

## Original Article

# Knowledge, attitudes, and practices towards Coronavirus Disease (COVID-19) among Pakistani residents during the vigorous upsurge phase of the outbreak.

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## Abstract

**Background:** To prevent the rapid rise of COVID-19, people's adherence to control measures is affected by their knowledge, attitudes, and practices (KAP) towards COVID-19. In this study, we investigated Pakistani residents' KAP towards COVID-19 during the peak spread of this disease.

**Methodology:** cross-sectional survey designed to evaluate the knowledge, attitudes, and practices during the COVID-19 epidemic using an online questionnaire. The knowledge section of the questionnaire had eight questions (K1-K8) regarding clinical presentations, transmission routes, prevention, and control of COVID-19. Attitudes towards COVID-19 were estimated by four questions (A1-A4) mainly focused on the agreement on the successful control of COVID-19. For practices (P1-P6), six questions were asked related to washing hands, covering the mouth, and social distancing practices.

**Results:** A total of 139 completed forms were included in the analysis, of which 98 (70.5%) were females and 41 (29.5%) were males. Results of multiple binary logistic regression analysis on factors significantly associated with attitude towards COVID-19, successful control of COVID-19 in Pakistan by gender OR (95% CI), 1.95 (1.58, 0.80). As these findings were recruited from a small number of participants, they cannot be generalized to the entire population.

**Conclusion:** The findings of our study suggest that the unequal distribution of knowledge may impede certain people from adopting healthy practices.

## Keywords

Coronavirus, Pandemics, Knowledge, Attitude, Practice.



## Introduction

Coronavirus Disease 2019 (COVID-19) is an infectious disease that emerged in December 2019 in Wuhan, Hubei province<sup>1</sup>. The newly discovered "Novel Coronavirus" caused acute respiratory coronavirus 2 (SARS-CoV-2) in the infected humans<sup>2,3</sup>. COVID-19 is highly infectious, and its clinical features include dry cough, fever, myalgia, and dyspnoea, characterized by mild to moderate symptoms<sup>3,4</sup>. However, in severe stages, infected patients develop acute respiratory distress syndrome, septic shock, metabolic acidosis, coagulation dysfunction, and haemorrhage<sup>2-4</sup>. In March 2020, the World Health Organization announced the outbreak as a pandemic with the outspread of disease in 114 countries globally and above 4000 deaths<sup>5,6</sup>. They announced a worldwide lockdown when cases surpassed 6 million, with 371,228 confirmed deaths in 213 countries and territories<sup>6</sup>.

In contrast, Pakistan reported the first positive case of COVID-19 on 26th February 2020<sup>7</sup>. To combat the pandemic, Pakistan's public health authorities announced a national lockdown except for hospitals, pharmacies, and emergency services<sup>7</sup>. During the lockdown, social distancing was encouraged, and people were advised to remain at home and leave in case of emergency<sup>8</sup>. Pakistan reported 3,98,024 confirmed cases, including new cases, 2839, and 8025 confirmed deaths<sup>7</sup>. In April 2021, approximately 800,452 confirmed COVID-19 cases were reported in Pakistan as the country has been battling the third wave of coronavirus<sup>9</sup>.

The ideal approach to anticipate the disease is to maintain a strategic distance from contact with the virus by practicing precautionary measures<sup>10,11</sup>. Self-isolation, social distancing, and virtuous hygienic measures play a significant role in the prevention<sup>10,11</sup>. Lack of awareness, false beliefs, and inadequate practices can be a potential risk to the prevention of disease<sup>12</sup>. Data from the research is pivotal for coverage development and public fitness implementation to respond to the outbreak rapidly and continuously<sup>12</sup>. In the context of the reason above, KAP is a significant intellectual key in public health regarding health promotion and

prevention<sup>13,14</sup>. A KAP study from Hubei, China, concluded that attitudes towards government preventative measures were tremendously associated with a level of knowledge about COVID-19<sup>15,16</sup>.

People with higher levels of information showed more positive attitudes and preventive measures towards coronavirus<sup>15,16</sup>. Another study included Bangladeshi residents aged between 12 and 64 and sociodemographic factors<sup>17</sup>. It concluded that an efficacious health education program and KAP factors require improving knowledge, prompting greater attitudes toward the execution and maintenance of safe practices<sup>17</sup>. Conquering current health challenges requires initiating health education programs, especially in communities, to control an outbreak<sup>18,19</sup>. Here we aimed to investigate KAP towards COVID-19 during the rapid rise in 3<sup>rd</sup> wave in Pakistan. To evaluate the degree of awareness regarding transmission, signs, and preventive measures of COVID-19 in the population.

## Methodology

In this study, we have used a cross-sectional survey design to evaluate the knowledge, attitudes, and practices during the COVID-19 epidemic using an online questionnaire. We recruited respondents by sending survey invitations containing general information about the survey, including its purpose and informed consent form. The data collection took place over one month (1<sup>st</sup> May-2<sup>nd</sup> June 2021), and only 139 completed forms were included in the analysis.

Respondents' knowledge about COVID-19 was assessed using a semi-structured and self-reported questionnaire containing close-ended multiple-choice questions regarding knowledge, attitude, and practice. It's developed according to the guidelines for clinical and community management of COVID-19, adapted and modified from previously published literature on coronavirus disease<sup>16</sup>.

The sociodemographic variables are comprehended by living place, gender, age, marital

status, education level, occupation, and employment status. The knowledge section of the questionnaire had eight questions (K1-K8) regarding clinical presentations, transmission routes, prevention, and control of COVID-19. Attitudes towards COVID-19 were estimated by four questions (A1-A4) about the agreement on the successful control of COVID-19, lockdown implementation to prevent spread, confidence in conquering the battle against the virus, and anxiety/fear experienced due to the current situation of an outbreak. For practices (P1-P6), questions were asked related to washing hands, covering the mouth and nose while coughing, wearing face masks, visiting crowded places, seeking medical health, self-isolation, and social distancing practice.

Data were interpreted using the SPSS version 24.0. Frequencies and percentages, mean, and standard deviation were used for all qualitative variables. The Chi-square test is applied to identify the significant association between qualitative variables. (P-value

<0.05 is considered significant). Binary logistic regression was performed with a 95% confidence interval to determine significant associations between categorical dependent and independent variables. Odd ratio and pie chart are illustrated in the outcomes.

## Results

A total of 139 individuals participated in this KAP study of COVID-19, of which 98 (70.5%) were females and 41 (29.5%) were males. In this study, most participants were from Province Sindh, i.e., 87 (62.6%). More participants were in the age range between 18-29 years old, 110 (79.1%), while 94 (67.6%) individuals were single regarding marital status; moreover, out of 139 participants, the literacy rate was (49.6%), 69 individuals were graduated and from total sample mostly was employed 66 (47.5%) as an occupation, for the most part, were from medical field 100 (71.9). The remaining demographics with knowledge scores are exhibited in Table 2.

**Table 1: KAP questionnaire towards COVID-19.**

Questions	Options	Correct Response*
<b>Knowledge</b>		
<b>K1</b> COVID-19 is caused by Coronavirus?	A= True. B= False. C= I don't know	A; 95.7%
<b>K2</b> How does COVID-19 spread/ transmit?	A= Respiratory droplets of and close contact to contaminated objects or surfaces, Water. B= Food. C= I don't know	A; 96.4%
<b>K3</b> The main clinical symptoms of COVID-19 are fever, dry cough, fatigue, muscle pain, and shortness of breath.	A= True. B= False. C= I don't know	A; 98.6%
<b>K4</b> Who is susceptible or can infect by a Coronavirus Disease?	A= People of all ages. B= Young people. C= Older people. D= People with medical conditions (such as Diabetes, heart disease, and Asthma)	A; 80.6%

<b>K5</b>	How long is the COVID-19 incubation period? (how much time take to appear symptoms of the disease after a virus exposure)	A= Immediately. B= 3 - 7 days. C= 1 - 14 days. D= I don't know	C; 71.9%
<b>K6</b>	Is there a vaccine, drug, or treatment for COVID-19?	A= Yes. B= No. C= I don't know	B; 85.6%
<b>K7</b>	What is your source of information about COVID-19?	A= World Health Organization (WHO) B= Media (Television, Newspaper, Radio, Internet). C= Social Media (Facebook, Twitter, Instagram, WhatsApp). D= Healthcare Websites	B; 42.4%
<b>K8</b>	Do you know about a COVID-19 Official Website <a href="http://covid.gov.pk/">http://covid.gov.pk/</a> and Helpline 1166 initiated for guidance, prevention, and facilitation by the Government of Pakistan?	A= Yes. B= No. C= I don't know	A; 72.7%
<b>Attitudes</b>			
<b>A1</b>	Do you agree that COVID-19 will be successfully controlled in Pakistan?	A= Agree. B= Disagree	B; 66.9%
<b>A2</b>	Do you have confidence that Pakistan can win the fight against the COVID-19 pandemic?	A= Yes. B= No	B; 50.4%
<b>A3</b>	Do you agree on Lockdown implementation to prevent COVID-19 spread?	A= Agree. B= Disagree	A; 79.9%
<b>A4</b>	Do you experience Fear or Anxiety due to the current situation of the COVID-19 outbreak?	A= Yes. B= No	A; 82%
<b>Practices</b>			
<b>P1</b>	Do you wash your hands after touching any possible contaminated objects or surfaces with soap, hand sanitizer, or any alcohol-based hand rub?	A= Never. B= Rarely. C= Sometimes. D= Often. E= Always	D; 78.4%
<b>P2</b>	Do you cover your mouth and nose while coughing or sneeze with tissue, or bend of the elbow?	A= Never. B= Rarely. C= Sometimes. D= Often. E= Always	D; 75.5%
<b>P3</b>	Do you wear a face mask while leaving the house?	A= Yes. B= No	A; 94.2%
<b>P4</b>	Do you still visit any crowded places in this pandemic situation?	A= Yes. B= No	B; 84.2%
<b>P5</b>	Will you seek medical help or report to health authorities, if you or any of your	A= Yes. B= No	A; 84.2%

	family members develop COVID-19 symptoms?		
<b>P6</b>	Do you practice self-isolation and social distancing rules?	A= Yes. B= No	A; 90.6%

\*correct rate, % from the total sample.

**Table 2: Sociodemographic characteristics of participants and knowledge score of COVID-19 by demographic variables.**

Characteristics	N(%)	Knowledge Score Mean±SD
<b>Province</b>	Sindh	87(62.6)
	Punjab	21(15.1)
	Balochistan	3(2.2)
	Khyber Pakhtunkhwa	10(7.2)
	Islamabad Capital Territory	10(7.2)
	Azad Jammu And Kashmir	4(2.9)
	Gilgit-Baltistan	4(2.9)
<b>Gender</b>	Male	41(29.5)
	Female	98(70.5)
<b>Age</b>	18 to 29 years	110(79.1)
	30 to 39 years	24(17.3)
	40 to 49 years	2(1.4)
	50 to 59 years	2(1.4)
	60 and Older	1(0.7)
<b>Marital Status</b>	Single	94(67.6)
	Married	42(30.2)
	Divorced/Separated	2(1.4)
	Widowed	1(0.7)
<b>Education</b>	High School	3(2.2)
	Undergraduate	21(15.1)
	Graduate	69(49.6)
	Postgraduate	44(31.7)
	Others	2(1.4)
<b>Occupation</b>	Engineering	6(4.3)
	Medical	100(71.9)
	Business	9(6.5)
	Labour	1(0.7)
	Others	23(16.5)
<b>Employment Status</b>	Student	38(27.3)
	Unemployed	20(14.4)
	Employed	66(47.5)
	Housewife	12(8.6)
	Others	3(2.2)

### Sociodemographic characteristics of participants and attitude score of COVID-19 by demographic variables

The attitudes of individuals have been described in which the knowledge score of COVID-19 was predicted according to demographics. It showed that assumptions are fulfilled according to the testing hypothesis that individuals believe that COVID-19 will be successfully controlled in Pakistan Pearson chi-square value (3.068), as they have confidence that Pakistan can win the fight against the COVID-19 pandemic. Pearson chi-square value (0.970) but almost all of the targeted population thought that spread of COVID-19 could only be stopped by the lockdown implementation P-value 2-sided (0.00) as all the population experience fear or anxiety due to the current situation of COVID-19 outbreak chi-square value (0.092).

### Sociodemographic characteristics of participants and practice score of COVID-19 by demographic variables

Regarding practices, all the winning confidences had been reported, while P1 showed that most of the participants always 105 (75.5%) wash their hands, 22 (15.8%) wash their hands very often, 8 (5.8%) sometimes, and only 4 (2.9%) individuals wash their hand very rarely. P2 observed that 109 (78.4%) participants always practice covering their mouth and nose while coughing or sneezing with tissue or bend of the elbow, 19 (13.7%) apply this practice very often, 8 (5.8%) participants sometimes follow; moreover only 3 (2.2%) rarely follow the practice of covering their mouth and nose. Furthermore, 117 (84.2%) participants responded that they do not visit crowded places in this pandemic situation; a significant assumption is P-value 2-tailed (0.02). Most individuals 117 (84.2%) also reported that they would seek medical help if they or their family developed any symptoms of COVID-19 with a Chi-square value (of 1.637).

### Results of multiple binary logistic regression analysis on factors associated with attitudes toward COVID-19

Results of multiple binary logistic regression analysis on factors significantly associated with attitude towards COVID-19; A1: successful control of COVID-19 in Pakistan by gender OR (95% CI); 1.95 (1.58, 0.80), P-value 2-sided (0.08) approx. significant, A2: confidence on win fight against this pandemic OR(95%CI);1.44 (1.29,0.89) P-value 2-sided (0.32), A3:agree on lockdown implementation OR(95%CI); 0.218 (0.394,1.808),P-value 2-sided ( 0.001), A3:Experience fear or anxiety by genders OR(95%CI); 0.866 (0.905,1.045), P-value 2-sided (0.76).

**Table 2: Multiple binary logistic regression analysis on factors associated with attitudes toward COVID-19**

Variable	OR (95%CI)	p-value
<b>A1: Successful control of COVID-19 in Pakistan by gender</b>	1.95 (1.58, 0.80)	0.08
<b>A2: Confidence in winning the fight against this pandemic</b>	1.44 (1.29,0.89)	0.32
<b>A3: Agree on lockdown implementation</b>	0.218 (0.394,1.808)	0.001
<b>A3: Experience fear or anxiety by genders</b>	0.866 (0.905,1.045)	0.76

Knowledge score P-value (0.02). Knowledge score was observed lowest in Province Azad Jammu and Kashmir and Gilgit–Baltistan (mean and standard deviation) ( $6 \pm 0.816$ ,  $5.50 \pm 1.73$ ), in divorced or separated marital status with mean and standard deviation of ( $3.50 \pm 2.12$ ) and literacy from high school level ( $5.00 \pm 2.64$ ) with occupation labor, had lowest knowledge score of the mean (2) and housewives possess the lowest score of knowledge ( $5.83 \pm 1.26$ ). Knowledge score is shown a significant association in which most individuals lie in the excellent category (51.8%) while 41.72% fall in the good category; moreover, 4.32% lie in the fair and 0.72% of individuals pursue the poor category.



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## Discussion

The coronavirus disease has become a global public health issue since it started in Wuhan, China, in December 2019. It ultimately became an overall danger to global public health and created a financial crisis. WHO declared COVID-19 a pandemic because it's widespread worldwide, along with guidelines for infection control and preventive measures<sup>20</sup>. The public health authorities and governments announced the implementation of lockdowns in the outbreak countries, including travel limitations, closures of schools and colleges, and unnecessary commercial activities and enterprises. Stay-at-home, social distance, and self-isolation preventive measures were implemented in the population, especially for infected individuals<sup>21</sup>. The public health authorities were concerned about increasing knowledge about COVID-19. For that purpose, they initiated health awareness programs and campaigns that lead the public to acquire knowledge, reduce panic, seek positive attitudes, and fulfill preventive practices. All of these KAP constituents have been appraised to ensure efficacious prevention and control of the pandemic. People respond appropriately during an outbreak if they have a basic understanding of the modes of transmission and the availability of vaccines for prevention. Knowledge and prevention are directly proportional, as people with proper knowledge were most practically involved in prevention. But despite the greater knowledge and attitude scores in the literature, participants in this study had poor COVID-19 prevention practices<sup>22</sup>. It is important to note that the government has made significant efforts at all levels to protect citizens and ensure their well-being, as viral infections are highly contagious among people who live in close quarters.

Infected people can be asymptomatic, increasing their risk of contracting the disease<sup>22</sup>. A survey was conducted in China, in which 34.3% of male respondents and 65.7% were females responded to the survey, and most of them were well-educated. However, a KAP study on Chinese residents showed that females had more pragmatic attitudes than males<sup>16</sup>. The research done in Uganda

concluded that healthcare workers had more awareness, attitude, and knowledge towards COVID-19 but poor practices towards it<sup>22</sup>. The study conducted in Feb 2020 in China showed that the nursing staff in isolation wards had higher knowledge than those in general wards<sup>23</sup>. The literature shows that females tend to have more knowledge and practices about the disease than males. Social media and television had a positive attitude toward providing awareness among the people<sup>24,25</sup>.

A stronger correlation was discovered between attitudes and practices, implying that promoting knowledge alone is insufficient and that effective interventions to improve practices should focus on promoting both adequate knowledge and positive attitudes. As a result, among other factors, poor knowledge and attitudes may contribute to the increasing prevalence of mental health issues reported globally<sup>25,26</sup>. Those with particularly low levels of COVID-19 knowledge should be given special attention because they are less likely to have appropriate attitudes and engage in preventive behaviors<sup>27,28</sup>. However, these findings contradict other findings that suggest people express negative emotions, such as anxiety and panic, during a pandemic, which could affect their attitude. Finally, the study's findings may be useful in informing policymakers and healthcare professionals about future public health interventions, awareness-raising, policies, and health education programs<sup>29,30</sup>. While awareness is important in preventative measures because it creates a positive attitude in people about infection control, our study concluded that females had higher knowledge, but males had more positive attitudes toward infection control.

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## Conclusion

This study offers evidence that attitudes and actions are significantly influenced by information, promoting intervention techniques to encourage and sustain the public's preventive behaviors in the context of the COVID-19 pandemic. The findings of our study suggest that the unequal distribution of knowledge may impede certain people from adopting healthy practices.

## Conflicts of Interest

No potential conflicts of interest were disclosed by the author(s) about the research, authorship, and/or publication of this paper.

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