



## Original Article

## Knowledge, Attitudes, and Practices towards Novel COVID-19 among Pakistani Population during Pandemic Period

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## ABSTRACT

Special control measures have been taken by government of Pakistan during COVID-19 pandemic. Implementation of these measures were dependent on knowledge, attitudes, and practices (KAP) of population towards disease. **Objectives:** To assess KAP of residents of Pakistan towards COVID-19 during outbreak. **Methods:** It was a web-based, cross-sectional study. The study was designed using Google Forms and was distributed through "WhatsApp" groups. The objectives and purpose were explained to respondents. The survey was completed by clicking on responses to closed-ended multiple choice questions measured on Likert Scale. **Results:** Overall awareness for all respondents was adequate with majority reporting correct answers. Less than half of respondents knew about correct use of sanitizer and gloves. Frequently missed questions with correct responses were about use of alcohol base sanitizer to disinfect hands 104 (32%), disinfect gloves 56 (17%), ideally required concentration of alcohol 131 (40%) and primary use of gloves 71 (228%). **Conclusion:** Knowledge about disease was found acceptable with encouraging attitude and satisfactory practices. However, most respondents lacked knowledge about use of sanitizer and gloves. It is important to devise a Health Education campaign and public guidelines at national level to target all socio-economic groups, to stop spread of COVID-19.

## INTRODUCTION

Coronavirus disease 2019 (abbreviated "COVID-19") a viral disease of respiratory system was first detected in Wuhan, China, November 2019. An extremely infectious and communicable disease with symptoms of fatigue, dry cough, myalgia, fever, followed by shortness of breath, dyspnea and later respiratory failure or acute respiratory distress syndrome and coagulation dysfunction [1]. Medical professionals being first line workers have a

serious occupational threat, caused by this pandemic because of frequent exposure to infected people [2]. They should know about intra-hospital transmission, symptoms and preventive measures of disease [3]. A study highlighted that misunderstandings and lack of knowledge among medical professionals resulted in improper diagnosis and poor management of disease [4]. Primary prevention is based on measures adopted to break

communication of epidemiologic triangle (agent, host and environment) at any level. Patients primarily rely on conservative treatment and management for agent, has no specific anti-viral medicine. Preventive measures for host include social distancing, masks, personal hygiene (hand washing, sanitizers use) avoiding gatherings, wearing protective clothes, and screening of population for disease. Being air borne/droplet infection, environment plays vital role in communication of disease, therefore disinfection of floors is very important to keep environment clean. Preventive measures such as avoidance of public gatherings, wearing face masks, hand washing practices with soap or disinfection with 60 - 80% alcohol-based sanitizers (if soap and water not available), avoid touching mouth, nose, eyes with unsterilized hands, screening of cases, tracing contacts, and quarantine being recommended for reduction of transmission of disease [5]. Similar study conducted in Latin America pointed out that people developed different reactions, massive fear with anguish and were reluctant to adopt preventive measures [6]. Another study highlighted that attitude of people to adopt preventive measures was associated with level of knowledge. Positive attitude develops with more information and education towards preventive measures of COVID-19 [1]. Similarly, disinformation, type of information or no information would be another barrier towards attitude and practices against COVID-19 [7]. On the other hand, in developed nations like Singapore, a study revealed that people trusted their government and took measures implemented by government even with little information [8]. CDC recommended to cover face with surgical masks when in community to minimize public transmission of disease [9]. However, WHO recommended to wear mask only if person is suffering from disease symptoms to protect others from getting infection [10]. Neighbors of Pakistan, China, India, and Iran with religious and ethnic groups traveling to and from these countries. First case of COVID-19 reported on 26th February 2020 in Pakistan had also travelled back from Iran and currently our neighbour India having highest number of delta variant [11]. New strategies were developed and implemented for prevention and control of pandemic and as days passed, government response became more forceful. Social distancing, use of face masks, hand sanitizers, wearing of gloves and later followed by lockdown [12]. This article emphasizes on exploration of Knowledge, Attitude and Practices (KAP) of prevention and control measures adopted for COVID-19 by population of Pakistan.

## METHODS

It was a web-based, cross-sectional study, designed using Google Forms and were distributed through "WhatsApp" groups and emails. Survey was distributed to WhatsApp

groups of medical professionals including doctors, nurses, paramedics, pharmacists and non-medicals like engineers, army officers, teachers, bankers, and college students. Respondents were free to take part as a volunteer in study. Those who agreed were asked to complete response to questions on survey that was measured on Likert Scale. Survey questionnaire consisted of four parts: demographics, knowledge, attitude, and practices. Questionnaire included questions related to COVID-19 i.e. use of masks, hand hygiene techniques, use of sanitizers and gloves (Table 1). A score of 1 was awarded for each correct answer. Descriptive data analysis was performed using SPSS-20 and MS-Excel.

## RESULTS

From 11/05/2020 to 17/05/2020, a total of 324 respondents completed survey. Respondents were predominantly male 202 (62%), with a mean age of 37.5 years. Two hundred and twelve (65%) were married. Education level of respondents included 145 (45%) postgraduates, 141 (43%) graduate, 32 (10%) FSc and 6 (2%) with matric qualification. Majority of respondents were doctors 124 (38%), engineers 46 (14%), nurses 29 (9%), students 29 (9%), teachers 15 (5%) and 81 (25%) from miscellaneous occupational backgrounds (Table 2). Knowledge test about symptoms of disease, dry cough, fatigue, myalgia and fever were correctly replied by 180 (56%) respondents and difference between COVID-19 and common cold was rightly known to 176 (54%). Answers about rate of infectivity by asymptomatic person was correctly responded by 136 (42%) and mode of spread of disease by 156 (48%). Prevention of disease by wearing mask was correctly responded by 134 (41%) and 162 (50%) respondents knew that it was important to avoid public places and transport as preventive measure. Accurate approach towards treatment methods was known to 160 (49%). However, knowledge about use of 70% alcohol-based sanitizer for hand sanitization in 30 seconds was only known to 104 (32%) respondents and 90 seconds for latex gloves sanitization to 56 (17%) respondents only. About attitude towards COVID-19 pandemic only 109 (34%) were satisfied, by timely measures adopted by government. Majority of respondents 179 (55%) attentively listened preventive measures and 192 (59%) took self-measures against disease. Also, majority 188 (58%) agreed that it was responsibility of all citizens to take measures to control it. More than half 170 (52%) were quite certain that pandemic would be controlled after some time. Practicing safety measures significantly different among age-groups, genders, marital status, and education levels. Most 174 (54%) said that they wear mask and 175 (51%) used gloves when going out of home. Additionally, 142 (44%) did not visit any crowded place during recent days. Also, most 127 (39%) preferred to wash hands with soap, while only 91 (28%) used

hand sanitizer. Mostly respondents were not aware of preferred hygiene method of hand sanitization and wearing gloves. Only 131 (40%) know that 70% is correct alcohol base concentration for hand sanitization and 71(22%) were aware that advantage of wearing gloves is a reminder to avoid touching face. It was 12 points scored questionnaire and with 8.12 average points, 8 median and 1-12 was range of respondents scores.



Figure 1: Total points scored distribution

Frequently asked questions were about use of alcohol base sanitizer to disinfect hands, disinfect gloves, ideally required concentration of alcohol and primary use of gloves. Inference clearly indicates that mostly respondents were lacking knowledge about use of sanitizer and gloves.

Groups	Sub-Groups	N	%	SD	t stat	p value
Gender	Male	201	62%	56.5	3.3	0.04
	Female	121	37%			
	Not preferred to	2	1%			
Age	15 to 29 years	120	37%	12.97	7.69	0.01
	30 to 49 years	124	38%			
	50 years and above	80	25%			
Marital status	Married	212	65%	70.71	3.24	0.09
	Single	112	35%			
Occupation	Doctor	124	38%	34.03	0.63	0.27
	Engineer	46	14%			
	Nurse	29	9%			
	Student	29	9%			
	Teacher	15	5%			
Education	Miscellaneous	81	25%	72.39	2.24	0.05
	Postgraduate	145	45%			
	Graduate	141	44%			
	Fsc	32	10%			
	Matric	6	2%			

Table 1: Demographic data of respondents(n=324)

No	Knowledge	True (%)	False (%)	I don't know (%)	SD	t stat	p value
1	Dry cough, fatigue, myalgia, and fever are main clinical symptoms of disease.	180 (56%)	94 (29%)	50 (15%)	66.1	2.82	0.052
2	Common cold with stuffy or runny nose or sneezing are some common symptoms.	176 (54%)	101 (31%)	47 (15%)	64.7	2.88	0.051
3	COVID-2019 infected person without fever do not infect others.	136 (42%)	159 (49%)	29 (9%)	69.3	2.69	0.057
4	Mode of disease spread is airborne/droplets.	156 (48%)	141 (44%)	27 (8%)	70.5	2.65	0.059
5	People should wear masks to prevent spread of disease	134 (41%)	158 (49%)	32 (10%)	66.9	2.79	0.054
6	Disease can be prevented by avoiding crowded places and public transport.	162 (50%)	132 (41%)	30 (9%)	69.1	2.70	0.057
7	Quarantine and medical treatment of patients is effective ways to reduce spread of disease.	160 (49%)	130 (40%)	34 (10%)	65.8	2.84	0.052

Table 2: Knowledge towards COVID-19(n=324)

No	Knowledge	Immediately	15 Sec	30 Sec	60 Sec	90 Sec & more	I don't know	SD	t stat	p value
8	Time required to disinfect hands by a 70% alcohol-based hand sanitizer.	55 (17%)	62 (19%)	104 (32%)	17 (5%)	21 (6%)	65 (20%)	32.0	4.1	0.005
9	Time required to disinfect latex gloves by a 70% alcohol-based hand sanitizer.	35 (11%)	36 (11%)	45 (14%)	24 (7%)	56 (17%)	28 (40%)	37.8	3.4	0.009

Table 3: Knowledge towards the use of hand sanitizer and gloves

No	Knowledge	True (%)	False (%)	I don't know (%)	SD	t stat	p value
1	Satisfied with measures adopted by government.	109 (34%)	154 (48%)	61 (19%)	46.50	4.02	0.028
2	Listened preventive measures against disease.	179 (55%)	145 (45%)	-	24.02	9.52	0.033
3	Any self-measures taken against disease.	192 (59%)	132 (41%)	-	42.4	5.40	0.058
4	It's responsibility of every citizen to control pandemic.	188 (58%)	136 (42%)	-	36.7	6.23	0.051
5	COVID-19 will be controlled after some time.	170 (52%)	73 (23%)	81 (25%)	53.8	3.47	0.037

Table 4: Attitude towards COVID-19(n=324)

Sr No	Practices	Yes	No	SD	t stat	p value		
1	Wearing mask when going out of home.	174 (54%)	150 (46%)	16.9	13.5	0.024		
2	Wearing gloves when going out of home	175 (54%)	149 (46%)	18.3	12.4	0.025		
3	Visited crowded place during recent days.	142 (44%)	182 (56%)	28.2	8.1	0.039		
4	Preference for protection of hand.	Hand wash with soap 127 (39%)	Hand sanitizer 91 (28%)	Gloves 20 (5%)	Others 6 (2%)	44.4	2.75	0.017
5	Alcohol base concentration for hand sanitization.	35% 125 (46%)	50% 14 (4%)	70% 131 (40%)	85% & more 31 (10%)	58.04	2.4	0.034
6	Advantage of wearing gloves.	Protecting hands to get environmental contamination 172 (53%)	Protect other surfaces to get contamination 65 (20%)	A reminder to avoid touching face 71 (22%)		60.7	1.88	0.051

Table 5: Practices towards COVID-19(n=324)

	Value	df	Asymptotic Significance (2-sided)
The main clinical symptoms of COVID-19 are fever, fatigue, dry cough, and myalgia.	155.320 <sup>a</sup>	20	0.000
Unlike the common cold, stuffy nose, runny nose, and sneezing are less common in persons infected with the COVID-19 virus.	107.145 <sup>a</sup>	20	0.000
Persons with COVID-19 cannot infect with the virus to others when a fever is not present.	112.053 <sup>a</sup>	20	0.000
The COVID-19 virus spreads via airborne / respiratory droplets of infected individuals.	208.560 <sup>a</sup>	20	0.000
Ordinary residents can wear general medical masks to prevent the infection by the COVID-19 virus.	149.017 <sup>a</sup>	20	0.000
To prevent the infection by COVID-19, individuals should avoid going to crowded places such as shopping malls and avoid taking public transportation.	247.512 <sup>a</sup>	20	0.000
Isolation and treatment of people who are infected with the COVID-19 virus are effective ways to reduce the spread of the virus.	183.628 <sup>a</sup>	20	0.000
How much time a hand sanitizer with 35% alcohol takes to disinfect hands?	177.807 <sup>a</sup>	50	0.000
How much time a hand sanitizer with 35% alcohol takes to disinfect latex gloves?	216.519 <sup>a</sup>	50	0.000
Are you satisfied with the measures adopted by government against COVID-19 virus?	13.864 <sup>a</sup>	20	0.837
Have you paid attention to the preventive measures against COVID-19 virus?	167.635 <sup>a</sup>	10	0.000
Are you willing to take measures through your own efforts against COVID-19 virus?	121.012 <sup>a</sup>	10	0.000
Do you agree every citizen is responsible for the control of COVID-19 virus pandemic?	30.575 <sup>a</sup>	10	0.001
Do you agree that COVID-19 will finally be successfully controlled?	42.306 <sup>a</sup>	20	0.003
Do you wear gloves when leaving home?	8.925 <sup>a</sup>	10	0.539
Have you gone to any crowded place in recent days?	24.163 <sup>a</sup>	10	0.007
What concentration of alcohol is ideal for hand sanitization?	141.313 <sup>a</sup>	40	0.000
Gloves primarily serves.....	327.726 <sup>a</sup>	80	0.000

Table 6: Pearson Chi-Square Test

## DISCUSSION

56% respondents, contributing to study were having good knowledge about disease with a positive and encouraging attitude with optimistic practices to take preventive procedures which was instrumental in limiting prevalence of disease. Pandemic disease spread globally in almost all countries of world with a mortality rate of about 5.7% [1]. Government of Pakistan took measures to minimize prevalence of disease but additional efforts were required to further educate population with more correct and reliable information using social media, internet or Television channels. Results of this study were in conformity with Chinese study where educated population were more knowledgeable and followed preventive measures with zeal and zest [13]. It was also noted just like another similar study carried out in China that it made them to realize and take more effective measures against disease if respondents have a clear knowledge about symptoms and mode of transmission and understanding about disease [14]. Our study just like Egyptian study showed an encouraging attitude of respondents towards policies adopted by government. They were found confident that by adopting these measures and self-practice of hand washing, using sanitizers, and limiting personal contact, they would be able to restrict and ultimately stop spread of disease [15]. It was observed from study that mostly respondents were following CDC and WHO recommendations to wearing face masks. Although wearing mask is most important measure to restrict human to human spread of disease beside other measures like hand washing, sanitization, and social distancing. Another

study evaluated that wearing medical mask was found more effective as compared to cotton cloth masks to restrict spread. However, use of N95 respirator face mask should only be restricted to medical staff attending patients [16]. CDC recommended use of alcohol-based hand sanitizers to restrict transmission of communicable disease [17]. Questions of this study focused on KAP of hand washing hygiene techniques of soap. Most respondents were lacking knowledge about use of sanitizers, gloves and were not following as recommended by CDC or WHO [18]. Our study had limitations since survey sample size was small and geographically limited and therefore results of study may not generalizable. Additionally, survey also had inherent limitations of cross-sectional study. Impact of following guidelines and practices in prevention and control of COVID-19 transmission could not be ascertained and would require future research [19-20].

## CONCLUSION

It is concluded that about 56% of educated population and higher level of socio-economic status were found with acceptable knowledge, encouraging attitude and satisfactory practices. Mostly knowledge was gained through social media and TV channels, which have advantages and disadvantages. Therefore, areas of gap in knowledge, attitude and practice were observed among studied population. It is very important to devise a Health Education campaign of public health policies and guidelines at national level to target all socio-economic groups to further increase KAP among population to restrict spread of COVID-19.

## REFERENCES

- [1] Zhong BL, Luo W, Li HM, Zhang QQ, Liu XG, Li WT, et al. 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*. 2020 Mar 15;16(10):1745-1752. doi: 10.7150/ijbs.45221
- [2] Gan WH, Lim JW, Koh D. Preventing Intra-hospital Infection and Transmission of Coronavirus Disease 2019 in Health-care Workers. *Safety and Health at Work*. 2020 Jun;11(2):241-243. doi: 10.1016/j.shaw.2020.03.001
- [3] Nemati M, Ebrahimi B, Nemati F. Assessment of Iranian nurses' knowledge and anxiety toward COVID-19 during the current outbreak in Iran. *Archives of Clinical Infectious Diseases*. 2020 Apr 1;15(COVID-19). doi: 10.5812/archcid.102848
- [4] Omrani AS and Shalhoub S. Middle East respiratory syndrome coronavirus (MERS-CoV): what lessons



- can we learn? *Journal of Hospital Infection*. 2015 Nov;91(3):188-96. doi: 10.1016/j.jhin.2015.08.002.
- [5] Adhikari SP, Meng S, Wu Y, Mao Y, Ye R, Wang Q, et al. A literature review of 2019 Novel Coronavirus during the early outbreak period: Epidemiology, causes, clinical manifestation and diagnosis, prevention and control. doi: 10.1186/s40249-020-00646-x
- [6] Zegarra-Valdivia J, Vilca BN, Guerrero RJ. Knowledge, perception and attitudes in Regard to COVID-19 Pandemic in Peruvian Population. doi:10.31234/osf.io/kr9ya
- [7] Janjua NZ, Razaq M, Chandir S, Rozi S, Mahmood B. Poor knowledge—predictor of nonadherence to universal precautions for blood borne pathogens at first level care facilities in Pakistan. *BMC Infectious Diseases*. 2007 Jul 24;7:81. doi: 10.1186/1471-2334-7-81
- [8] Deurenberg-Yap M, Foo LL, Low YY, Chan SP, Vijaya K, Lee M. The Singaporean response to the SARS outbreak: knowledge sufficiency versus public trust. *Health Promotion International*. 2005 Dec;20(4):320-6. doi: 10.1093/heapro/dai010
- [9] Sharma SK, Mishra M, Mudgal SK. Efficacy of cloth face mask in prevention of novel coronavirus infection transmission: A systematic review and meta-analysis. *Journal of Education and Health Promotion*. 2020 Jul 28;9:192. doi: 10.4103/jehp.jehp\_533\_20
- [10] Coronavirus disease (COVID-19) advice for the public: When and how to use masks (2020). Retrieved April 4, 2020, from <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/advice-for-public/when-and-how-to-use-masks>.
- [11] Saqlain M, Munir MM, Rehman SU, Gulzar A, Naz S, Ahmed Z, et al. Knowledge, attitude, practice and perceived barriers among healthcare workers regarding COVID-19: a cross-sectional survey from Pakistan. *Journal of Hospital Infection*. 2020 Jul;105(3):419-423. doi: 10.1016/j.jhin.2020.05.007
- [12] Baud D, Qi X, Nielsen-Saines K, Musso D, Pomar L, Favre G. Real estimates of mortality following COVID-19 infection. *Lancet Infectious Diseases*. 2020 Jul;20(7):773. doi: 10.1016/S1473-3099(20)30195-X
- [13] Fitzgerald DA. Human swine influenza A [H1N1]: practical advice for clinicians early in the pandemic. *Paediatric Respiratory Reviews*. 2009 Sep;10(3):154-8. doi: 10.1016/j.prrv.2009.06.005
- [14] World Health Organization. Advice on the use of masks in the context of COVID-19: interim guidance, 6 April 2020. World Health Organization; 2020.
- [15] MacIntyre CR, Seale H, Dung TC, Hien NT, Nga PT, Chughtai AA, et al. A cluster randomised trial of cloth masks compared with medical masks in healthcare workers. *BMJ Open*. 2015 Apr 22;5(4):e006577. doi: 10.1136/bmjopen-2014-006577
- [16] Gupta MK and Lipner SR. Hand hygiene in preventing COVID-19 transmission. *Cutis*. 2020 May;105(5):233-234. PMID: 32603385.
- [17] CDC C. Frequently asked questions about hand hygiene for healthcare personnel responding to COVID-2019.
- [18] Jindal R and Pandhi D. Hand hygiene practices and risk and prevention of hand eczema during the COVID-19 pandemic. *Indian dermatology online journal*. 2020 Jul;11(4):540. doi: 10.4103/idoj.IDOJ\_448\_20
- [19] Ratten V. COVID-19 and entrepreneurship: Future research directions. *Strategic Change*. 2021 Mar;30(2):91-8. doi: 10.1002/jsc.2392
- [20] Caligiuri P, De Cieri H, Minbaeva D, Verbeke A, Zimmermann A. International HRM insights for navigating the COVID-19 pandemic: Implications for future research and practice. *Journal of International Business Studies*. 2020;51(5):697-713. doi: 10.1057/s41267-020-00335-9