long hours, increasing the transmission risk of novel pathogens and thus these religious congregations could potentially prove to be the transmission and dispersal hubs of such pathogens as seen with COVID-19 hotspots. Hence, suspension of communal gatherings must be promptly done as a preventive strategy whenever novel pathogens emerge, in order to contain their spread. The results have been corroborated by [38] Alahdal *et al*., 2020.

Wise on behalf of the authorities to lockdown and quarantine the whole population

Greater portion of the male and female respondents were of the opinion that the authorities were wise in locking down and quarantining the entire population. Large scale physical distancing measures and movement restrictions, often referred to as lockdowns can slow COVID-19 transmission by limiting contact between people. Quarantine approach is hence necessary to be enforced as it would curb transmission of COVID-19, decrease the activity of the virus in the community and minimize the mortality in the absence of a vaccine or effective treatment. The results are in agreement with [28,58] Erfani *et al*., 2020 and Kalliath *et al*., 2021. The Chi-square analysis of the statement revealed statistically significant difference between male and female responses ($p<0.05$).

Arogya Setu App will help in the fight against COVID-19

More than half of the male respondents felt that the Arogya Setu App which is a mobile phone application developed by the Government of India (GoI) would surely help in the fight against COVID-19. The results are in corroboration with [59] Kodali *et al*., 2020. However, more than half of the female respondents felt

that the App would not help in the fight against COVID-19.This could be attributed to the reason that the female respondents might not be fully aware about the App, its benefits and features. Most of them may not have installed the App in their phones and also may be worried about privacy concerns with the App, thereby not knowing the effectiveness of the App in curbing the pandemic. Also, the App not cautioning them properly about a coronavirus case nearby, not finding the data trustworthy could also be another reason.

Table 3: Attitude of students towards COVID-19 pandemic

S. No.	Statements	Frequency (%)				Chi-square	p-value
		Male (N=27)		Female (N=73)			
		Yes (%)	No (%)	Yes (%)	No (%)		
1.	Should authorities restrict travel to and from COVID-19 disease areas to prevent contamination?	25 (92.59)	2 (7.41)	71 (97.26)	2 (2.74)	1.118	0.290
2.	Should authorities quarantine COVID-19 patients in special wards in order to serve and treat them more effectively?	27 (100.00)	0 (0.00)	73 (100.00)	0 (0.00)	NA	NA
3.	Media coverage (newspaper, television, online) gives much exposure to the news about the COVID-19 virus?	17 (62.96)	10 (37.04)	58 (79.45)	15 (20.55)	2.858	0.090
4.	Do you feel that the government is taking all necessary steps to tackle COVID-19 virus successfully?	3 (11.11)	24 (88.89)	15 (20.55)	58 (79.45)	1.189	0.275
5.	Maintaining social distance is must during the ongoing pandemic?	25 (92.59)	2 (7.41)	72 (98.63)	1 (1.37)	2.469	0.116
6.	Do you feel that it is necessary to store in your phone any helpline number in order to inform the authorities about the COVID-19 suspect?	25 (92.59)	2 (7.41)	70 (95.89)	3 (4.11)	0.451	0.501
7.	Had the authorities taken all the necessary steps and protocols for the safety of students by closing all educational centers (kindergartens, schools, colleges and universities)?	16 (59.26)	11 (40.74)	55 (75.34)	18 (24.66)	2.476	0.115
8.	Were the authorities right in restricting the access to religious sites, shrines and mosques in the event of COVID-19 cases increment?	19 (70.37)	8 (29.63)	63 (86.30)	10 (13.70)	3.389	0.065
9.	Was it wise on behalf of the authorities to lockdown and quarantine the whole population?	17 (62.96)	10 (37.04)	60 (82.19)	13 (17.81)	4.115	0.042
10.	Do you feel that the Arogya Setu App will help in the fight against COVID-19?	15 (55.56)	12 (44.44)	34 (46.58)	39 (53.42)	0.636	0.425
Total		189 (70.00)	81 (30.00)	571 (78.21)	159 (21.79)	NA	

CONCLUSION

From the present study, it was concluded that majority of the male and female respondents were having good knowledge towards COVID-19 and were very much aware about general information, cause, symptoms, transmission routes and prevention of the coronavirus disease. However, both the male and female respondents in the study were also having certain misconceptions pertaining to certain aspects of COVID-19.

Majority of the respondents were of the opinion that imposing restrictions on travel to and from COVID-19 contaminated areas, closure of all educational institutes, limiting access to religious sites, isolating COVID-19 patients in special isolation wards, maintaining social distancing and locking down and quarantining whole population was a good decision by government.

Also, from the study, high percentage of male and female respondents showed a positive attitude towards role of media in covering COVID-19 pandemic. However, the respondents were of the opinion that initiatives taken by government were not enough to tackle the emergency situation. More than half of the female respondents in the study were unaware of the Arogya Setu App and its role in combatting COVID-19.

Acknowledgment

The authors acknowledge their heartfelt indebtedness to all the respondents who took part in this study.

Conflict of Interest

None declared.

Financial Support

None declared.

REFERENCES

1. Bdeir F, Hossain L, Crawford J. Emerging coordination and knowledge transfer process during disease outbreak. Knowl.Manag. Res.Pract. 2013;11:241-54.
2. Viner RM, Russell SJ, Croker H, Packer J, Ward J, Stansfield C, *et al.* School closure and management practices during coronavirus outbreaks including COVID-19: A rapid systematic review. Lancet Child Adolesc. Health. 2020;4:397-04.

3. Clark RA. Business continuity and the pandemic threat-Potentially the biggest survival challenge facing organizations. p. 16. IT Governance Publishing, 2016.
4. World Health Organization, W. 2010.What is a pandemic? Emergenciespreparedness,response.RetrievedMay12,2020, fromhttps://www.who.int/csr/disease/swineflu/frequently_asked_questions/pandemic/en/
5. Ammirato S, Linzalone R, Felicetti AM. Knowledge management in pandemics. A critical literature review. Knowl. Manag. Res.Pract. 2020:1-12.
6. Kooraki S, Hosseiny M, Myers L, Gholamrezanezhad A.Coronavirus (COVID-19) Outbreak: What the Department of Radiology Should Know. J.Am.Coll.Radiol. 2020;17:447-51.
7. Song P, Karako T. COVID-19: Real-time dissemination of scientific information to fight a public health emergency of international concern. Biosci.Trend, 2020;14:1-2.
8. Lai CC, Shih TP, Ko WC, Tang HJ, Hsueh PR. Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) and coronavirus disease-2019 (COVID-19): The epidemic and the challenges. Int. J. Antimicrob. Agents. 2020;55: 105924.
9. Velavan TP, Meyer CG.The COVID-19 epidemic. Trop.Med.Int.Health. 2020;25:278-80.
10. Wujtewicz M, Dylczyk-Sommer A, Aszkielowicz A, Zdanowski S, Piwowarczyk S, Owczuk R, *et al*. COVID-19- what should anesthesiologists and intensivists know about it? Anesthesiol. Intensive Ther. 2020;52:34-41.
11. Yang Y, Shang W, Rao X. Facing the COVID-19 outbreak: What should we know and what could we do? J. Med. Virol. 2020;92:536-37.
12. Vetter P, Eckerle I, Kaiser L. Covid-19: a puzzle with many missing pieces. BMJ (Clinical research ed.) 2020; 368:m627.
13. Habibzadeh P, Stoneman EK. The Novel Coronavirus: A Bird's Eye View. Int. J. Occup. Environ. Med. 2020;11: 65-71.
14. Leppin A, Aro AR. Risk perceptions related to SARS and avian influenza: theoretical foundations of current empirical research. Int.J.Behav.Med. 2009;16:7-29.
15. Brug J, Aro AR, Oenema A, de Zwart O, Richardus JH, Bishop GD, *et al*. SARS risk perception, knowledge, precautions, and information sources, the Netherlands. Emerg. Infect. Dis. 2004;10:1486-89.
16. Choi JS, Yang NY. Perceived knowledge, attitude, and compliance with preventive behavior on influenza A (H1N1) by university students. J. Korean Acad. Adult Nurs. 2010;22:250-59.
17. Hussain ZA, Hussain SA, Hussain FA. Medical student's knowledge, perceptions, and behavioral intentions towards the H1N1 influenza, swine flu, in Pakistan: a brief report. Am. J. Infect. Control. 2012;40:e11-e13.
18. Brug J, Aro AR, Richardus JH. Risk perceptions and behaviour: towards pandemic control of emerging infectious diseases: international research on risk perception in the control of emerging infectious diseases. Int. J. Behav. Med. 2009;16:3-6.
19. Bhattacherjee D, Akash SR, Saiky SI, Chaity NEN, Islam MA, Jahan N, *et al*. Cross-sectional Survey on Online Learning during COVID-19 Pandemic in Bangladesh. J. drug deliv. ther. 2021;11:135-42.
20. Olaimat AN, Aolymat I, Shahbaz HM, Holley RA. Knowledge and Information Sources about COVID-19 among University Students in Jordan: A Cross-Sectional Study. Front. Public Health. 2020;8:254.
21. Bolarinwa OA, Olagunju O, Babalola T, Saeed BQ. Socio-demographic predictors of adherence to 2019 coronavirus prescribed recommendations and lockdown psychological impacts: Perspectives of Nigerian social media users. J. Public Health Res. 2020;9:1864.
22. Habib MA, Dayyab FM, Iliyasu G, Habib AG. Knowledge, attitude and practice survey of COVID-19 pandemic in Northern Nigeria. PLOS ONE. 2021;16: e0245176.
23. Mahmud S, Mohsin M, Khan IA, Mian AU, Zaman MA. Knowledge, beliefs, attitudes and perceived risk about COVID-19 vaccine and determinants of COVID-19 vaccine acceptance in Bangladesh. PLOS ONE. 2021;16: e0257096.
24. Boladale M, Olakunle O, Olutayo A, Adesanmi A. Sexual orientation and quality of life among students of Obafemi Awolowo University (OAU), Nigeria. Afr. Health Sci. 2015;15:1065-73.
25. Mozid NE, Amin MA, Jhumur SS, Monju IH, Ahmed SB, Sharmin S, *et al*. COVID-19 risk of infection and vaccination during Ramadan fasting: knowledge and attitudes of Bangladeshi general population. Heliyon. 2021;7:e08174.
26. Reuben RC, Danladi M, Saleh DA, Ejembi PE. Knowledge, Attitudes and Practices towards COVID-19: An Epidemiological Survey in North-Central Nigeria. J. Community Health. 2021;46:457-70.
27. Rahman MS, Karamehic-Muratovic A, Amrin M, Chowdhury AH, Mondol MS, Haque U, *et al*. COVID-19 Epidemic in Bangladesh among Rural and Urban Residents: An Online Cross-Sectional Survey of Knowledge, Attitudes, and Practices. Epidemiologia. 2021;2:1-13.
28. Erfani A, Shahriarirad R, Ranjbar K, Mirahmadizadeh A, Moghadami M. Knowledge, Attitude and Practice toward the Novel Coronavirus (COVID-19) Outbreak: A Population-Based Survey in Iran. Bull. World Health Organ. 2020:1-22.
29. Alrubaiee GG, Al-Qalah T, Al-Aawar M. Knowledge, attitudes, anxiety, and preventive behaviours towards COVID-19 among health care providers in Yemen: an online cross-sectional survey. BMC Public Health. 2020; 20:1541.
30. Singh M, Lath D, Reddy J, Balakrishna N. Knowledge and attitude regarding the COVID-19 pandemic among healthcare workers at a medical college and hospital in South India. Natl. J.Physiol.Pharm.Pharmacol. 2020;10: 1065-71.
31. Galle F, Sabella EA, Da Molin G, De Giglio O, Caggiano G, Di Onofrio V, *et al*. Understanding Knowledge and Behaviors Related to CoViD-19 Epidemic in Italian Undergraduate Students: The EPICO Study. Int. J. of Environ. Res. Public Health. 2020;17:3481.
32. Zegarra-Valdivia J, Chino Vilca BN, Ames-Guerrero RJ. Knowledge, perception and attitudes in Regard to COVID-19 Pandemic in Peruvian Population. PsyArXiv. 2020.
33. Gohel KH, Patel PB, Shah PM, Patel JR, Pandit N, Raut A, *et al*. Knowledge and perceptions about COVID-19 among the medical and allied health science students in India: An online cross-sectional survey. Clin. Epidemiology Glob. Health. 2021; 9:104-09.
34. Bautista APJ, Balibrea D, Bleza DG. Knowledge, Attitude and Practice toward the Coronavirus Disease (COVID-19) Outbreak among Selected Employed People in the National Capital Region, Philippines. Asian J. Public Opin. Res. 2020;8:324-50.
35. Alqrache AT, Mostafa MM, Atta HM. Knowledge and Attitude towards Covid-19 among students Of King Abdulaziz University. Era's j. med. res. 2020;7:1-9.
36. Hasan H, Raigangar V, Osaili T, Neinavaei NE, Olaimat AN, Aolymat I, *et al*. A Cross-Sectional Study on University Students' Knowledge, Attitudes, and Practices toward COVID-19 in the United Arab Emirates. Am. J. Trop. Med. Hyg. 2021;104:75-84.
37. Khasawneh AI, Humeidan AA, Alsulaiman JW, Bloukh S, Ramadan M, Al-Shatanawi TN, *et al*. Medical Students and COVID-19: Knowledge, Attitudes, and Precautionary Measures. A Descriptive Study from Jordan. Front. Public Health. 2020;8:253.
38. Alahdal H, Basingab F, Alotaibi R. An analytical study on the awareness, attitude and practice during the COVID-19 pandemic in Riyadh, Saudi Arabia. J. Infect. Public Health. 2020;13:1446-52.

39. Badi S, Abdulraheem MA, Mustafa AA, Matar MS, Yousef BA. Knowledge, attitude, and practice of university students toward COVID-19 in Sudan: An online-based cross-sectional study. Curr. Med. Issues. 2021;19:70-77.
40. Giao H, Han NTN, Khanh TV, Ngan VK, Tam VV, An PL, *et al*. Knowledge and attitude toward COVID-19 among healthcare workers at District 2 Hospital, Ho Chi Minh City. Asian Pac. J. Trop. Med. 2020;13:260-65.
41. World Health Organization.Q&A on coronaviruses (COVID-19) 2020 [updated09/03/2020].Availablefromhttps://www.who.int/news room/q-a-detail/q-a coronaviruses.[Accessed04/04/2020].
42. Iqbal MA, Younas MZ. Public knowledge, attitudes, and practices towards COVID-19 in Pakistan: A cross-sectional study. Child. Youth Serv. Rev. 2021;120:105784.
43. Ngwewondo A, Nkengazong L, Ambe LA, Ebogo JT, Mba FM, Goni HO, *et al*. Knowledge, attitudes, practices of/towards COVID 19 preventive measures and symptoms: A cross-sectional study during the exponential rise of the outbreak in Cameroon. PLOS Negl. Trop. Dis. 2020;14:e0008700.
44. Shukla S, Deotale P. Knowledge, attitude and practices towards COVID-19 pandemic in the community: a cross-sectional web-based survey in India. Int. J. Res. Med. Sci. 2020;8:3652-56.
45. Labban L, Thallaj N, Labban A. Assessing the Level of Awareness and Knowledge of COVID-19 Pandemic among Syrians. Arch.Med. 2020; 12: 1-5.
46. Kempker RR, Kempker JA, Peters M, Rebolledo PA, Carroll K, Toomer L, *et al*. Loss of Smell and Taste Among Healthcare Personnel Screened for Coronavirus 2019. Clin. Infect. Dis. 2021;72:1244-46.
47. Menni C, Valdes AM, Freidin MB, Sudre CH, Nguyen LH, Drew DA, *et al*. Real-time tracking of self-reported symptoms to predict potential COVID-19. Nat. Med. 2020; 26:1037-40.
48. World Health Organization.Coronavirus disease (COVID-19)adviceforthepublic2020[updated18/03/2020].Availablef romhttps://www.who.int/Emergencies/diseases/novelcoronavirus-2019/advicefor-public.[Accessed04/04/2020].
49. Shaikh K, Memon A, Memon IA, Laghari ZA, Memon AZ. Awareness regarding Coronavirus pandemic among the population of Sindh, Pakistan: A cross-sectional study. Sukkur IBA J. Comput. Math. Sci. 2020;4:28-36.
50. Rahman MM, Jhinuk JM, Nabila NH, Yeasmin MT, Shobuj IA, Sayma TH, *et al*. and Practices towards COVID-19 during the Rapid Rise Period: A Cross-Sectional Survey among Public University Students of Bangladesh. Sci. Med. J. 2021;3:116-28.
51. Billioux BJ, Smith B, Nath A.Neurological Complications of Ebola Virus Infection. Neurotherapeutics. 2016;13:461-70.
52. Mendoza EJ, Racine T, Kobinger GP. The Ongoing evolution of antibody-based treatments For Ebola virus infection. Immunotherapy. 2017;9:435-50.
53. Swetha G, Geetha RV, Rani SL. Myths vs facts- COVID-19-questionnaire survey. J. Arch. Egyptol. 2020;17:1068-81.
54. Mannan KA, Farhana KM. Knowledge, Attitude and Acceptance of a COVID Vaccine: A Global Cross-Sectional Study. Int. Res. J. Bus. Soc. Sci. 2020;6:1-23.
55. Maheshwari S, Gupta PK, Sinha R, Rawat P. Knowledge, attitude, and practice towards coronavirus disease 2019 (COVID-19) among medical students: A cross-sectional study. J. Acute Dis. 2020;9:100-04.
56. Singh JP, Sewda A, Gupta SD. Assessing the Knowledge, Attitude and Practices of Students Regarding the COVID-19 Pandemic. J. Health Manag. 2020;22:281-90.
57. Alduraywish AA, Srivastava KC, Shrivastava D, Sghaireen MG, Alsharari AF, Al-Johani K, *et al*. A Countrywide Survey in Saudi Arabia Regarding the Knowledge and Attitude of Health Care Professionals about Coronavirus Disease (COVID-19). Int. J. Environ. Res. Public Health. 2020;17:7415.
58. Kalliath JD, Kizhatil A, Rose BM, Kuncheria AM, John A. Knowledge, attitude, and practice regarding COVID-19 pandemic among medical students of Ernakulum, India. JIDHealth. 2021;4:337-42.
59. Kodali PB, Hense S, Kopparty S, Kalapala GR, Haloi B. How Indians responded to the Arogya Setu app?. Indian J.Public Health. 2020;64:228-30.

HOW TO CITE THIS ARTICLE
Zahoor AB, Malik R, Siddique IM. Knowledge and attitude towards COVID-19 among university students. J Phytopharmacol 2022; 11(3):173-187. doi: 10.31254/phyto.2021.11308