ORIGINAL ARTICLE

Knowledge, Risk Perceptions and Preventive Behaviors Regarding to COVID-19 Pandemic in General Population of Sindh, Pakistan

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ABSTRACT

Aim: The purpose of this research was to evaluate how Pakistanis feel about and understand COVID-19

Methods: To conduct the cross-sectional survey, we used Google forms to digitize a questionnaire with 17 items, which we then sent to a sample of the general population.

Results: There was a total of 615 questionnaires collected from residents of Sindh Province. Most people 75.1% believe that the disease is spread through direct contact with an infected person or through inhaling air droplets expelled by a sick person while they sneeze or cough. When asked how they had avoided contracting COVID-19 over the preceding 14 days, the vast majority, 39.4%, reported consistently washing and sanitizing their hands. Other steps include not shaking hands with people 33.0% and staying at least one meter away from them (24.9%), not letting people share utensils at meals 38.1%, and masking their faces even when they don't feel sick 28.8%. Additionally, 56.1% of the respondents admitted that they had not taken any special precautions to protect themselves. It is duty of every citizen to obey the government's steps to avoid from COVID-19.

Conclusion: In general, the people who took part knew a lot about the disease and felt good about taking precautions. The government and the public are taking effective steps to stop the spread of disease, but there is still a need for more awareness campaigns and knowledge of safe ways to stop the spread of disease.

Keywords: SARS-Cov-2, COVID-19, Sindh, pandemic, epidemic

INTRODUCTION

An infectious disease outbreak started in Wuhan, China, on December 8, 2019, caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). This outbreak has already placed their pawns all across the world[9-10]. On March 11, 2020, COVID-19 was officially recognized as a global health emergency.

Considering its fast worldwide spread, COVID-19 is the most economically and health-wise disastrous pandemic sickness the contemporary world has ever encountered. All nations, but particularly those in emerging regions, are more susceptible to COVID-19 due to the sheer number of people living there, lack of health services, extreme poverty, and high rates of illiteracy. We can only stop the spread of this epidemic by taking preventative precautions, such as isolating ourselves from others and from the outside world. However, people's attitudes and cooperation ultimately determine whether or not any preventive strategy is followed[1-3]. Numerous factors, including socioeconomic level, beliefs, knowledge, traditional and cultural values, risk perception, and the efficacy of applied interventions, influence people's cautious behavior[4-6]. The relative importance of these characteristics may vary depending on the culture and nation[7-8]. As a result, each nation has to take its own precautions in light of the specific circumstances and local conditions. Individuals may be prompted to follow the recommended preventative measures against COVID-19 by the health authorities in their country[16].

The population of Pakistan is more than 212 million, the majority of whom (63%) call rural regions residents[18]. The country is extremely vulnerable to the COVID-19 pandemic because of its vast population, high population density, inadequate health and educational facilities, and generally conservative religious attitudes of the populace, especially in rural areas. The first COVID-19-infected person in the country was found on February 26, 2020. Since then, the number of infected people is rising every day[19]. There is only one physician for every 963 people in Pakistan, and there is only one bed for every 1,608 in the country. However, this problem is much more severe in Pakistan's rural regions, where one doctor serves a population of more than 2,560 people[20].

Pakistan's understaffed medical facilities might quickly become overwhelmed by a spike of COVID-19 infections. Considering Pakistan's health care infrastructure, the government has just one option for stopping the spread of COVID-19: following the precautions recommended by the health department. Thus, the success of attempts to lessen the monetary and health consequences of COVID-19 rests entirely on the shoulders of each person. Prior research on how people respond to pandemics reveals that they may adopt the wrong protective behaviours (such as refusing to enter quarantine), which can have negative economic and health consequences. Since COVID-19 will be Pakistan's first ever pandemic, there has never been a study conducted to aid government institutions anticipate how the public will react. As a result, the present research was designed to address this need. Additionally, studies on knowledge and risk perception during pandemics may raise people's understanding of the health dangers linked with the illness and help them change their attitudes[21-23]. Like this, identifying knowledge gaps that might be utilized to create educational programs to improve public understanding would help government agencies understand how the population is aware of infectious diseases and their potential ways of preventing them[24]. The following goals of the current study are to determine the general public's knowledge of COVID-19, the precautions people have taken to avoid COVID-19, the factors influencing those precautions, the behaviors of people toward COVID-19, and the accessibility and affordability of necessary protective items for people.

MATERIALS AND METHODS

Study design and setting: This study followed a cross-sectional design to assess the general population's knowledge, health status, risk perceptions and preventive behaviors regarding to COVID-19 pandemic in general population of Sindh, Pakistan at the time of curfew and lockdown. We utilized a survey that was conducted online and disseminated through several social media platforms, such as Twitter and WhatsApp. Participants were invited to share the survey with their friends. The participants have got the invitation to do the survey via their own WhatsApp groups of friends, relatives, or coworkers. They got tweets or messages in Sindh, Pakistan, using a different number of accounts on another site known as "Twitter." The messages explained the study's goals, provided a participation link, and solicited responses. The survey was titled knowledge, risk perceptions and practice in Sindh, Pakistan. As soon as the survey link was clicked, a cover page

appeared with the study's title, purpose, and estimated completion time. If they were willing to take part, they were instructed to click the button labelled "start the survey," after which they would begin responding to the questionnaire's questions.

Study procedure: The poll was taken through a widely used internet tool called Google Survey. All study's participants gave their permission after being fully briefed on the study's goals. Information was not shared with anybody outside of the research team. Data collected was conducted over fifteen days (August 2–17 August 2022).

Survey: A recent research in 194 Chinese cities served as the basis for this poll[11]. The chosen questionnaire probes respondents' perspectives on risk and vulnerability as well as their socioeconomic background, levels of education, and preventative measures. Participants' sociodemographic information included age, sex, educational levels, most recent places of residence, marriage and parental statuses, monthly household income in Pakistani Rupee, number of children, and household composition were collected. Participants were also questioned about any somatic issues they had been dealing with over the course of the previous two weeks including chills, headache, fever, myalgia, difficulty in breathing, dry cough, nasal congestion, dizziness, diarrhea, sore throat, and others. Parts of the poll inquired as to whether or not respondents had used any medical services in the last two weeks; these services included doctor visits, hospital stays, isolation or quarantine orders, and COVID-19 testing. The factors in the contact history were: direct or indirect contact with a diagnosed COVID-19 case; and interaction with a person who is believed to be infected with COVID-19, a contaminated surfaces, or materials.

Second section of the survey inquired about the respondents' familiarity with and anxiety regarding COVID-19. In it, we covered topics like how SARS-CoV-2 is spread from person to person, diagnosis of COVID-19 with a high degree of certainty, satisfaction level with the COVID-19 health information, based on the most recent reports of cases and deaths in the nation., and potential treatment for COVID-19 infection. On the day of survey collection, participants were asked to report where they heard about the number of COVID-19 cases and fatalities in the nation. COVID-19 concerns included the possibility of being infected oneself or a family member, the likelihood of recovering from an infection, and the likelihood of survival if an infection did occur. Precautions against SARS-CoV-2 are discussed in the third section. Some of these measures include not sharing utensils or shaking hands with someone who is sick, covering one's mouth while coughing or sneezing, constantly washing one's hands after using the restroom, and staying away from others if one develops symptoms (no handshaking and keeping a distance of one meter). A question about how many hours a day on average they spent at home over the previous 14 days was used to gauge how well they followed social distancing guidance meant to reduce their vulnerability to the disease. Participants were given instructions and asked to indicate whether or not they agreed that the COVID-19 epidemic had caused undue alarm.

Statistical analysis: IBM SPSS version 22 was used for the statistical analysis, as detailed in the study's methodology. Before any analysis could begin, the data had to be cleansed, sorted, and processed. The survey's answer fields were made so that they had to be filled out before moving on to the next section. When necessary, options like "None" or "I don't know" were given so that the survey could move on and as little data as possible was lost. Data on demographics, health, medical care utilization, contacts, worries, and preventative measures were compiled and analyzed descriptively. Categorical data were provided as frequencies and percentages, while continuous variables were presented as means and standard deviations, all based on the total sample size of 615.

RESULTS

Most of the participants in this study were male 57.6% (n=354), age group were 18 – 30 years 78.5% (n=278), and 55.4% (n=196)

participants had bachelor's degree. While single participants were 69.5% (n=246) and 59.6% (n=211) were students (Table 2). The majority of participants reported monthly gross family incomes of more exceeding 25000 PKR. A very small percentage actually worked in the medical area 28.6% (n=176), while a far larger percentage had family members in the medical industry 42.6% (n=262). Majority of participants had bachelor's degree 56.4% (n=347).

Table 1:

Variables	Number	%
Sex		
Male	354	57.6
Female	261	42.4
Age		
18 – 30 years	502	81.6
31 – 40 years	58	9.4
41 – 50 years	36	5.9
51 – 60 years	16	2.6
61 > years	3	0.5
Education		
Primary School	51	8.3
Middle School	17	2.8
High School	94	15.3
Diploma	23	3.7
Bachelors	347	56.4
Master	55	8.9
Ph.D.	6	1.0
Marital Status		
Single	455	74.0
Married	150	24.4
Divorce	4	0.7
Widowed	6	1.0
Employment Status		
Unemployed	95	15.4
Employed	77	12.5
Student	412	67.0
Self-employed	31	5.0
Family monthly income		
< 5000 PKR	102	16.6
5000 – 9999 PKR	71	11.5
10000 – 14999 PKR	70	11.4
15000 – 19999 PKR	78	12.7
20000 – 24999 PKR	103	16.7
25000 > PKR	191	13.1
Working in the medical field (Yes)	176	28.6
Have a family member that works in the medical field. (Yes)	262	42.6

Knowledge about COVID-19: Participants were evaluated on their COVID-19 pandemic-related knowledge, self-assurance, and overall happiness (Table 4). Most people (75.1%, n=462) believe that the disease is spread through direct contact with an infected person or through inhaling air droplets expelled by a sick person while they sneeze or cough. Similarly, the majority of them were Moderately 29.8% (n=183) or very 23.3% (n=143) confidence in the diagnosing methods used for COVID-19 testing, and a total of 32.7% (n=201)/19.0% (n=117) were Moderately/slightly satisfied with the quantity of data currently available on the pandemic.

When asked how likely they thought they were to get SARS-CoV-2 during the present epidemic, the vast majority said they were Extremely likely/very likely 6.8% (n=42)/6.8% (n=42) to become infected with the virus. In contrast, 6.8% (n = 42) said it was not probable, and another 12.7% (n = 78) said it was just moderately likely. Nevertheless, if diagnosed with COVID-19, the vast majority thought they had a very high (n = 212) or high (n = 131) chance of making a full recovery. Participants were also questioned on their opinions of the statement: "I feel that there is much unnecessary worrying regarding COVID-19". The vast majority of respondents (39.3%; n = 241) dissented that people worry too much about the pandemic.

Table 2:

Variable	Yes	%
1. Knowledge of the mode of transmission of the coronavirus		
Exposure to sneeze /cough droplets and direct contact	462	75.1
Through the air	44	7.2
I don't know	109	17.7
2. Confidence about options of diagnosing the disease		
Not confident	69	11.2
Slightly confident	133	21.6
Moderately confident	183	29.8
Very confident	143	23.3
Extremely confident	87	14.1
3. Satisfaction with the amount of information on the disease		
Not satisfied	107	17.4
Slightly satisfied	117	19.0
Moderately satisfied	201	32.7
Very satisfied	107	17.4
Extremely satisfied	83	13.5
4. Participant's understanding of how they can protect themselves from COVID-19.		
a. Using herbs such as myrrh and ginger	210	34.1
5. Social distancing for 1 m or more	399	64.9
c. Self-isolation	197	32.0
6. Washing and disinfecting my hands continuously	552	89.8
a. Using antibiotics	245	39.8
b. No protection needed	333	54.1
c. I don't know	243	39.5
7. Chances of recovering if diagnosed with COVID-19		
Not likely	28	4.6
Slightly	89	14.5
Moderately	212	34.5
Very likely	155	25.2
Extremely likely	131	21.3
8. Perceived likelihood of infection during the current outbreak of the coronavirus		
Extremely likely	42	6.8
Very likely	42	6.8
Moderately	78	12.7
Slightly	88	14.3
Not likely	365	59.3
9. Opinion about the statement: "I feel that there are a lot of unnecessary worrying regarding COVID-19"		
Strongly disagree	241	39.2
Disagree	91	14.8
Undecided	107	17.4
Agree	120	19.5
Strongly agree	56	9.1

Preventive behavior and risk perception: 13.2% (n = 81) and 9.8% (n = 60) of the individuals had indirect and direct interaction with someone diagnosed with COVID-19, respectively. (Table 5). Approximately 16.7% (n = 103) of the study's participants had personal experiences with someone who was thought to be infected with COVID-19. 10.9% (n=67) of the persons who took part in the study had never had any previous encounter with the COVID-19 infectious agent. This represented the majority of the participants (Table 5).

Due to the coronavirus outbreak, most of the people who took part stayed home and didn't go out at all 31.2%, (n = 192) Table 5. Another 12.5% of the population, or 77 people, were found to be indoors for more than 12 hours every day. When asked how they had avoided contracting COVID-19 over the preceding 14 days, the vast majority, 39.4% (n = 230), reported consistently washing and sanitizing their hands. Other steps include not shaking hands with people (33.0%, n = 203) and staying at least one meter away from them (24.9%) (n = 153), not letting people share utensils at meals 38.1% (n = 234), and masking their faces even when they don't feel sick 28.8% (n = 177). Additionally, 56.1% (n = 345) of the respondents admitted that they had not taken any special precautions to protect themselves (Table 5).

Table 3:

Variable	Yes	%
1. Indirect contact with someone diagnosed with COVID-19	81	13.2
2. Direct contact with someone diagnosed with COVID-19	60	9.8
3. Direct contact with someone suspected to have COVID-19	103	16.7
4. Contact with surfaces and tools infected with COVID-19	67	10.9
5. Nothing happened	241	39.2
6. I don't know	224	36.4
7. Number of hours of self-isolation		
Did not go out at all	192	31.2
> 12 h/day	77	12.5
8 to <12 h/day	79	12.8
4 to <8 h/day	95	15.4
<4 h/day	172	28.0
8. How participants have protected themselves from COVID-19 over the past 14 days	233	37.9
a. Washing and disinfecting hands continuously	230	39.4
b. Avoided handshakes	203	33.0
c. Social distancing for at least 1 m	153	24.9
d. Avoided sharing of utensils during meals	234	38.1
e. Used a face mask even without any symptoms	177	28.8
f. Did nothing	345	56.1

Health status of participants: The majority of respondents' physical health state at the time the survey was conducted14.0% (n = 86) of the population had visited a hospital within the two weeks before to data collection for various reasons, and of the overall population, only 4.4% (n = 27) required admission due to serious disease. 11.2% (n=72) respondents were tested for COVID-19, and in the past 14 days, responders 17.1% (n = 105) were quarantined.

Most of the respondents 14.6% (n = 90) reported fever, 11.2% (n = 69) dry cough, and 3.3% (n = 20) difficulty breathing as the common symptoms of the COVID-19. On the other hand, half of the respondents 3.9% (n = 24) reported sore throat,12.7% (n = 78) nasal stuffiness, along with headache 30.6% (n = 188), diarrhea 5.4% (n = 32), and no symptoms 13.5% (n = 83).

Table 4:

Variable	Yes	%
Visited a hospital in the past 14 days	86	14.0
Admitted in a hospital within the last 14 days	27	4.4
Tested for COVID in the past 14 days	72	11.2
Recent quarantine in the past 14 days	105	17.1
Fever	90	14.6
Headache	188	30.6
Muscle pain	65	10.6
Dry cough	69	11.2
Dizziness	67	10.9
Nasal congestion	78	12.7
Sore throat	24	3.9
Difficulty breathing	20	3.3
Diarrhea	32	5.4
No symptoms	83	13.5

DISCUSSION

The vast majority 75.1% (n=462) of these people believe that the disease is spread through direct contact with an infected person or through inhalation of air droplets emitted by a sneezing or coughing individual. According to a study done in the Punjab province of Pakistan, more respondents 87.60% were aware that the illness may spread via sneeze droplets as well[16] [16]. There was another research conducted in Saudi Arabia. The vast majority 96.6% think that the illness is spread via direct contact with an infected person or by inhalation of air droplets emitted by a sneezing or coughing individual[15] [15]. Minjung Lee et al. also reported higher response that "The COVID-19 virus spreads via respiratory droplets of infected individuals 93.2%"[17] [17].

Similarly, the majority of them were Moderately 29.8% (n=183) or very 23.3% (n=143) confidence in the diagnosing methods used for COVID-19 testing; and a total of 32.7% (n=201)/19.0% (n=117) were Moderately/slightly satisfied with the amount of information available on the disease. A study conducted on the general population in Saudi Arabia showed the majority of them also expressed very 30.6% or extreme 44.4% confidence in the accuracy of the techniques employed to make the diagnosis, and a total of 78.7% expressed very/extreme satisfaction with the quantity of knowledge about the pandemic[15] [15].

When asked how likely they thought they were to get SARS-CoV-2 during the present epidemic, the vast majority said they were Extremely likely/very likely 6.8% (n=42)/6.8% (n=42) to become infected with the virus. In contrast, 6.8% (n = 42) said it was not probable, and another 12.7% (n = 78) said it was just moderately likely. Al-Khamees et al. documented higher response about when participants asked how likely they thought they were to get SARS-CoV-2 during the present epidemic, a majority (56%) said they did not think they would become sick while 41.6% said it was very marginally probable (15). As compared to current study Chen et al. reported lower 15.0% respondents thought they were at high risk of acquiring the disease[12] [12].

Nevertheless, if diagnosed with COVID-19, the vast majority thought they had a very high (n = 212) or high (n = 131) chance of making a full recovery. On the other hand, the majority of respondents stated that their chances of recovery were either very high (33.1% of respondents) or very likely (43.4% of respondents) (15). Participants were also questioned on their opinions of the statement: "I feel that there is much unnecessary worrying regarding COVID-19". The vast majority of respondents (39.3%; n = 241) dissented that people worry too much about the pandemic.

13.2% (n = 81) and 9.8% (n = 60) of the individuals had indirect and direct interaction with someone diagnosed with COVID-19, respectively. Approximately 16.7% (n = 103) of the study's participants had personal experiences with someone who was thought to be infected with COVID-19. Most of the people who took part had no history of contact with the COVID-19 infectious agent, which was 10.9% (n=67) of them. When questioned about "Spread by hug and handshake," 91.8% of respondents gave a positive reaction to the question posed by Shamsheer et al., who reported on the findings. Al Khamees et al. reported 0.5% of participants had indirect contact with someone who had been diagnosed with COVID-19. The percentage of individuals who had direct interaction with a COVID-19 patient was 0.2%. Only 1.7% of those who took part in the study said they had come into personal touch with someone who had been diagnosed with COVID-19. (15). When questioned about the most frequent methods of illness transmission, 85.1% mentioned social events, and 69.2% of the participants said that handshakes were the major method[13][13].

Most of the study participants 31.2% (n = 192) stayed indoors due to the coronavirus epidemic. A further 12.5% (n = 77) of participants spent over 12 hours a day confined to their homes. Because of the coronavirus epidemic, a majority 56.4% of the study's participants had remained indoors and avoided all public spaces. Additionally, 38.1% of participants spent over 12 hours a day inside their homes (15). Most. Et al. determined that 76.9% participants maintaining self-quarantine, taking all family members into home quarantine 78.1% (14). Participants in our poll overwhelmingly agreed that close physical contact, such as handshakes, is a major risk factor for spreading SARS-CoV-2, and that maintaining a social distance and regularly washing one's hands are crucial to avoiding and controlling the spread of the virus. The participants' responses demonstrate that their knowledge is up-to-date and in line with WHO recommendations (10, 11).

When participants were asked how they had avoided COVID-19 during the preceding 14 days, the vast majority 39.4% (n = 230) reported consistently washing and sanitizing their hands. According to the results of a recent survey, 94.3 percent of people regularly use soap while washing their hands. Shamsheer et al.

documented higher 89.7% of participants said that they regularly washed and disinfected their hands. Another study also reported high rate 93.5% participants washing hands with water and soap[14] [14].

Avoiding handshakes 33.0% (n = 203) is one of the additional steps used, physically separating themselves from others by at least one metre 24.9% (n = 153), another 38.1% (n = 234) of people avoid sharing utensils at meals, and utilising facemasks even when there are no signs or symptoms present 28.8% (n = 177). In addition, 56.1% (n = 345) of those who responded stated that they had not taken any particular precautions to safeguard themselves. A study documented that 93.5% responded that they maintaining social distance, Hands should not be used to touch the eyes or nose 90.4%, a mask should be used 87.2%, and contact with sick persons should be avoided 84.7% (14). The vast majority of individuals (89.7%) reported routinely washing and sanitising their hands as a form of COVID-19 protection throughout the past 14 days. Handshakes are avoided by a majority of people 67.0%, physically isolating oneself from other people at a distance of at least one metre (58.9%), consuming their own food and not sharing cutlery (23.4%), and 16.9% of people are utilising facemasks even when they do not have any symptoms. Also, only 7.2% of those who took the survey stated they had taken no special precautions.

Most of the respondents, 14.6% (n = 90), reported fever, 11.2% (n = 69) dry cough, and 3.3% (n = 20) COVID-19 is characterized by typical symptoms such as trouble breathing. While half of the respondents 3.9% (n = 24) reported sore throat,12.7% (n = 78) nasal stuffiness, headache 30.6% (n = 188), diarrhea 5.4% (n = 32), and no symptoms 13.5% (n = 83). A study reported higher rate 99% of responders reported fever, dry coughing, and breathing difficulties were the signs of COVID-19. 51.2% had a sore throat, stuffy nose, headache 0.1%, diarrhea 0.7%, or they didn't know 0.4% (14). According to Sammina et al., a larger percentage of participants (83.9%) reported having a fever, a cough, and 68.6% participants identified breath shortness,23.3% responded no symptoms were indications of COVID-19 [13].

CONCLUSION

The COVID-19 pandemic presents a significant challenge to the world, and healthcare systems in both developing and developed countries are struggling to cope. Developing countries, such as Pakistan, face particular difficulties in controlling the spread of the virus due to their limited healthcare infrastructure. Consequently, the actions of the general public and their adherence to preventive measures will play a crucial role in determining the outcome of the situation in the absence of a specific cure. This study aims to contribute to the understanding of the behavior, knowledge gaps, and risk perception of the general public concerning COVID-19 and assist government health agencies in Pakistan and globally.

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