ORIGINAL ARTICLE

How COVID-19 is Changing Behaviors of Population: A Study from Punjab?

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ABSTRACT

Background and Objectives: Coronavirus disease 2019 (COVID-19) is a respiratory disease caused by a novel Coronavirus. The World Health Organization (WHO) officially declared it a health emergency on January 30, 2020. WHO also called for collaborative efforts from all countries to prevent its further spread. The success of the world's battle against COVID-19 depends upon people's adherence to the control measures which is affected by their Knowledge, Attitudes and Practices (KAP) towards the disease as suggested by KAP theory. In this study, the KAP of population from Punjab towards COVID-19 during the rapid rise period of the COVID-19 outbreak is investigated.

Methods: This was a cross-sectional study based on Google forms-based survey regarding the Knowledge, Attitudes and Practices of participants towards COVID-19. A total of n = 500 participants completing their questionnaires were included. Online data was extracted and cross-checked for any discrepancy. Statistical analysis was done by using SPSS ver.22.

Results: Participants with ≥ 22 years of age significantly practicing more social distancing ($P<0.05$). Knowledge of hand hygiene and proper discarding of mask were significantly more associated with the practices of social distancing. Knowledge of cough and sneezing etiquettes was significantly related to practice social distancing ($P < 0.01$). Attitude of hand hygiene protocols was significantly related to practicing hand washing, minimizing touching environment ($P < 0.01$) and disinfecting house and workplace ($P < 0.05$).

Conclusion: The present study showed a good knowledge, positive attitudes and suitable practices in population of Punjab. The health awareness programs designed after pandemic declaration by WHO, played a vital role in improving all these things.

KEYWORDS: COVID-19, Knowledge, Attitude, Practices, Punjab, Pakistan.

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INTRODUCTION

Coronavirus Disease 2019 (COVID-19) is a respiratory disease, caused by a novel Coronavirus.

The outbreak of Coronavirus began in Wuhan, China in the month of December 2019. The patients of COVID-19, usually present with the clinical symptoms of fever, dry cough, fatigue, myalgia and dyspnea. The severity of this disease is characterized by Acute Respiratory Distress Syndrome (ARDS), septic shock, metabolic acidosis, bleeding and coagulation disorders.[1,2] A total of 18.5% patients developed severe symptoms COVID-19 in China. However, the fatality rate of COVID-19 is 2.3% according to empirical data which is much lower than that of severe acute respiratory syndromes (SARS) (9.5%), Middle East respiratory syndrome (MERS) (34.4%) and H7N9 (39.0%). [1-3]

COVID-19 pandemic has been extremely rapid with this Coronavirus, reaching in 183 regions of the world and resulting in 14, 49,107 confirmed laboratory cases and 67.999 deaths till April 05, 2020. China, United States of America (USA) and United Kingdom (UK) being the most affected zones. In Pakistan, the death toll has been found 45 with 3,123 participants affected as of April 05, 2020.[4] The World Health Organization (WHO) officially declared it a health emergency on January the 30th, 2020. WHO also called for collaborative efforts from all countries to prevent its further spread.

Wuhan, the capital city of the Hubei province in China has been seriously hit by the COVID-19 pandemic, though the situation has become much better in the past week to 10 days because of protective measures and steps, which have been taken to control the COVID-19 transmission in Hubei. This include suspension of public transportation, closure of public spaces, educational institutes, close management of communities, isolation and care for infected people and suspected cases. By 27th of January, 2020, the province had been locked down to limit contact between residents both inside and outside of Hubei. Similar measures were taken as cases began to emerge in the other parts of world similar. By April 5, 2020 more than half of living population of the world was under lock down orders.[5]

The success of the world's battle against COVID-19 depends upon people's adherence to the control measures which is largely affected by their Knowledge, Attitudes and Practices (KAP) towards the disease as suggested by the KAP theory.[6,7] The level of panic emotion among the population determines the knowledge and attitudes towards infectious diseases, which were learned from the SARS outbreak in 2003 and this can further challenge to diminish the spread of the disease.[8,9]

There is a need to understand the awareness of the public regarding the COVID-19 at this critical moment. In this study, we have investigated the KAP of Pakistani population towards COVID-19 during the rapid rise period of the COVID-19 outbreak.

METHODS

This study was a cross-sectional survey regarding the knowledge, attitudes and practices of participants towards COVID-19. It was conducted from the 7th April till 15th April 2020, around a week after the lock down. As it was not viable to do a community-based sampling, so it was decided to collect the data online. Relying on the authors' networks with local people living in the province of Punjab, Pakistan, this Google forms-based survey shared also on various social media applications like Face book, WhatsApp and Twitter was done.

Ethical approval for study formalities was taken from Ethics Committee of Lahore General Hospital. After informed consent, the participant was directed to complete the online questionnaire through their google account, which was unique for each individual and no double submission was allowed. About n = 500 participants were included in the study. A brief introduction on the objective, voluntary nature of participation, declarations of anonymity and confidentiality was given prior to filling the questionnaire. It was about the demographic data, series of question pertaining to their knowledge of COVID-19 and queries regarding their attitudes towards the outbreak of the disease and the disease itself. Demographic information included age, gender, level of education and the respective profession. The questionnaire was rounded off by questions which were related to the practices that the participants were adopting.

STATISTICAL ANALYSIS

Online data was extracted and cross-checked for any discrepancy. Data was analysed by using Statistical Package for the Social Sciences (SPSS

version 22.0). Mean and standard deviation were given for quantitative variables and frequencies and percentages for qualitative variables. Multiple binary logistic regression analysis was applied to assess the Odds Ratio. Chi-square was applied to determine the association of "Practices" to "Knowledge" and "Attitudes" and P value of <0.05 was considered as statistically significant.

RESULTS

Out of 502 participants, 500 filled and completed questionnaires were received. Responses were analysed to assess demographic data, knowledge, attitudes and practices among people of different occupations. Among all participants mean age was 23.52 ± 6.60 years (Range: 15–51 years; Median 22 years). Regarding gender distribution, females (53.6%) were more than males (46.4%). There were 314 (62.8%) participants related to medical field either student or professional. All the participants were in the best of their health (Table-1).

Table-1: Sociodemographic characteristics of study participants (n = 500).

Variables	Participants (n = 500)	Percentage (%)
Age Groups		
<20 years	149	29.8
21-30 years	305	61.0
31-40 years	32	6.4
41-50 years	6	1.2
51-60 years	5	1.0
>61 years	3	0.6
Gender		
Male	232	46.4
Female	268	53.6
Level of Education		
Secondary school & less	3	0.6
Higher secondary education	58	11.6
Bachelor professional (Medical)	278	55.6
Bachelor professional (Non-medical)	85	17
Bachelor non-professional	26	5.2
Masters, M. Phil., MS/MD, FCPS, Ph.D. (Medical)	25	5.0
Masters, M. Phil., MS, Ph.D	25	5.0
Profession		
Business &Entrepreneurs	13	2.6
Banking &Financial Cooperative sector	14	2.8
Engineers	65	13.0
Health Care &Medicine	314	62.8
Judiciary &Lawyers	2	0.4
Teachers, School/College/University	76	15.2
Media & Journalism	9	1.8
Law enforcement & security	3	0.6
Daily wagers, Laborer's, factory-workers, Hawkers	3	0.6
Farmers & Livestock	1	0.2

Among all participants, only (23.0%) had the correct knowledge about social distancing as recommended by Centre of Disease Control (CDC).[10] Majority of the participants (89.4%) preferred to wash hands with soap and water than using sanitizer. A total of (55.8%) of participants did not know about the correct way to discard a mask as described by WHO and almost all participants (94.0%) knew about cough and sneezing etiquettes (Table-2).

Out of 500 participants, 91.8% and 53.8% followed the stay at home policy and 7 steps of hand hygiene respectively.[11] Almost 66% were in attitude of isolating themselves in case of fever and cough during this time of pandemic. Just 74.4% participants prevented themselves from touching objects from their surroundings and 71.8% always wear a mask when going outside. No mask was worn by 5.4% and among mask users 35.8% changed that after few days (Table-2).

Multiple binary logistic regression analysis for practices showed significant association between females and cleaning, disinfecting homes and workplaces *(P<0.01)*. Participants with ≥ 22 years of age significantly practicing more social distancing and minimize touching the environment *(P<0.05)*. There was no significant relationship among practices to education, profession and knowledge of social distancing (Table-3).

Participants who prefer hand sanitizer had significantly practicing more social distancing *(P<0.01)* than people who preferred washing hands with soap and water. Knowledge of hand hygiene and proper discarding of mask were significantly more associated with the practices of social distancing, hand washing, minimizing touching and disinfection of house/workplace respectively. Knowledge of cough and sneezing etiquettes is significantly related to practicing social distancing and minimize touching environment *(P<0.01)* (Table-3).

Attitudes plays significant role in developing practicing habits. Participants following stay at home policy were significantly practicing social distancing *(P<0.01)*. Attitude of following hand hygiene protocols was significantly related to practicing hand washing, minimizing touching environment and disinfecting house and workplace. People following cough and sneezing etiquettes significantly practiced social distancing,

hand washing, minimizing touching environment and wearing mask while going outside. Attitude of responding to symptoms was not statistically associated with the preventive practices. But the participants ignoring the symptoms were less practicing preventive habits than others who aimed to response (Table-3).

DISCUSSION

The Knowledge, Attitude and Practices of participants regarding a certain infectious disease can be influenced by various factors namely, the gravity of the illness, severity of its spread and the fatality rate. In this cross-sectional study, a random total of five hundred participants, showed a good sense of knowledge attitudes and practices towards the current pandemic of COVID-19.

The current study showed more females adhered to wearing masks as well as disinfect their houses, these results are consistent with previous study done in China during COVID-19 outbreak.[12] Participants above the age of 22 were more careful to maintain the standard protocols of social distancing, minimizing the contact and touching the surroundings while comparing to those below the

Table-2: Distribution of KAP variables among n = 500 participants.

COVID-19 KAP Descriptive Analysis		Yes (n=500)	No (n=500)
Knowledge			
Correct Knowledge of social distancing		115 (23.0%)	385 (77.0%)
Knowledge of hand hygiene protocols		286 (57.2%)	214 (42.8%)
Knowledge of masks discarding protocols		221 (44.2%)	279 (55.8%)
Knowledge of cough & sneezing etiquettes		470 (94.0%)	30 (6.0%)
Which is better?	Hand sanitiser	53 (10.6%)	
	Washing hands with soap and water	447 (89.4%)	
Attitudes			
Follow stay home policy		459 (91.8%)	41 (8.2%)
Follow hand hygiene protocols		269 (53.8%)	231 (46.2%)
Follow cough & sneezing etiquettes		435 (87.0%)	65 (13.0%)
If symptoms of COVID-19 develop, what will you do?	Self-Isolation	330 (66.0%)	
	Go hospital immediately	112 (22.4%)	7 (1.4%)
	Inform authorities	51 (10.2%)	
Practices			
Maintaining social distancing		415 (83.0%)	85 (17.0%)
Practicing hand washing		425 (85.0%)	75 (15.0%)
Minimize touching environment		372 (74.4%)	128 (25.6%)
Cleaning & disinfecting house/workplace		358 (71.6%)	142 (28.4%)
Wear mask while going out		359 (71.8%)	141 (28.2%)
Type of mask wear	N95/N99	45 (9.0%)	
	Surgical mask	307 (61.4%)	27 (5.4%)
	Cloth mask	121 (24.2%)	
Changing the mask to new one after;	Few hours	229 (45.8%)	
	Few days	179 (35.8%)	71 (14.2%)
	Few week	21 (4.2%)	

Table-3: Multiple binary logistic regression analysis of KAP variables.

		Practices (ODD Ratio: OR)				
		Social Distancing	Hand Washing	Minimize Touching	Disinfect House	Wear Mask
Demographics						
Gender	Male	1.03 0.64 – 1.64	1	1.06 0.71 – 1.59	1	1
	Female	1	1.08 0.66 – 1.76	1	1.82** 1.23 – 2.70	2.58*** 1.73 – 3.86
Age	< 22 years	1	1.58 0.95 – 2.62	1	1.24 0.84 – 1.84	1.22 0.82 – 1.81
	≥ 22 years	1.81* 1.13 – 2.91	1	1.52* 1.01 – 2.27	1	1
Education	HSS or below	1	1.41 0.62 – 3.24	1.18 0.63 – 2.22	1	1.02 0.56 – 1.85
	Bachelor & above	1.09 0.54 – 2.18	1	1	1.06 0.59 – 1.91	1
Profession	Medics	1.09 0.67 – 1.76	1.40 0.85 – 2.30	1.16 0.77 – 1.76	1.40 0.94 – 2.09	1.21 0.81 – 1.80
	Public	1	1	1	1	1
Knowledge						
Social distancing	Yes	1.24 0.69 – 2.20	1.51 0.80 – 2.85	1.50 0.90 – 2.50	1	1
	No	1	1	1	1.33 0.85 – 2.09	1.03 0.65 – 1.64
Hand sanitization	Hand sanitizer	5.82** 1.39 – 24.4	1.18 0.51 – 2.72	1.54 0.75 – 3.17	1.58 0.79 – 3.17	1.24 0.64 – 2.39
	Washing hands	1	1	1	1	1
Hand hygiene	Yes	1.95** 1.21 – 3.12	3.42*** 2.02 – 5.76	1.68* 1.12 – 2.52	2.07*** 1.40 – 3.07	1.47 1.00 – 2.18
	No	1	1	1	1	1

Discard mask	Yes	1.77* 1.08 – 2.89	2.90*** 1.65 – 5.09	1.52* 1.00 – 2.29	1.76** 1.17 – 2.63	1.10 0.74 – 1.63
	No	1	1	1	1	1
Cough etiquettes	Yes	3.10** 1.41 – 6.78	2.19 0.94 – 5.12	3.16** 1.50 – 6.66	2.02 0.96 – 4.28	2.04 0.97 – 4.33
	No	1	1	1	1	1
Attitude						
Stay home	Follow	2.83** 1.41 – 5.67	1.96 0.92 – 4.18	1.07 0.52 – 2.20	1.34 0.68 – 2.64	1.53 0.78 – 2.97
	No	1	1	1	1	1
Hand hygiene	Follow	1.47 0.92 – 2.34	3.60*** 2.10 – 6.18	1.80** 1.20 – 2.70	1.51* 1.02 – 2.23	1.37 0.92 – 2.02
	No	1	1	1	1	1
Cough etiquettes	Follow	3.02 *** 1.69 – 5.39	3.69 *** 2.05 – 6.64	3.18*** 1.86 – 5.43	1.70 0.99 – 2.92	2.00 ** 1.17 – 3.42
	No	1	1	1	1	1
	Ignore	1	1	1	1	1
Response to symptoms	Self-isolation	2.40 1.48 – 3.89	1.92 1.13 – 3.27	2.48 1.63 – 3.77	2.24 1.49 – 3.37	1.94 1.28 – 2.92
	Go hospital	1.57 0.92 – 2.69	2.26 1.26 – 4.06	2.60 1.59 – 4.26	1.78 1.12 – 2.83	2.24 1.39 – 3.61
	Inform authorities	2.20 0.99 – 4.86	5.07 1.77 – 14.52	1.45 0.78 – 2.70	1.63 0.87 – 3.05	1.63 0.87 – 3.05

1 = Reference, *p < 0.05, **p < 0.01, ***p < 0.001

age of 22. These results are in contrast with the studies done in other countries, where adults of ages above 40 – 50 were more likely to avoid the social distancing and go to crowded places.[13, 14]

The education, profession of participants and knowledge of social distancing did not show significant correlation with the practices, similar findings were also observed in a study done in Malaysia.[13]It has been found in present study that peoplehaving the knowledge of hands cleansing and useof hand sanitizers are more worried about the protocols of social distancing than those, who wash their hands with soap this association is quite new and significantly observed among participants. According to current study, the participants having enough knowledge regarding hand hygiene were also following the practices of social distancing, hand washing, minimal touching, disinfecting house and wearing of masks significantly. The participants knowing about the fact that virus could be transmitted via air droplets, tried to follow more social distancing and minimizing contact with their surroundings. All these facts are consistent with the results of a multinational cross-sectional survey.[15]

One alarming fact is that only 44% participants knew how to discard a mask according to the guidelines provided by the WHOand only they were more aware about the KAP regarding COVID-19.[16] Therefore, proper awareness regarding how to discard a mask, is need of the hour. A significant association was found between stay at home policy and social distancing. Those who follow hand hygiene were more careful in their attitudes towards COVID-19, this association is consistent with the results of surveys in Chinese nationals.[17] There was no significant difference between Knowledge, Attitude and the Practice level among the medical and non-medical group of students. This was expected due to the wide coverage on the COVID-19 in media and the measures imposed by the government after its announcement as pandemic by the WHO.[18]

The main variables of currentstudy were the type of masks and their usage amongst participants. Majority of participants were using surgical masks especially during outdoor activities in this study. CDC also recommends covering faces with masks, when going outside in order to prevent the COVID-19 infection from spreading.[19]

CONCLUSION

The present study showed a good knowledge, positive attitudes and suitable practices in population of Punjab. The health awareness programs, that are designed after pandemic declaration by WHO, played a vital role in improving the knowledge of the population, attitudes encouragement and sustaining the safer practices towards this COVID-19. Infact this disease

played a role of game changer in changing KAP in public. However, minor population in this study showed disappointing response towards COVID-19, that calls for more community-based awareness campaigns for the better containment of this disease and prevent its further spread.

LIMITATIONS OF STUDY

Due to lockdown we have collected data on google survey and it is not possible to do a community-based sampling, so we have decided to collect the data online.

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CONFLICT OF INTEREST

None to declare.

FINANCIAL DISCLOSURE

None to disclose.

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Author's Contribution

AS: Data collection and drafting the article.

MSS: Data collection and drafting article.

MM: Concept and design of study.

MIM: Analysis and interpretation of data

FKA: Data collection, analysis and Interpretation, Critical revision for intellectual contents.

KW: Revising the manuscript for intellectual content critically.