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Knowledge, Awareness and Perception towards COVID-19 during early outbreak: A Cross-sectional study from Southern Pakistan

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Abstract: COVID-19 emerged from the seafood market of Wuhan, spread in many countries, including Pakistan within three months. This led many countries including, to take strict precautionary measures including strict lockdowns, to control the spread of COVID-19. Pakistan is currently facing a pandemic and economic crisis together. Spreading the awareness to the people in Pakistan is a huge challenge, owing to lower literacy rate, increasing poverty, lack of health care facilities, socio-demographic factors and disinformation pose a challenge to control COVID-19 in this region of the world. The purpose of this study was to assess the level of awareness and knowledge in general the public using an online survey.**Methodology**: The questionnaire was designed relying on available knowledge on COVID-19. The link of the questionnaire was sent to various participants using emails and social media such as Facebook and WhatsApp. Total 653 participants filled the online questionnaire and gave responses to all fields required in the questionnaire.Socio-demographic distribution of the participants indicated a higher number of participants were male in gender category, those who were unmarried, living in urban areas, having higher degrees and lower economic status were higher in numbers. **Results:**Out of total participants, overall 91.9% responded that they knew about COVID-19, and 90.1% believed that COVID-19 is reality. Overall the correct responses were higher for COVID-19 related awareness, which included route of transmission, symptoms and precautionary preventive measures.**Conclusion:** This study indicates higher level of awareness in people living in studied area, however, this knowledge comparatively lower than developed countries.

Keywords:SARS-CoV2, COVID-19, Pandemic, Awareness, Pakistan.

1. INTRODUCTION

There have been three major deadly respiratory diseases due to different corona virus in the last two decades (1). The outbreak of severe acute respiratory syndromewas reported during November 2002, in China(1, 2). The outbreak was caused by SARS-CoV1, lateron another strain of coronavirus known as Middle EastRespiratory Syndrome Corona Virus (MERS-CoV) was identified in Saudi Arabia in September, 2012(1, 3). Recently, the novel strained of corona virus emerged in Wuhan, in December 2019, this novel corona virus was later on named SARS-CoV2 and the diseases caused by SARS-cov2 was named Corona Virus Diseases-19 (COVID-19)(4). SARS-CoV2 has been reported deadly and highly contagious spreading to 114 countries and causing 4291 deaths within three months after it was identified(5). WHO declared it pandemic on 11th march 2020, which has led to the massive campaign to reduce the spread of corona virus(5). The strict measures were taken by nations to control and limit the spread of corona virus, these measures ranged from imposing strict and smart lock down by various nations. People in all COVID-19 affected countries were given awareness to take precautionary measures such as use of mask, frequent hand washing, use of sanitizers and social distancing. However, fake messages, exaggerated information, spread of rumors and conspiracy theory has largely affected the efforts to contain the corona virus in various countries around the world (6, 7).

In Pakistan, the first case of corona virus was detected on 26thFebruary2020; this case was detected in a university student who travelled from Iran(8, 9), which reported high number of cases and deaths(10). Since then, the number of COVID-19cases has continued to rise in Pakistan and till todate the total number of confirmed cases have crossed 200,000 cases. This number is expected to rise due to not following the precautionary measures, lack of awareness and disinformation spreading through social media(11, 12).

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The disinformation is based on rumors and conspiracy theories, making people believe that Corona virus is more a rumor than reality. The spread of disinformation and not unwilling to follow the precautionary measures by public might undermine the efforts to slowdown the spread of coronavirus in Pakistan. Recently, it was reported in the study from Pakistan that majority 55% believe coronavirus infection is a minor flu like problem (13), the similar study further suggested the higher number of participantsbelieving it would survive only in cold weather (13). Even the data from medical students and physicians revealed that the level of awareness was 68.25%(14), which was lot lower than expected, and this showed that there was an urgent need to spread awareness about COVID-19.

To reduce the transmission of corona virus, it is urgent to assess the level of awareness in public. Several studies have previouslyreported the assessmentknowledge and attitude in students, health care workers, nurses, and pharmacist(15-18). The studies from across the world and Pakistan indicate higher proportion of population aware about COVI-19 routes of transmission, symptoms, and precautionary measures which suggest that majority of people are well about COVID-19 related preventive measures. Further, it was also reported that those who use internet facilities also have good knowledge about measures taken to control COVID-19(19). However, no extensive study has been reported from Pakistan assessing the level of awareness,knowledge and attitude in the general population towards COVID-19.

The purpose of this study was to assess the knowledge and attitude and awareness about corona virus ingeneral population using the internet facilities. The study was conducted only on those living in Sindh, which reported the first case on 26th February. Sindh is the southern province of Pakistan, which is facing a rise in corona virus cases. The rise in cases could also be due to lack of awareness and an increase belief in rumors and fake messages. This study will help in making the public health policies related with reducing the spread of corona virus.

2. METHODODOLOGY

Study setting and participants:

This cross-sectional study was conducted from 15 March2020 to 21 March 2020 in general population using an online questionnaire using google forms.Due to the pandemic situation and speedy rise in corona virus cases in Pakistan, it was not possible for us to distribute the questionnaire to the participants in the community so we decided to design an online survey. The questionnaire was comprised of sections such as study participant's demographic characteristics; Knowledge about the incubation period, signs and symptoms, mode of transmission, control, and preventive measures COVID-19. Total 653 participants agreed and filled the online survey to give COVID-19 related responses. All the participants were informed about the objectives of the proposed study and after obtaining their verbal consent, the online questionnaire was either emailed to the participants or they were asked to fill in the questionnaire using social media. Only those who were willing to participate in the study were allowed to fill in the online questionnaire, and those who refused to fill in or were reluctant were excluded. Any participant residing outside the province, or temporarily migrated to other provinces and countries were also excluded from the study.

Data Collection:

Data was collected using an online questionnaire, questionnaire was developed using the available knowledge, and it was translated into local languages. Questionnaire comprised various sections, which were further divided into elements. These sections were about the basic socio demographic information, knowledge about the rout of transmission of virus and symptoms associated with covid-19. Questionnaire also comprised the attitude and belief of participants towards disinformation, fake messages and rumors, another of section of questionnaire contained the information about precautionary measures and attitude of participants towards precautionary measures

Statistical analysis:

The statistical analysis was carried out using SPSS software version 18. The data obtained by questionnaire was transferred to excel sheet. The data was transferred to SPSS spread sheet and analyzed. Chi square was used to obtain the measure of association. P value < 0.05 was considered statistically significant.

3. RESULTS

Table1 summarizes the basic characteristics of the population, total 653filled and submitted the form out of which, the majority of the participants were male 77.5%, the marital statusrevealed that unmarried were higher in number. The participants belonged to both urbanand rural areas however, the participation in survey was higher from urban areas. The income status showed a higher number of participants with income <15000, followed by 16000 to 50000, and >50000. Those participants, who had higher education >12 years of education were higher in number followed by 11-12 years of education and <10 years of education.

Table 2shows that the higher number of people believe that the COVID-19 a real threat, and only 65 people believed it was not a threat but a rumor. Being

unmarried, living in rural area and lower income level were significantly (P <0.05) associated with the belief that covid-19 or corona virus was not a threat and it was just a rumor. No significant (p>0.05) association was in male and female gender and number of years of education regarding the belief in covid-19 as a rumor. Proportion wise out of those with education level ≤10 years, 13.21% believed that COVID-19 was a rumor, whereas those having the education level 11-12 years of study had lesser perception 11.76% about COVID-19 as rumor followed by those 8.83% having >12 years of education.

Table 3shows higher numbers of participants knew the rout of transmission, general symptoms, risk age groups, incubation period, and preventive measures. The knowledge about some other symptoms such as diarrhea, and loss of sense and smell was not higher. Only 30.8% people believed covid-19 will end in Pakistan within 12 months, however, 51.3% responded that they did not know that COVID-19 will end and 17.9% people were of the opinion that COVID-19 will never end in Pakistan.

Table.1.Distribution of participants according to Sociodemographic status

Socio-demographic characteristics	n	%
Gender		
Male	506	77.5
Female	147	22.5
Marital Status		
Married	255	39.1
Unmarried	398	60.9
Living area		
Urban	389	59.6
Rural	264	40.4
Education level (years of study)		
≤10	53	8.1
11-12	170	26.0
>12	430	65.8
Income status (PKR)		
≤1500	336	51.5
16000-50000	214	32.8
>50000	103	15.8

Table 2. Cross tabulation of socio-demographic status with perceived belief of participants towards COVID-19 as a reality or rumor

Socio-demographic characteristics	Reality (n=588)	Rumor (n=65)	□2	*P*-value
Gender				
Male	455	51	.039	0.8
Female	133	14		
Marital Status				
Married	238	17	5.04	.025*
Unmarried	350	48		
Living area				
Urban	358	31	4.2	0.04*
Rural	230	34		
Education level (years of study)				
≤10	46	7	1.84	0.3
11-12	150	20		
>12	392	38		
Income status (PKR)				
≤1500	291	45	11.09	0.004*
16000-50000	197	17		
>50000	100	3		

Table 3. Knowledge and awareness about COVID-19 rout of transmission, symptoms and preventive measures

Question	Yes/correct n	%
Do you think you have good knowledge about COVID-19?	600	91.9
Do you know any three of common symptoms such as flu, fever, cough and fatigue?	612	93.7
Do you know any two less common symptoms such as eye rashes, loss of smell and diarrhea?	301	46.1
Do you have any knowledge that COVID-19 can cause organ failures?	169	25.9
Do you know that droplets from infected persons are the main source infection and rout of transmission as well?	631	96.6
The incubation period of SARS-CoV2 is 2-14 days?	477	73
Washing hands with soap can kill coronavirus?	624	97.1
Applying the sanitizers on hands can kill coronavirus?	630	96.5
Should we wear mask while going out?	636	97.4
Social distancing means the at least 6 feet distance between 2 persons?	449	68.8
Is the treatment available for COVID-19?	279	42.7
Is the age group ≥60 years at risk?	306	46.9
Will COVID-19 will end in Pakistan within 12 months?	201	30.8

4. DISCUSSION

Epidemics and pandemics bring with them lots of challenges to face by the communities, the lack of awareness, knowledge and unconcerned attitude affects the preparedness of the community to face these challenges.Further the circulation of conspiracy theories, fake messages, and disinformation through social media has compelled people to believe that threat of corona virus is not real or it has been exaggerated(13, 20). This study attempted to assess the knowledge and attitude of the general population through an online questionnaire.

The socio-demographic distribution showed male participants were higher in numbers than female participants this might be due to the reasons, male using more social media, and were easily available through emails. The proportion of unmarried participants was higher than married. Those who had higher than 12year of education were higher in proportion 65.5%, followed by those having 11 to 12 year of education 26.0% and finally those having less than 10 year of education 8.1%, the higher number of educated participants might be due to the fact that majority using internet and filling the form were expected to be literate. Similarly, the participants were urban areas are higher in number, which is mainly due to availability of internet facilities in urban areas. The income status revealed that those having income ≤15000 were higher, followed by 16000 to 50000, and >50000, this might not be a true picture since many of these responses were probably their own income not a total income of the family. The distribution of socio-demographic factors is consistent with previously published studies (13, 21).

Higher proportion of participants responded that they know about COVID-19, similarly higher 90.1% believed that COVID-19 is a reality, however, only 9.9% believed that corona virus is not a real threat, but it is a rumor. The higher proportion of people believing it reality might be due to the reason that majority using internet facilities were able to fill in the online form were from comparatively educated class with 10 years of education and more. Several studies have also reported ahigher percentage of participants using online surveys had knowledge and awareness about COVID-19, its symptoms and routes of transmission(13, 22-24). Although a small portion 9.9% believed it a rumor, yet this small portion from educated class is alarming since believing in rumor, conspiracy theories and fake messages might undermine the efforts to control COVID-19. An initial study from Pakistan reported the belief that COVID-19 was not a threat and it would survive only in cold weather (13). In another study, 55.3% people believed that pandemic was a bio-weapon(25), these and other studies suggest higher number of people in Pakistan receive disinformation, which could undermine the efforts to control COVID-19 in Pakistan.

In our study, being married, living in the urban area andhigher economic status were significantly associated with higher belief in COVID-19 as a threat and reality, this study is consistent with previously reported studies suggesting the similar socio-demographic factors responsible for good knowledge on COVID-19 (22, 26), further it must be kept in mind that recruiting people through social media for awareness has been associated with higher education, which might be the reason for increased level of knowledge about COVID-19(27). Although education level was not significantly associated with participants' belief that COVID-19 was not a threat but a mere rumor, it must be noted that out of 65 participants who believed COVID-19 as rumor total 13.21% (n=7) had ≤10 years of education followed by 11.76% (n=20), and 8.83% having the education level as 11-12 years and ≥12 years of education respectively. Several studies have reported the respondents of online studies are from educated class suggesting education being the main factor in not believing the pandemic as rumor(13, 15, 25, 26).

The data we have collected indicate higher level of awareness regarding routes of transmission, incubation period of virus, risk age groups, general symptoms, and precautionary measures such as washing the hands with soap, using hand sanitizers, wearing masks and social distancing. Several other studies from all over the world and Pakistan have reported good knowledge and increased awareness in respondents, which include health care workers and thegeneral public. Our study and several other studies report the higher knowledge about COVID-19 is positively associated with education (14-16).The level of knowledge in our study is comparatively lesser than studies reported from Chinese study (22). Similarly,a small proportion of people 30.8% believed that covid-19 will end within 12 months.This is mainly due to the fact that people in Pakistan believe that the health care system is comparatively less advanced than technologically advanced countries.

Limitation:

This study was limited to the population, who had abilities to use internet on smart phones and computers, the data was taken on online survey, which was filled by the participants, who had abilities to use emails, social media and other internet resources for filling the online survey, so the findings of thesis survey should not be generalized for entire population.

Limitation of study:

The results of this study may differ according to the socio-demographic factors including literacy, residence,

economic standards, level of education and the degree to of understanding of early outbreaks and pandemics. Though the generalization of the results can vary upon the factors under study in different demographic context.

5. CONCLUSION

This study concluded that the majority ofparticipants using the internet were well aware of COVID-19, its symptoms, routes of transmission and preventive measures to contain and reduce the spread of corona virus, however, a small portion was not aware about any preventive measures. There is dire need to increase the awareness in the people so that they are better able to understand the precautionary measures for prevention of covid-19. Similar type of a study needs to be carried out in general population with lower rate of literacy, since illiterate people cannot the online form to respond to questions asked in the study. This study will help in making public health policies to control the spread of COVID-19 in this area of Pakistan.

Declarations:

Ethics approval and consent to participate: This study was conducted according to the guidelines laid down in the Declaration of Helsinki.

Consent to publish: All authors have read and approved the manuscript.

Availability of data and materials: Data available on email request to corresponding author.

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