ORIGINAL ARTICLE

Knowledge, Attitude and Practices (KAP) Regarding the Prevention against COVID–19 Infection at the Outset of Outbreak in Pakistan Amongst Smart Phone Users

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ABSTRACT

Background and Objective: At the outset of outbreak of Coronavirus disease-19 (COVID-19) infection in Pakistan, there had been a lot of confusion regarding the preventive measures in general public. The objective of current study was to determine the knowledge, attitude and practices regarding the home preventive measures against COVID-19 infection amongst smart phone users at the outset of outbreak in Pakistan.

Methods: It was a cross-sectional online survey to determine the knowledge, attitude and practice amongst the smart phone users regarding the preventive measures against Corona infection. Total 388 questionnaires were submitted in one week in first week of April 2020. The data was collected through online questionnaire which were disseminated through WhatsApp groups. The completed questionnaires were compiled and analysed by using SPSS software version 21. Frequencies of responses were calculated.

Results: A total of 196 (50.5%) participant were in the age category of 17–25 years with female predominance. Three hundred and 66 (94.3%) preferred washing hands with soap and water for 20 or more seconds, two thirds of the participants also agreed on the role of sanitizers. Only 159 (41%) knew what social distancing meant. Regarding the disinfection of eatable and non-eatable, almost half of the participants agreed to use soap and water. Considering the most effective disinfectant, 225 (43.8%) preferred Dettol. Surgical mask and N-95 masks were considered the effective ways to avoid droplet infections. Regarding the survival of the virus in different media, majority of the responses were completely ignorant.

Conclusion: There are still gaps in knowledge, attitude and practices regarding prevention against Coronavirus infection at the outset of this out-break in Pakistan.

KEYWORDS: KAP, Prevention, Coronavirus, COVID-19, Social distancing, Disinfection.

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INTRODUCTION

Coronavirus infection is an acute respiratory tract infection caused by a newly discovered Coronavirus which affects nearly 210 countries

around the globe.[1] According to World Health Organization (WHO) statistics, it has emerged as a pandemic in a very short span of time with a very grave public health issue.[2] The world has faced similar pandemics in past like severe acute respiratory syndrome Coronavirus (SARS-CoV) in 2002-2003, H1N1 influenza in 2009, Middle East respiratory syndrome Coronavirus (MERRS-CoV)in Saudi Arabia in 2012.[2]As of 15th May, 2020 there has been around 37,218 confirmed cases and 803 individuals have lost their lives in Pakistan and figures are rising every day.[3]

Novel Coronavirus is a single stranded RNA virus, which is a zoonotic disease and has led to human infection predominantly through air droplets.[4] Initially patients suffering from Coronavirus presented with pneumonia of unknown origin lateron the Chinese Center of Disease Control and Prevention declared that the illness was due to novel virus of Coronavirus family also called COVID-19.[5] It can present as common cold to severe disease such as adult respiratory distress syndrome.[4]

As of today, there has been no definitive treatment and specific protection against this infection;only health education and preventive measures can play an important role in the impediment of the spread of this infection.[6] Different health agencies both international and national have played pivotal role in dissemination of information through electronic, print and social media in the development of awareness regarding the preventive measures like frequent hand washing, covering the nose and mouth with mask, use of disinfectants and maintenance of social distancing.[1,7] Apart from valid information a lot of myths are also circulating through social media.[8]

This survey was conducted in first week of April 2020, when the number of cases was steadily rising in Pakistan and awareness regarding the preventive measures was at a very preliminary stage. Thus, the objective of the current study was to determine the knowledge, attitude and practices about the home preventive measures against this deadly diseaseamongst the smart phone users.

METHODS

This cross-sectional online survey was conducted by the Department of Community Medicine at Fatima Memorial College of Medicine and Dentistry, Lahore after an Institutional Ethical Approval. The aim was to determine the knowledge, attitude and practice of smart phone users between age group of 15–60 years of both genders, regarding the preventive measures against Coronavirus infection. An online questionnaire using Google Forms was developed and distributed through WhatsApp contacts of the authors of this study. All participants were requested to forward the questionnaire to as many contacts as possible. The survey comprised of a total of eighteen questions, the first three about the demography of respondents, and the rest regarding the knowledge, attitude and practises of home preventive measures. The questions were developed from the perspective of an educated smart phone user who has access to the internet resources, and the availability of local products that act as disinfectants, cleaning products and personal protective equipment (PPE) recommended for general public by WHO and centre for disease control (CDC). The survey was conducted from the1st to the 7th of April, 2020.

STATISTICAL ANALYSIS

The completed questionnaires were compiled and analysed by using SPSS software version 21. Frequencies of different responses were calculated.

RESULTS

Total 388 online responses were collected, and almost 196 (50.5%) of the participant were in age category of 17 – 25 years with female predominance (Table-1). Out of all respondents, 145 (37.4%) were students while 117 (30.2%) had graduated (Table-1). Washing hands with soap and

Table-1: *Sociodemographic profile of the participants.*

Sociodemographic profile of participants		*N =388*	*% (percentage)*
Age in years			
	< 16	8	7.0
	17 – 25	196	50.5
	26 – 45	89	22.9
	46 – 60	52	13.4
More than or equal 60		27	2.1
Did not mention age		16	4.1
Gender	Male	88	22.7
	Females	283	72.9
	Other	1	0.3

	No response	16	4.1
Education status	Students	145	37.4
	Under graduates	82	21.1
	Post graduates	117	30.2
	Others	28	7.2
	No response	16	4.1

water for 20 or more seconds was considered as the most effective measure of prevention by 366 (94.3%) of the participants (Table-2). More than two thirds (77.8%) of the participants also agreed that hand sanitizersplay an important role in prevention as well (Table-2). However, 318 (82%) chose that hand washing is a better preventive measure (Table-2). Only 159 (41.0%) knew what was the meaning of social distancing (Table-2). Nevertheless, 379 (97.7%) agreed on the benefit of social distancing (Table-2). Out of the total, 342 (88%) participants were aware of the role of disinfection in prevention of spread of disease (Table-2). Regarding the disinfection of eatables and non-eatables, almost half of the participants agreed to use soap and/or water for cleaning them (Table-2). Considering the most effective disinfectant for surfaces, 225 (43.8%) answered in favour for Dettol (Table-2). Regarding the use of PPE by an individual while going to a public place, surgical mask and N-95 masks were considered the effective masks to be used (Table-2). Pondering on the awareness regarding the survival of virus on different surfaces, 113 (29.1) considered that it stayed on fabric less than or equal to six hours, while, 99 (25.5%) said it stayed on cardboard and wood for less than or equal to 24 hours (Figure-1). Likewise, 142 (36.6%) considered that it stayed on plastic and wood for less than or equal to 72 hours (Fig:1). Moreover, 154 (39.7%) said that in stayed in air for less than or equal to 2 hours (Fig:1). More than one-third, 155 (39.9%), of the respondents considered health professionals, while almost the same number chose social media as the most beneficial source of information for awareness about the spread of COVID-19 (Fig:2).

Table-2: *Perception about the preventive measures.*

Preventive Measures	*Number (n)*	*Percentage (%)*
Highly Recommended Method of Prevention:		
• Washing hands with simple water	3	0.8
• Washing hands with soap and water for 20 or more than 20 seconds	366	94.3
• Washing hands with soap and water for 20 for five seconds	19	4.9
Role of sanitizer	302	77.8
Yes No	22	5.7
I am not sure	64	16.5
Hand sanitization more effective than hand washing	27	27
Yes No	318	82
I am not sure	43	11.1
Concept of Social Distancing		
• Maintaining a 6 feet distance with everyone at all times and can visit public areas while doing so.	159	41
• Visiting close friends and relatives at their homes but avoiding contact with the general public.	12	3.1
• Isolating oneself from the outside world in our homes.	217	55.9
Role of social distancing in prevention of spread	379	97.7
Yes No	3	0.8
I am not sure	6	1.5
Role of disinfection in prevention	342	88
Yes No	15	3.9
I am not sure	31	8
Most Effective Method of Disinfection of Eatables		
• Exposing them to sunlight	97	25
• Keep out of contact for 72 hours before use	101	26
• Treating them with chemicals	16	4.1
• Washing them with soap and water	174	44.8
Most Effective Method of Disinfection of Eatables		
• Exposing them to sunlight	61	15.7
• Keep out of contact for 72 hours before use	57	14.7
• Treating them with chemicals	105	27.1
• Washing them with soap and water	165	42.5
Most Effective Chemical for Disinfection of Surfaces		
• Alcohol	66	17

• DDT sprays	3	0.8
• Dettol	225	58
• Household bleach	57	14.7
• Hydrogen Peroxide	18	4.6
• Mortien/any insect spray	2	0.5
• Phenyl	17	4.4
Most Appropriate Mask		
• Homemade cotton fabric mask	30	7.7
• Surgical or medical mask	170	43.8
• N-95 mask	151	38.9
• N-99 mask	26	6.7
• None	11	2.8

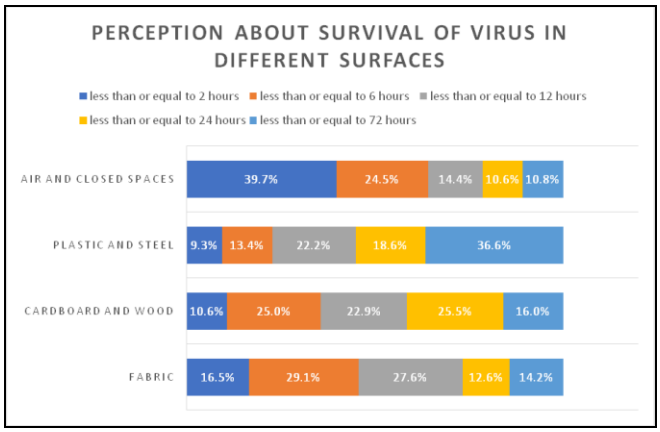

Fig.1: Frequency distribution of responses regarding survival of virus in different Medias.

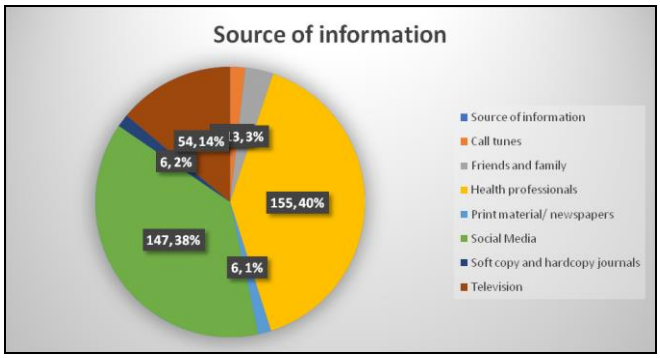

Fig.2: Frequency distribution of responses regarding different sources of information.

DISCUSSION

From the day Coronavirus infection was declared as pandemic, panic has been observed in people around the world. People are getting scared by observing the increasing trend of mortality related to it and are getting information regarding its prevention from different sources but still are confused because of information overload and lack of authenticity. When this study was conducted, it was the second week of lock down in Pakistan and general perception was that level of awareness was not up-to the mark. However, the results of the current study showed that 95% of the participants agreed that proper hand washing with soap and water for 20 or more seconds could be able to kill this virus which is also supported by the literature that soap can dissolve the lipid layer of Coronavirus thus leading to its desiccation.[7]As the virus can survive on hand and body surfaces of the cases after sneezing and coughing so by simple hand washing can prevent its spread to healthy contacts.[9] A study from Saudi Arabia conducted few years back after MERS-CoV about knowledge attitude and practices amongst individuals visiting shopping malls showed that people were well aware about preventive measures as shown in our study as well.[10] While a recent study done in Chicago, USA amongst patients visiting 5 different out-patient clinics showed that one third were not aware of the preventive measures.[11] It is reassuring that overall more than one third of the respondents in our survey were well worse with appropriate preventive measures.

Considering the importance of sanitizers in prevention, more than two third of the current study participants agreed that hand sanitizer could be effective while 16% were unsure. The data from the Communicable Disease Control agency in USA supported that alcohol or ethanol based sanitizers with more than 70% consistency can be very effective in killing the virus.[5,12] This can be utilized very effectively in the prevention of spread of virus in health facilities.[13] So, it will be more appropriate that alcohol based sanitizers to be used in health care settings as well as in places where there is no access to hand washing.[14] As far as the general population awareness is concerned, it is not

surprising that before this pandemic people were not aware about its use as disinfectant in daily routine.[15] Therefore, it is worth to emphasize here that social and print media has been very instrumental in spreading its awareness at least amongst the segment of society represented in our study. However, the same cannot be generalized to less privileged and uneducated class.

The role of disinfectants in prevention of spread of virus or bacteria is not new.[2] Different disinfectants have been used since ages.The oldest and time-tested disinfection is exposure to sunlight which kills many bacteria and virusdue to its ultra violet light or to treat with chemicals.[16] Before this pandemic, there was suboptimal use of disinfectants at all levels. The results of current study also suggested that about almost half of the respondent agreed to wash eatables with soap and water and to treat non-eatable products with chemicals which is in line with the guidelines.[17]In the current situation of pandemic, it has been communicated through reliable agencies like WHO and CDC that Coronavirus can be transferred to households through contamination of eatable and non-eatable products if handled by an infected person.[1,5,18] Moreover, it stays on these products for many hours. The results of current study suggested that knowledge of respondents regarding the survival of virus on different surfaces was unsatisfactory. Hence it is recommended to either wash the eatables before use or to leave the product for at least 72 hours which kills the virus on them according to the product specification.[8] The knowledge of common individual was scanty regarding which chemical disinfectant was most suitable for disinfection.[12] In this regard, print and social media has created many confusions. However, there is an unmet need of evidence-based guidelines on use of various chemical disinfectants commercially available in the market.[19]

As Coronavirus spreads through droplets, so use of face mask was one of the earliest preventive measures which were communicated.[20] But very soon the confusion arose about the type of mask which was found to be most effective. People developed the misconception that only N95 and surgical mask were most suitable one which led to scarcity of these mask for health professionals. The results of current study also depicted the same picture.Now it is highly recommended by the concerned health authorities that its spread can be prevented by any cloth face covering and specialized mask like surgical and N95 should be spared only for the front-line health care providers.[21] Moreover, it is worth to emphasize here that there is great need to make people aware that this infection can be asymptomatic and still a person can spread the infection, which can only be prevented if everyone will use face mask and maintaining social distancing.

The word social distancing has also gained enough popularity during this pandemic.[22] The public health domain of prevention has always emphasized on avoidance of overcrowding which play a major role in spread of many airborne infection not only Coronavirus.[9] When participants were asked about the true definition of social distancing, results of current study suggested that more than half of the participants didnot have its understanding, and confused social distancing with self-isolation.According to CDC, social distancing is maintaining a distance of 6 feet or more with everyone at all times and avoiding public gatherings.[15,23] Now data from the entire world has proven that the mode of transmission of this highly contagious virus can only be done by practicing social distancing.[23]

This was understandable that awareness about the time virus survives on fomites and surfaces and proper use of disinfectants for surfaces was in-adequate due to lack of consensus amongst different sources.[19] More than half of the subjects believed that Dettol had the ability to disinfect surfaces from Coronavirus. To date there is no laboratory study on present strain of Coronavirus, however studies on previous strains have shown 99.9% disinfection.[19] On the other hand, CDC suggests using alcohol wipes and household bleach in diluted form with a stay time of at least few minutes.[23] In the light of new information that Coronavirus can survive for considerable long period on metallic surfaces, there is an un-met need to do comparative laboratory studies on virucidal properties of various disinfectants.

This was re-assuring that more than one third of the respondents believed that source of information about preventive measures was being imparted to them by health professionals and almost same felt that they were being informed

through social media.[24] It is noteworthy that when preventive measures are disseminated on social, print or ecteronic media through health care professional, it might have better and stronger impact.

CONCLUSION

There are still gaps in knowledge attitude and practices regarding prevention against Coronavirus infection at the outset of Coronavirus infection outbreak in Pakistan.

LIMITATIONS OF STUDY

Data was collected online, from the smart phone users due to current situation of pandemic, so results cannot be generalised to general public of Lahore city, at large. Future prospective study should be conducted with large sample size and involving subjects from all classes of society, in order to generalize the results.

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CONFLICT OF INTEREST

None to declare.

FINANCIAL DISCLOSURE

None to disclose.

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Author's Contribution

HA: Conception, acquisition, analysis, interpretation of data, drafting the manuscript and approval of final version.

AA: Conception, questionnaire development and acquisition of data, drafting of manuscript.

MAS: Conception**,** acquisition of data, drafting, final approval of version.