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Research Article

Knowledge, Attitude and Practice towards Covid-19 in Different Universities across Khyber Pakhtunkhwa, Pakistan

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Abstract: There have been 6,566,610 fatalities and 626,337,158 reported cases of COVID-19 worldwide. Pakistan presently has over 1,573,922 confirmed cases and 30,625 deaths. A survey-based study was performed from January to September 2022 among different university communities to find out their KAP level. Data was collected in Google Forms through a questionnaire. The Independent t-test, Multinomial regressions, and Non-parametric Mann-Whitney test were used to assess the level of significance (p-value ≤0.05). 317 out of 605 participants were male (52.5 %), the majority of participants were 15-29 years old (72.7 %), unmarried/divorced (71.6 %), have no children (82.1 %), residing in the urban area (54.9 %) and possess a college/university degree (59.5 %). The majority of participants correctly answered five out of six knowledge questions (M = 4.96, SD = 1.03) and correctly identified the primary symptoms of COVID-19 (94.4 %) along with the proper identification of mode of transmission (95.2 %) while 1.8% wrongly replied and 2.1 % did not reply. A knowledge test revealed the significant frequency of misconception, with nearly half of the respondents (46.3 %) assuming that illness might be contracted by eating or coming into touch with wild animals. Wearing a facial mask is highly practiced (M = 3.59, SD = 0.91), followed by avoiding crowded places (M = 3.44, SD = 0.95) and practicing hand hygiene (M = 3.36, SD = 1.04). Females, the elderly, and the less educated, on the other hand, have less understanding of COVID-19, making them especially susceptible to the pandemic. It is proposed that further awareness might contribute to a favorable attitude and practice.

Keywords: Knowledge, Attitude, Practice, Covid-19, Pandemic, Preventive Strategies

1. INTRODUCTION

Millions of people were infected by COVID-19 worldwide, since it first surfaced in Wuhan, China, in December 2019 [1]. January 30, 2020, was the day when the COVID-19 outbreak was declared a Public Health Emergency of International Concern (PHEIC), asking governments to take rapid and

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decisive measures against the virus [2, 3]. Unlike previous corona outbreaks [4], this extremely infectious zoonotic virus [5, 6] from an unknown animal source has gone from a local flu-related severe acute respiratory syndrome [4, 7] to a pandemic endangering millions of lives in a matter of weeks. COVID-19 has wreaked havoc on global public health by putting an undue burden on the world's healthcare systems.

As it spreads through social interactions [8, 9], billions of people have already been put on lockdown, which has affected hundreds of thousands of people in just a few months, causing them economic and psychological stress [4].

There have been 6,566,610 fatalities and 626,337,158 reported cases of COVID-19 worldwide. A total of 12,830,378,906 doses of vaccine have been given as of October 26, 2022 [2]. The pandemic has put a strain on global health systems. A near-universal opinion confirms that combating COVID-19 will require a multisectoral response that includes participation not only from other sectors but also from communities and the general public [10]. While much has been reported about the nature and scope of the healthcare response [11], little is known about how people view COVID-19, particularly in low- and middle-income countries [12].

Simple personal protection measures like masks or hand washing, as well as more complex interventions like lockdowns, restrictions on public gatherings, and crowded place shutdowns, can only be successful if the population has sufficient knowledge and appropriate attitudes to ensure their effective implementation [13]. This is made more difficult in areas where education is not uniform and where historical, regional, and religious customs can hinder the implementation of such initiatives. For resource-strapped in low- and middle-income countries, the only hope is to empower communities so that they can take both short- and long-term preventative measures [14].

Pakistan presently has over 1,573,922 confirmed cases and 30,625 deaths (as of October 30, 2022), with community transmission accounting for 92 % of infections [15]. It also has a weak health system, a digital gap, and poor literacy rates, all of which point to the necessity for a comprehensive communication strategy to safeguard the public against COVID-19. Considering the above, we conducted a survey to determine the level of KAP and their determinants of COVID-19 among different university communities.

2. MATERIALS AND METHODS

2.1 Study design

A cross-sectional survey-based study was conducted from January - September 2022 to determine the level of KAP and its factors towards COVID-19 among different university communities.

2.2 Data Collection and Management

A structured questionnaire was established in a Google Form by reviewing the scientific literature and available information on COVID-19 that are relevant. The questionnaire was written in English. There were three sections in the questionnaire: Socio-demographic information, Responses to Knowledge items, and Responses to knowledge, attitudes, and practices.

Convenience samplings were used in this research. The Google Form link was posted on several platforms after a call for participation. Other social media platforms were used to maximize engagement.

2.3 Data Analysis

For data analysis, Google Form responses were copied to Excel File and imported into IBM SPSS version 25 for Windows. Participants' demographic characteristics were described by descriptive statistics, including standard deviation (SD), frequency, percentage, and mean. Numbers and percentages were given for categorical data, while mean and standard deviation were provided for continuous data. The Independent t-test, Multinomial regressions, and Non-parametric Mann-Whitney test were used to estimate the significance levels. A p-value ≤ 0.05 was determined to be statistically significant.

2.4 Ethical Considerations

Online informed consent was obtained on the initial page of the form by responding to a "No or Yes" question from respondents before the collection of data. Respondents were provided adequate privacy during the data collection. The confidentiality of their information was protected. They were asked to give correct responses without any hesitation and free of bias.

3. RESULTS

The survey received 728 responses, and after eliminating those with missing information, 605 respondents were considered for the final analyses of which 317 were male (52.5 %; Table 1). The age of the majority of participants was 15-29 years (n=440; 72.7 %). Most of the participants were unmarried/divorced (n=433; 71.6 %), have no children (n=497; 82.1 %), and residing in the urban area (n=332; 54.9 %). The monthly household income of the majority of individuals was 121-250. Table 1 shows that none of the participants of the current study possess a high school or below education level (n=0) while most of them are college/university degrees (n=360; 59.5 %).

The majority of participants correctly answered five out of six knowledge questions (M = 4.96, SD = 1.03). The majority of respondents (94.4 %) correctly identified the primary symptoms of COVID-19, and 95.2 % properly identified the method of transmission—respiratory droplets of infected people—while 1.8 % wrongly replied and 2.1 % did not reply. A knowledge test revealed the significant frequency of misconception, with nearly half of the respondents (46.3 %) thinking that illness could be contracted from eating or interacting with wild animals (Table 2). The majority of responders (87.9 %) indicated that wearing a generic medical mask aids in prevention, although 6.4 % gave inaccurate information and 5.5 % were unsure.

The majority of responders correctly answered about five out of six knowledge questions

Table 1. Survey respondents' descriptive statistics

Sociodemographic Characteristics	Total (n=605)	
	n	%
Gender		
Female	288	47.6
Male	317	52.4
Age (year)		
15-29	440	72.7
30-49	161	26.6
50+	4	.7
Marital status		
Married	172	28.4
Unmarried/Divorced	433	71.6
Presence of children		
None	497	82.1
1-2	86	14.2
3-5	22	3.6
Residence		
Urban	332	54.9
Rural	273	45.1
Monthly household income (USD)		
Up to 120	150	24.8
121-250	165	27.3
251-375	53	8.8
376-500	105	17.4
Above 500	127	21.0
Education level		
High School or below	0	0
Postgraduate degree	245	40.5
College/University degree	360	59.5

(M = 4.96, SD = 1.03). The respondent's knowledge regarding COVID-19 was appreciable. The majority of the respondents were aware of the transmission of SARS-CoV-2 through respiratory droplets of infected people (95.2 % answered correctly, 1.8 % incorrectly, and 2.1 % reported that they did not know). Respondents in a knowledge item "believing that contracting an infection from eating or coming into touch with wild animals" showed a significant incidence of misconception (46.3 % answered correctly, 51.1% incorrectly, and 2.1 % reported that they did not know). Around 69 % of respondents knew correctly that not all people with COVID-19 have severe cases, 25.5 % Incorrectly answered and 4.6 % answered they did not know as shown in Table 2.

The perceived susceptibility of respondents to COVID-19 infection was close to "neither high nor low"(score = 3) (M = 3.16, SD = 1.09); The mean severity was greater than the mean perceived susceptibility, which was just higher than "neither high nor low"(score = 3) (M = 3.29, SD = 0.94). Both social distancing (M = 3.49, SD = 0.69) and beliefs about the efficacy of preventive measures (M = 3.51, SD = 0.68) were high. Wearing face masks was the most performed practice. (M = 3.59, SD = 0.91), followed by Avoiding crowded places (M = 3.44, SD = 0.95) and practicing hand hygiene (M = 3.36, SD = 1.04) (Table 3).

4. DISCUSSION

The current study analyzed the characteristics of KAP in relation to COVID-19 and discovered certain demographic factors linked with KAP.

Table 2. Responses to Knowledge items

S. No.	Knowledge items	Correct	Incorrect	Do not Know
1	Fever, tiredness, dry cough, myalgia, and shortness of breath are the most common clinical signs of COVID-19.	94.4	.7	4.1
2	There is currently no specific cure for COVID-19, however initial diagnosis and supportive treatment can make the majority of patients recover.	92.1	3.5	4.5
3	COVID-19 does not affect everyone in the same way. Only older persons with persistent disorders are more severely affected.	69.9	25.5	4.6
4	COVID-19 is spread through close contact with or consumption of wild animals.	46.3	51.1	2.1
5	Ordinary individuals can protect themselves from SARS-CoV-2 infection by wearing regular medical masks.	87.9	6.4	5.5
6	SARS-CoV-2 transmits through respiratory droplets produced by infected patients coughing and sneezing.	95.2	1.8	2.1

Table 3. Responses of knowledge, attitudes, and practices

Variable	Range	M	SD
Knowledge			
Knowledge	2-6	4.96	1.03
Attitudes			
Perceived risk			
Perceived susceptibility	1-5	3.16	1.09
Perceived severity	1-5	3.29	0.94
Efficacy belief of precautionary behavior			
Practicing personal hygiene	1-4	3.51	0.68
avoiding crowded places	1-4	3.49	0.69
Practices			
Wearing facial masks	1-4	3.59	0.91
Practicing hand hygiene	1-4	3.36	1.04
Avoiding crowded places	1-4	3.44	0.95

Recently, analogous analyses to analyze KAP against COVID-19 in respective populations were undertaken in South Korea [16], China [13], India [17], Bangladesh [18], United States [19], and Iran [20]. The majority of the 728 participants (52.4 %) were men between the ages of 15 and 29. A comparable survey done in Iran by [20] indicated a greater proportion of female subjects (52.5 %) than men, with age findings similar to the current research. The findings of our study regarding gender, age, and education level were almost similar to the survey conducted in India [17]. It was discovered that the majority of people (71.6 %) were single. The findings contradicted the findings of [20], where respondents were married (55.3 %). The findings revealed that sociodemographic characteristics such as gender, age, literacy, and so on influenced KAP toward COVID-19.

The present poll included a higher proportion of urban participants (n=332; 54.9 %) than rural ones (n=273; 45.1 %). A recent study included a disproportionately high proportion of metropolitan participants (95 %) [20]. The rural population has a lower COVID-19 knowledge level than the urban population. These findings are also consistent with previous studies that looked at the relationship between sociodemographic variables and the level of knowledge during the COVID-19 epidemic in China [16] and Hong Kong [21]. Generally, people live in cities because of their occupations, and the average household income per month was between 121 and 150 USD. People's jobs were associated with their presence in congested regions, indicating the necessity for a careful evaluation of the scenario before resuming the jobs, since this might contribute to the spreading of COVID-19.

The majority of participants (59.5 %) have a college/university degree, while none have an education above high school. In terms of illiteracy, the true knowledge level of COVID-19 in the general population of Pakistan may be lower. In this study, the mean knowledge score was lower among jobless people, which corresponds to statements by Clements (2020) [19], as the knowledge level was lower in participants with lower wages. The poor knowledge among persons with lower income and education levels may imply a link between socioeconomic variables and understanding of COVID-19. Attitudes, particularly effectiveness beliefs, are expected to have a strong and persistent influence on performing preventive behaviors, meaning that encouraging preventive behaviors against COVID-19 would include boosting both knowledge and efficiency perceptions among the general population [16]. Similar to data that effectiveness beliefs are key determinants of prevention measures, this study revealed that for people to engage in cautious behaviors after receiving information, they must trust that these practices will be beneficial.

As indicated by Nakhostin-Ansari et al. (2020) [20], greater emphasis should be placed on informing and equipping lower socioeconomic communities against COVID-19, as they are the most susceptible group in this pandemic. By comparing the KAP toward COVID-19 and socio-demographic data, it was shown that unmarried younger men, those with a higher education level, and inhabitants of urban areas had a good understanding of COVID-19.

5. CONCLUSION

Females, the elderly, and the less educated, on the other hand, have less understanding of COVID-19, making them especially susceptible to the pandemic. It is proposed that further awareness might contribute to a favorable attitude and practice. Knowledge and awareness of COVID-19 among the general population could lead to greater trust in health authorities and adherence to health recommendations which could help in controlling a pandemic like COVID-19.

6. CONFLICT OF INTEREST

The authors declared no conflict of interest.

7. REFERENCES

1. N. Zhu, D. Zhang, W. Wang, X. Li, B. Yang, J. Song, X. Zhao, B. Huang, W. Shi, R. Lu, and P. Niu. A Novel Coronavirus from Patients with Pneumonia in China, 2019. *New England Journal of Medicine* 382: 727-733 (2020).
2. WHO. WHO Coronavirus (COVID-19) Dashboard (2022). https://covid19.who.int/ (accessed 30 October 2022).
3. S. Rahman, M. Din, S. Khan, L. Yar, F. Zia, M. Idrees, and M. Ali. COVID-19 Vaccines: Pakistan's Perspective: COVID-19 Vaccines: Pakistan's

Perspective. Proceedings of the Pakistan Academy of Sciences: *B. Life and Environmental Sciences* 58: 11-17 (2021).

4. M.E. El Zowalaty, and J.D. Järhult. From SARS to COVID-19: A previously unknown SARS- related coronavirus (SARS-CoV-2) of pandemic potential infecting humans – Call for a One Health approach. *One Health* 9: 100124 (2020).
5. C.R. MacIntyre. Global spread of COVID-19 and pandemic potential. *Global Biosecurity* 1: (2020).
6. W. Zhang, R.H. Du, B. Li, X.S. Zheng, X.L. Yang, B. Hu, Y.Y. Wang, G.F. Xiao, B. Yan, Z.L. Shi, and P. Zhou. Molecular and serological investigation of 2019-nCoV infected patients: implication of multiple shedding routes. *Emerging Microbes & Infections* 9: 386-389 (2020).
7. C. Huang, Y. Wang, X. Li, L. Ren, J. Zhao, Y. Hu, L. Zhang, G. Fan, J. Xu, X. Gu, and Z. Cheng. Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China. *The Lancet* 395: 497-506 (2020).
8. Z.A. Memish, R. Steffen, P. White, O. Dar, E.I. Azhar, A. Sharma, and A. Zumla. Mass gatherings medicine: public health issues arising from mass gathering religious and sporting events. *The Lancet* 393: 2073-2084 (2019).
9. R.M. Anderson, H. Heesterbeek, D. Klinkenberg, and T.D. Hollingsworth. How will country-based mitigation measures influence the course of the COVID-19 epidemic? *The Lancet* 395: 931-934 (2020).
10. X. Qian, R. Ren, Y. Wang, Y. Guo, J. Fang, Z.D. Wu, P.L. Liu, and T.R. Han. Fighting against the common enemy of COVID-19: a practice of building a community with a shared future for mankind. *Infectious Diseases of Poverty* 09: 8-13 (2020).
11. X. Lin, X. Wang, Z. Peng, R. Wang, P. Wang, Z. Li, Y. Zhou, H. Lei, C. Li, W. Liu, and L. He. Current Situation of the Corona Virus Disease Under Active Control and Prevention in China, Outside Hubei Province: A Real-World Epidemiological Analysis. *SSRN Electronic Journal* (2020).
12. J. Hopman, B. Allegranzi, and S. Mehtar. Gestión de COVID-19 en países de ingresos bajos y medianos. *JAMA Network* 10: (2020).
13. B.L. Zhong, W. Luo, H.M. Li, Q.Q. Zhang, X.G. Liu, W.T. Li, and Y. Li. Knowledge, attitudes, and practices towards COVID-19 among Chinese residents during the rapid rise period of the COVID-19 outbreak: a quick online cross-sectional survey. *International Journal of Biological Sciences* 16: 1745-1752 (2020).
14. M. Kelley, R.A. Ferrand, K. Muraya, S. Chigudu, S. Molyneux, M. Pai, and E. Barasa. An appeal for practical social justice in the COVID-19 global response in low-income and middle-income countries. *The Lancet Global Health* 8: e888-e889 (2020).
15. Government of Pakistan. See the Realtime Pakistan and Worldwide COVID-19 Situation! (2022). https://covid.gov.pk/ (accessed 30 October 2022).
16. Q. Li, X. Guan, P. Wu, X. Wang, L. Zhou, Y. Tong, R. Ren, K.S. Leung, E.H. Lau, J.Y. Wong, and X. Xing. Early Transmission Dynamics in Wuhan, China, of Novel Coronavirus–Infected Pneumonia. *New England Journal of Medicine* 382: 1199-1207 (2020).
17. U. Aqeel, M. Daud Ali, Z. Iqbal, and M.A. Mirza. Knowledge, attitudes, and practices toward coronavirus disease-19 infection among residents of Delhi NCR, India: a cross-sectional survey based study. *Asian Journal of Pharmaceutical and Clinical Research* 110-116 (2020).
18. A. Karim, M. Akter, A.T. Mazid, O.S. Pulock, T.T. Aziz, S. Hayee, N. Tamanna, G.S. Chuwdhury, A. Haque, F. Yeasmin, and M.A. Mitu. Knowledge and attitude towards COVID-19 in Bangladesh: Population-level estimation and a comparison of data obtained by phone and online survey methods. *Nature*. 5: 536-544 (2020).
19. J.M. Clements. Knowledge and Behaviors Toward COVID-19 Among US Residents During the Early Days of the Pandemic: Cross-Sectional Online Questionnaire. *JMIR Public Health and Surveillance* 6: e19161 (2020).
20. A. Nakhostin-Ansari, F. Aghajani, M.S. Khonji, R. Aghajani, P. Pirayandeh, R. Allahbeigi, and H. Hosami Rudsari. Did Iranians respect health measures during Nowruz holidays? A study on Iranians' knowledge, attitude and practice toward COVID-19. *Journal of Preventive Medicine and Hygiene* 61: E501-E507 (2020).
21. C.L. Wong, J. Chen, K.M. Chow, B.M.H. Law, D.N.S. Chan, W.K.W. So, A.W. Leung, and C.W. Chan. Knowledge, Attitudes and Practices Towards COVID-19 Amongst Ethnic Minorities in Hong Kong. *International Journal of Environmental Research and Public Health* 17: 7878 (2020).