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Knowledge, Attitude and Practice (KAP) pertaining to COVID-19 in Karachi, Pakistan: A Cross Sectional Study

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Significance: The knowledge, attitude and practices about COVID-19 in a population determine how effective the healthcare institutions and the government will be, in controlling this deadly pandemic. As awareness campaigns are launched and community safety measures are taken, it is equally important to assess the compliance and attitude of the general population towards these measures to check the effectiveness and make improvements as needed. In this study, we assessed the knowledge, attitude and practices of Karachi residents towards COVID-19, with special emphasis on the use of social media and tackling the myths about the pandemic.

Abstract

Background: In light of the COVID-19 pandemic, the Government of Pakistan issued safety measures in an effort to mitigate the rising number of cases, the effectiveness of which depends on people's response and behavior. This study investigates the knowledge, attitude and practices towards COVID-19 pandemic among residents of Karachi, Pakistan.

Materials and Methods: An online survey of 764 residents of Karachi was conducted between 15 September and 20 November 2020. Popular social media and authors' networks with the residents were utilized for the successful recruitment of these responses. A self-developed online KAP questionnaire was developed with 9 questions on knowledge, 7 on attitude, and 5 on practices.

Results: Out of 764 participants, 60.6% were female, 37.2% had university degrees and 20.8% were white collar workers. Social media was the most popular information source (52.9%) and a trend to update daily on the news was observed (69.6%). Preventative measures were well known; washing hands with soap and water (97.4%), wearing facemasks (91.5%) and using hand sanitizer (89.4%). Majority (86.7%) were aware of social distancing. Favorable practices were observed; with 83% using masks, 71.6% limiting social interaction, 74% staying at home, 95% ensuring extra hygiene and 73% authenticating information from trusted sources.

Conclusion: Most residents of Karachi were knowledgeable regarding mitigation measures and had optimistic attitude and appropriate practices during the initial period of the COVID-19 outbreak. Future interventions in low and middle-income countries ought to prioritize interventions to develop a community-centered approach, targeting vulnerable subgroups in rural areas.

Introduction

The world is facing a pandemic due to a new strain of coronavirus known as SARS-CoV2. The first case of SARS-CoV2 was seen in Wuhan China, in December 2019 (1, 2). Likely owing to airborne transmission, the virus has quickly spread across 219 countries, infecting more than 123 million people and leading to an infection fatality rate of 0.022% worldwide (3, 4). The illness can vary from mild respiratory infection to severe life-threatening respiratory failure (5).

Pakistan has reported 630,471 cases in the country, linked with an infection fatality rate of 0.021% (4). The Government of Pakistan has taken unprecedented measures to ensure safety of the public to limit the spread of disease. The measures included circulation of public awareness messages, restriction on social interaction and public gatherings, lockdown of the cities and establishment of isolation centers. These measures were taken in accordance with the prioritized strategies issued by The World Health Organisation (WHO) (6). To limit spread of the disease it is important to maintain broad-scale distancing to prevent transmission from infected to the non-infected population. Individual behavior is extremely crucial as self-isolation, seeking medical advice, and social distancing are key measures of control. Lessons learned from previous pandemics suggest that lack of knowledge regarding infectious diseases leads to increase in fear among the general public. This has been known to complicate the attempts of preventing the spread of disease (7). In order to manage the outbreak effectively, it is essential to assess the level of public awareness and their willingness in limiting the spread of disease. Therefore, in this study our aim was to investigate the sources of information and awareness of the Pakistani population, their knowledge about implementation of proper practices for prevention and control, and the perception of the community in relation to treatment and curability of COVID-19 disease.

Materials and Methods

Study Population and Participants

This cross-sectional survey focused on the residents of Karachi, age 18 years and above. Due to the COVID-19 outbreak and lockdown of the city responses were collected through an online survey. The link to the survey was posted on social media platforms (i.e., WhatsApp, Facebook, Twitter, LinkedIn, Instagram, and Messenger) and was circulated online, relying on the authors' networks with local people leading to sampling bias. Study participants were provided with a small introduction on the objective of the survey, voluntary nature of participation, declaration of anonymity and confidentiality, and tips for filling the questionnaire. They were asked to complete the self-report questionnaire. The consent to participate in this research study was implied when they clicked on the 'next' button to their willingness to answer the questionnaire.

Study Design

A self-made questionnaire was compiled. This questionnaire consisted of two sections: demographic data and KAP. The first section included demographic information like age, gender, level of education, occupation and area of residence. No personal details like email, home address, name, etc. were enquired.

The second section consisted of 21 questions: 9 regarding knowledge, 7 regarding attitude, and 5 regarding practices of the residents of Karachi. These questions were designed to assess the general population's source of knowledge, awareness of the clinical presentations of COVID-19 and transmission routes, misconception regarding treatment and disease spread, awareness of prevention and control strategies, ability to carry out preventive behaviors and the confidence in winning the battle against this outbreak. Most questions were of multiple-choice format with some based-on Likert scale ranging from 1 to 5, where applicable.

Data Entry and Analysis

Data entry was done using Epidata version 6.0 (EpiData Association, Odense, Denmark) and both datasets were compared to screen for unmatched entries. Corrections in the data were then done by going back to the originally filled questionnaires and re-entering that specific data.

Analysis was done through Statistical Package for Social Sciences Version 20.0 (SPSS Inc, Chicago, IL, USA). Descriptive analysis was done for all variables, mean (±SD) was reported for continuous variables and proportion and percentages for categorical variables.

Ethical Consideration

The study was approved by the Ethical Review Committee of Aga Khan University Karachi (2020-4792-11043-ERC). An informed consent was obtained from all included study participants.

Results

A total of 764 participants who completed the questionnaire, were included in the final analysis. The mean age of the study population was 32.5 ± (SD=15.2, age range 18-83 years). Of the total participants, 463(60.6%) were female, 558 (73%) attained above higher school education and 284(37.2%) had university degrees. A total of 159 (20.8%) study respondents were white collar workers, 83 (10.9%) were Allied Health Professionals and 98 (12.6%) were government employees.

The major sources of information regarding COVID-19 were social media 404 (52.9%), followed by electronic media (TV/Radio) or 254 (33.2%) print media. More than half of the participants were daily updated about the virus news 532 (69.6%). Majority of respondents identified symptoms of COVID-19 as having a fever, dry cough and difficulty in breathing which were the highest multiple responses (Table 1).

According to the survey, 744(97.4%) respondents said that they were washing hands with soap and water, 699 (91.5%) claimed that wearing face mask and gloves could help in protecting themselves from Coronavirus, (683) 89.4% said that using hand sanitizer is effective whereas 86.7% respondent believed that practicing social distancing will help as a precautionary measure. To treat COVID-19, most respondents knew self-isolation is the only option in case of mild symptoms 703(96.4%), while others said drinking plenty of water 338(46.4%) and COVID-19 vaccine 62 (39.6%) are the treatment options. Majority of the respondents 643 (83%) said that a person with no symptoms can be a COVID-19 positive (Table 2). Majority of respondents were aware that COVID-19 could be transmitted sneezing, coughing or close human contact, while 16% knew that it can only be transmitted through close contact and only 10.3% of respondents knew that COVID-19 could be transmitted through sneezing and coughing.

Table 1: Knowledge about COVID-19

First heard about COVID-19:	
Friends and family	67 (8.8)
Newspaper	39 (5.1)
Social media	404 (52.9)
TV/Radio	254 (33.2)
Frequency of keeping updated with the news:	
Daily	532 (69.6)
Once a week	56 (7.3)
Several time a week	134 (17.5)
Not follow/not interested	42 (5.5)
Clinical symptoms of COVID-19-multiple responses reported as n (% of cases):	

Fever	705 (92)
Dry cough	696 (90.9)
Sneezing	510 (66.6)
Muscle pain	357 (46.6)
Difficulty in breathing	726 (94.8)
Fatigue/weakness	544 (71)
Diarrhea	114 (14.9)
Precautions to prevent spread of COVID-19- multiple responses reported as n (% of cases):	
Washing hand regularly with soap and water	744 (97.4)
Using hand sanitizer	683 (89.4)
Wearing face mask and gloves	699 (91.5)
Practicing social distancing	662 (86.7)
Treatment of COVID-19:	
Self-isolation in case of mild symptoms	703 (96.4)
Flu vaccination	62 (8.5)
COVID-19 vaccine	290 (39.8)
Drinking plenty of fluids	338 (46.4)
Antibiotics	29 (4)
An individual with no symptoms can be COVID-19 positive:	
Yes	634 (83)
No	50 (6.5)
Don't know	80 (10.5)
Which of the following is true?	
Corona virus is created by humans	232 (30.4)
The virus originally came from bats	376 (49.2)
It can be treated with flu vaccine	31 (4.1)
Corona virus cannot survive/spread in summer	65 (8.5)
It can only affect the elder population	35 (4.6)
There is no cure for COVID-19	294 (38.5)
Drinking hot water or taking hot shower can prevent us from getting the disease	134 (17.5)
Eating garlic can help prevent getting infection by coronavirus	56 (7.3)
None of the above	145 (19)
Do you believe that vaccine is the only cure to prevent COVID-19?	
Yes	306 (40.1)
No	248 (32.5)
Don't know	210 (27.5)

Most respondents 593 (77.6%) had trust in the information provided by healthcare workers, 39% respondent trust government sources of information while others believed the information given by family/friends 146 (19%) and social media 119 (15.6%). A high proportion of them were fearful regarding the current situation. 65.8% respondents were willing to get a vaccine, 467 (61%) had confidence that Pakistan can win the battle against COVID-19 and almost all the respondents agreed that control measures like lockdown and social distancing are very important in limiting the spread of this disease (Table 2).

Table 2: Attitude about COVID-19

Do you trust the information given by healthcare workers?	
Yes	593 (77.6)
Sometimes	145 (19)
No	26 (3.4)
Do you trust the information given by Government?	
Yes	299 (39.1)
Sometimes	326 (42.7)
No	139 (18.2)
Do you trust the information given by news/social media?	
Yes	119 (15.6)
Sometimes	433 (56.7)
No	212 (27.7)
Do you trust the information given by friends/family?	
Yes	146 (19.1)
Sometimes	397 (52)
No	221 (28.9)
How fearful are you regarding the current situation?	
1 (being the lowest)	53 (6.9)
2	91 (11.9)
3	279 (36.5)
4	232 (30.4)
5	109 (14.3)
Would you be willing to get a vaccine administered when it is made?	
Yes	503 (65.8)
No	74 (9.7)
Don't know	187 (24.5)
How much longer do you think the pandemic will last?	
One month	25 (3.3)
2-4 months	225 (29.5)
6 months	133 (17.4)
>6 months	207 (27.1)
Not sure	174 (22.8)
Do you have confidence that Pakistan can win the battle against COVID-19?	
Yes	467 (61.1)
No	66 (8.6)
Not sure	231 (30.2)

How has your attitude regarding the situation changed, since you first heard about it till now?	
Become negative/ fearful	220 (28.8)
Become positive/ optimistic	357 (46.7)
No change	187 (24.5)
Control measures like lockdown and social distancing are very important in limiting the spread of this disease?	
Yes	730 (95.5)
No	11 (1.4)
Not sure	23 (3)

In response to the practices toward COVID-19, 640 (83.8%) of respondents said that they were using mask when going outside, 547 (71.6%) said that they were limiting social interaction, 567 (74%) said that they were staying at home. 95% respondents said that they took extra care of hygiene and 558 (73%) re-checked the social media information from other sources (Table 3).

Table 3: Practices Regarding COVID-19

Do you wear a mask/glove when going outside?	
Yes	640 (83.8)
No	39 (5.1)
Sometimes	85 (11.1)
Have you attended any social gathering since the lock down? (Visiting mosques/relatives/friends)	
Once	116 (15.2)
2-3 times	79 (10.3)
Frequently	22 (2.9)
No	547 (71.6)
How frequently do you go out of the house, for the work?	
2-3 times/week	75 (9.8)
Once a week	43 (5.6)
One a day	62 (8.1)
Not at all	567 (74.2)
Other	17 (2.2)
How frequently do you go out of the house, for the Grocery?	
2-3 times/week	118 (15.4)
Once a week	286 (37.4)
One a day	47 (6.2)
Not at all	258 (33.8)
Other	55 (7.2)
How frequently do you go out of the house, for the volunteer work?	
2-3 times/week	21 (2.7)
Once a week	46 (6)
One a day	20 (2.6)
Not at all	652 (85.3)
Other	25 (3.3)
How frequently do you go out of the house, for the other reasons?	
2-3 times/week	45 (5.9)
Once a week	78 (10.2)
One a day	40 (5.2)
Not at all	545 (71.3)
Other	56 (7.3)
Are you taking extra care of your hygiene?	
Yes	728 (95.3)
No	12 (1.6)
Sometimes	24 (3.1)
Do you check the authenticity of the information received from social media before passing it on?	
Yes	58 (73)
No	59 (7.7)
Sometimes	147 (19.2)

Discussion

Countries around the world are taking unprecedented measures to control the spread of the virus, which include use of facemasks, restricting travel, suspending educational activities, and banning major public gatherings. These measures have been accompanied by active infection surveillance and self-isolation recommendations (15). Like many other countries, the Pakistan government has experimented with various forms of lockdown. Karachi, being one of the highly affected cities, faces the most stringent measures compared to anywhere else in the country. However, the effectiveness of lockdown and preventive measures really depend on how well people respond to the risks and adapt to the evolving situation. It is known that behavioral factors of the community at large can play an important part in controlling the spread of disease (16). The World Health Organization (WHO) recognizes the value of human behavior in managing pandemics and its Outbreak Communications Planning Guide suggests that behavior changes can reduce the spread by as much as 80%.

Our sample population was predominantly females, well-educated and leading professions included white-collar workers, government employees and allied health professionals. Another study conducted during the same time period described that the awareness level was significantly higher in physicians, indicating the importance of the profession linked to good knowledge scores (8). The results of our study provide evidence that this fraction of the population understands the significance of staying up to date with relevant information which is made convenient by easy access to vast awareness campaigns led by WHO and the local Government. Similar results relating to good knowledge among Pakistani citizens were found in a study that

reported 64.8% of the population to be aware of the disease (9). Almost the entire population was aware that social distancing is important, therefore they follow the lockdown restrictions imposed. Similar attitude was observed among 17.9% of the Pakistani population which was assessed by an online survey and this risky behavior was observed among male participants aged 16–29 years and those who were unmarried (9).

It was important to evaluate what constitutes trustworthy sources of information for the general public as it shapes people's attitudes and behavior. But this places a huge pressure on governments and public health agencies to produce the right messaging on COVID-19. This is tricky given that people are at different risk levels from the virus. Our results conclude that healthcare workers are the most trusted source of information followed by the government and we can use this as an opportunity to greatly increase their role in our public health awareness campaigns. This is highlighted by the fact that misconceptions are present among the health literate population regarding the use of antibiotics, flu vaccines, etc. for a viral disease. However, this was a very small percentage of participants (4% and 8.5% respectively) which is coherent to the results of another KAP survey where 81% of the respondents believed the use of antibiotics had no role in prevention or treatment of this disease (8).

There is still a significant proportion that believes in myths e.g., drinking hot water 134 (17.5%), using garlic 56 (7.3%), etc. as preventive measures for the disease. This suggests that we focus on campaigns and posters designed specifically for these target groups e.g., translating WHO myth busters' campaign in the local language (10).

We understand the power of social media in the rapid spread of information especially related to the circulating myths, ranging from the origin of the virus to its potential treatments. (17) This spread of false information is a rising concern globally as stated by WHO (11). Keeping that in view, we investigated whether people were cautious before spreading any information obtained via social media. The results showed that a greater number 558 (73%) fact check information received before passing it on, however, 59 (7.7 %) did not.

Almost half of the population 376 (49.2%) believes that the virus originated from bats, 294 (38.5%) presumes that there is no cure for COVID-19 whereas 232 (30.5 %) consider the virus to be created by humans. Findings of a survey conducted in the US revealed that 23%, or more than 1 in 5 participants, considered it either probably or definitely true that the Chinese government developed COVID-19 as a bioweapon (12). The zoonotic spillover from bats to humans is one of the many possible causes yet to be confirmed (13,18). Similarly, there has been no evidence of the virus being engineered in a lab (19). Another important finding of the study is that people are aware about the significance of a COVID vaccine 290 (39.8%) which could help in controlling the disease and more than half, i.e., 503 (65.8%) of the population expressed a positive attitude in getting a SARS CoV-2 vaccine administered, once developed. This is important as it will highly impact future prevention and control of the virus amongst the largely vulnerable population and could help ease the measures enforced for the communal management of COVID-19 (20, 21).

Limitations

The responses were impacted by education, occupation, and economic conditions among the study population and this may have overestimated the results. We were unable to collect data from a target population of uneducated and those with a poor socioeconomic background due to lockdown restrictions in the city. However, we expect their results to significantly differ from our study as they might not have easy access to news and public health awareness campaigns, not understand the significance of social distancing and therefore show poor practices regarding personal precautions and following lockdown orders (22).

Conclusion

Our findings suggest that Karachi residents have a relatively high level of education and had good knowledge, optimistic attitudes, and appropriate practices towards COVID-19 during the rapid/early rise period of the COVID-19 outbreak. The appropriate response towards the social distancing and lockdown measures by this section of society is likely to help the government's efforts to manage the spread of disease effectively.

Conflict of interest: Authors do not have any conflict of interest to declare.

Disclosure: None.

Human/Animal Rights: No human or animal rights are violated during this study.

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