Journal of Population Therapeutics & Clinical Pharmacology

RESEARCH ARTICLE
DOI: 10.53555/jptcp.v30i17.2908

AN ONLINE SURVEY ON KNOWLEDGE, ATTITUDE AND PRACTICES REGARDING CORONA VIRUS DISEASE (COVID-19) AMONG THE GENERAL POPULATION OF DISTRICT PESHAWAR, PAKISTAN.

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Abstract:
Introduction:
Objective: To determine the level of knowledge, association of socio-demographic characteristics with knowledge, attitudes and practices of COVID-19 and behavior towards Covid-19 survivors among general population of Peshawar.
Material & methods: The online-based cross-sectional study was conducted from April to May 2020 in Peshawar. A validated structured online questionnaire was drafted, modified and distributed online

among Peshawar residents, to explore the respondent's knowledge, attitudes, practices for corona virus disease as well as the behavior towards COVID-19 survivors. Analysis was conducted through associations of socio demographic characteristics with computation of p values with 0.05 as cut off limit.

Results: Majority of the respondents 319 (41.4%) among the total 770 were 18-27 years old and 480 (62%) of the total participants were men. The mean COVID-19 knowledge score was 8.49 (SD:1.52, range: 0-12), suggesting an overall 70.8% (8.49/12*100) correct rate on this knowledge test. Knowledge scores were significant with the occupation of a participant when compared (p=0.001). All socio-demographic variables were statistically significant ($p<0.05$) when correlated to the attitude questions. In the practices section, age and employment status of the respondents and the variables were significant ($p<0.05$). Gender, age, education levels and employment status were found to be significant ($p<0.05$) when behavior towards survivors and socio-demographic variables were compared.

Introduction

Coronavirus Disease 2019 (COVID-19) previously known as Severe Acute Respiratory Syndrome Corona Virus-2 (SARS-CoV-2), belongs to a class of enveloped single-stranded RNA viruses. The first case was identified in Wuhan, China in late December 2019 which presented as pneumonia of unknown origin. Initial cases were epidemiologically linked to Wuhan's Huanan Seafood Wholesale Market (a wholesale fish and live animal market selling different animal species [1]. COVID-19 primarily affects the respiratory tract and the main symptoms include fever, cough, nasal congestion, body aches, fatigue and other signs of upper respiratory tract infection which can lead to pneumonia [2]. The incubation period of the virus is estimated to be of 2-14 days with a median of 5 days [3].

Severe Acute Respiratory Syndrome (SARS) and Middle East Respiratory Syndrome (MERS) along with COVID-19 belong to the same family of corona viruses which emerged in different parts of the world over the past two decades. They mostly infect birds and mammals. The clinical manifestation of the older types of coronaviruses is like a mild upper respiratory tract infection mimicking the common cold. In comparison to COVID-19, SARS and MERS have a higher fatality rate but COVID-19 seems to be more infectious than the above two. Despite its lower mortality rate, the number of deaths has been drastically higher due to its worldwide spread in such a short period [4].

In a matter of days since its identification in December 2019, COVID-19 has spread worldwide and on the 11th of March 2020, The World Health Organization (WHO) declared COVID-19 as a global pandemic. COVID-19 has now spread to 215 countries with more than 90% of cases outside mainland China. The total number of confirmed cases to date are 5,556,679 and the total confirmed deaths are 351,866 [5].

In Pakistan, the first case confirmed by the Ministry of Health, Government of Pakistan was on February 26, 2020, in Karachi, Sindh, followed by another case Islamabad [6]. These numbers have been increasing continuously and as of today, the virus has spread to all provinces with a total of 61,227 confirmed cases and 1,260 deaths [7]. The city of Peshawar has the highest fatality rate due to COVID-19 across the country. Almost a quarter of the deaths due to COVID-19 in Pakistan have been reported from Peshawar city district [8]. Although a few KAP studies have been conducted in Pakistan with healthcare workers and medical students being the sole focus, there is limited research data available on the general population of Pakistan [9, 10]. According to the best of the researcher's knowledge and browsing this study will be a pioneer one to capture perceptions of Peshawar population about COVID- 19 in terms of knowledge, attitudes and practices with behavior towards the survivors as well. Therefore, it hopes to bring light to the perceptions the people of Peshawar have regarding this pandemic that has gripped the world to a standstill.

Objectives

The main objective of this study was to determine the levels of knowledge, attitudes and practices of corona virus disease with behaviors of corona survivors among general public of district Peshawar.

Moreover, association of the socio-demographic variables with knowledge, attitude and practices was also evaluated.

Materials & Methods

This online-based cross-sectional study was conducted in Peshawar, Pakistan. The total duration of the study was two weeks from 27th April 2020 to 11th May 2020 and began after ethical approval from the Institutional Review Board of Prime Foundation, Peshawar, Pakistan. Convenient sampling was used and the sample size for this study was 770. The sample size was calculated using Rao soft online calculator with a 95% confidence interval and a 3.2% margin of error. With the number above, our projected response rate was 70%, in the current estimated population of Peshawar (2,202,946) [11].

Inclusion Criteria

- Residents of Peshawar with age above 18 years.
- All the ones who gave the consent were included.

Exclusion Criteria

- All the residents of Peshawar, above 18 Years of age who were not interested and did not consented upon were excluded from the study.

Data Collection

A validated structured questionnaire was drafted, modified and used through Google Forms software. Due to the risk posed by COVID-19 to the authors, they used social media platforms (WhatsApp and Face book) for the questionnaire distribution. The questionnaire explored the aspects of knowledge, attitudes and practices (KAP) among the people of Peshawar. This included the respondent's knowledge of COVID-19, their attitudes, practices towards safety recommendations as well as the behavior towards the survivors of COVID-19.

The questionnaire was divided into four distinct modules. Demographic variables were included as independent variables as gender, age, educational status, employment status and occupation. The number of questions about COVID-19 in the knowledge module were 15, attitudes had 11 with 10 questions in the practices category and finally 7 questions towards the behavior towards COVID-19 survivors. Relevant questions were asked to assess the association of socio-demographic variables with each module mentioned above.

Data Analysis

The statistical analysis was performed through SPSS Version-21. The descriptive statistics for the categorical variables were presented as frequencies and percentages in the relevant tables and figures. To compare KAP with the demographic variables, one-sample independent t-test and one-way analysis of variance (ANOVA) were used to know the level of significance. Data analysis was conducted with SPSS Version 24.0. The statistical significance level was set at $p < 0.05$.

Results

In total, 770 participants completed the online questionnaire. The majority of the respondents 319 (41.4%) were 18-27 years old, 480 (62%) of the total participants were men and 680 (88%) held a bachelor's degree or above. 486 (63%) were currently employed, whereas 199 (26%) of all the employed respondents were healthcare workers **(Table-1).** The mean COVID-19 knowledge score was 8.49 (SD:1.52, range: 0-12), suggesting an overall 70.8% (8.49/12*100) correct rate on this knowledge test. Knowledge scores were compared with socio-demographic variables and when co-related, the occupation of a participant was statistically significant($p<0.05$) **(Table-1).**

Table 01: Participants Demographic Characteristics with Knowledge Scores of COVID-19 by demographic variables

Characteristics		n (%)	Knowledge Score (Mean ± SD)	p-value
Gender	Male	480 (62)	8.45±1.51	0.067
	Female	290 (38)	8.57±1.53	
Age	18-27	319 (41)	8.59±1.43	0.403
	28-37	181 (24)	8.31±1.42	
	38-47	90 (12)	8.52±1.75	
	48-57	107 (14)	8.48±1.68	
	>58	73 (9)	8.47±1.61	
Education	Matric/O-levels	15 (2)	7.8±2.24	0.064
	F. Sc /A-levels	75 (10)	8.2±1.45	
	Bachelors	317 (41)	8.6±1.53	
	Masters	346 (45)	8.46±1.48	
	PhD	17 (2)	8.88±1.69	
Employment	Employed	486 (63)	8.5±1.47	0.93
	Unemployed	302 (37)	8.49±1.61	
Occupation	Healthcare Worker	199 (26)	8.81±1.46	0.001*
	Others	571 (74)	8.38±1.52	

***Significant P- Value**

The knowledge section contained questions that tested the respondents with facts about COVID-19 as illustrated **(Figures 1-4).** Other than that, 404 (52.5%) of people believed that eating certain foods (e g. garlic and vitamins etc.) would help in the prevention of COVID-19. Meanwhile, 278 (36.1%) thought that exposing oneself to sunlight and temperatures above 25°C would prevent them from contracting COVID-19. In regards to a cure and the use of antibiotics for treating COVID-19, 85 (11%) believed a cure existed whereas 332 (43.1%) were sure that antibiotics are useful in the treatment of COVID-19. 583 (75.7%) assumed that the information they were receiving regarding COVID-19 from different media sources was reliable. Likewise, 474 (61.6%) of the respondents were satisfied with the daily updates from the authorities.

Figure 01: How does a person contract COVID 19?

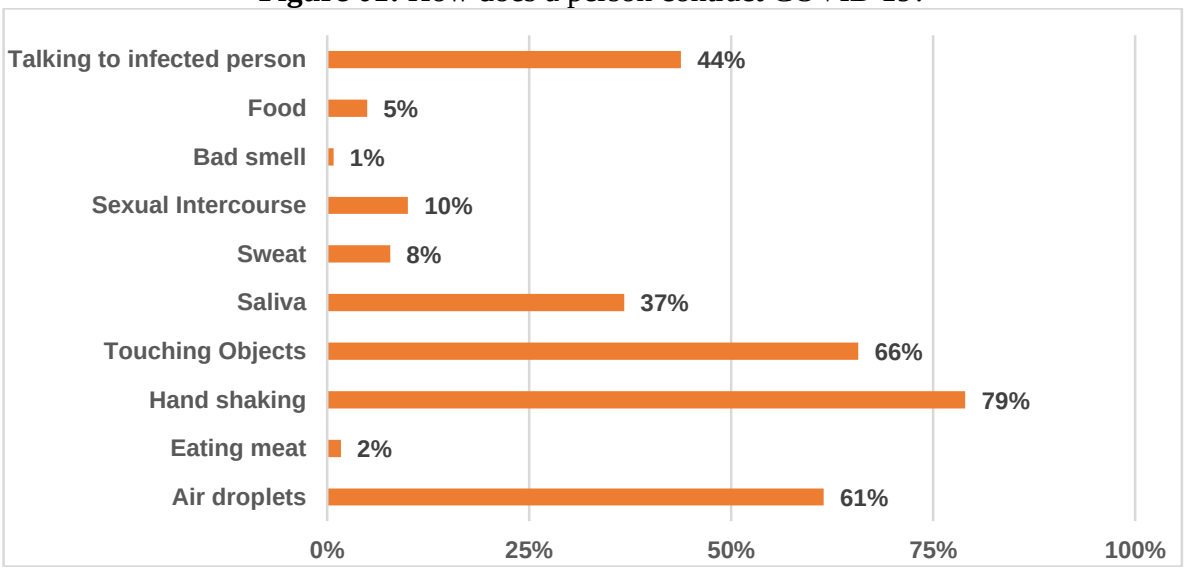


Figure 02: The main signs and symptoms of COVID-19?

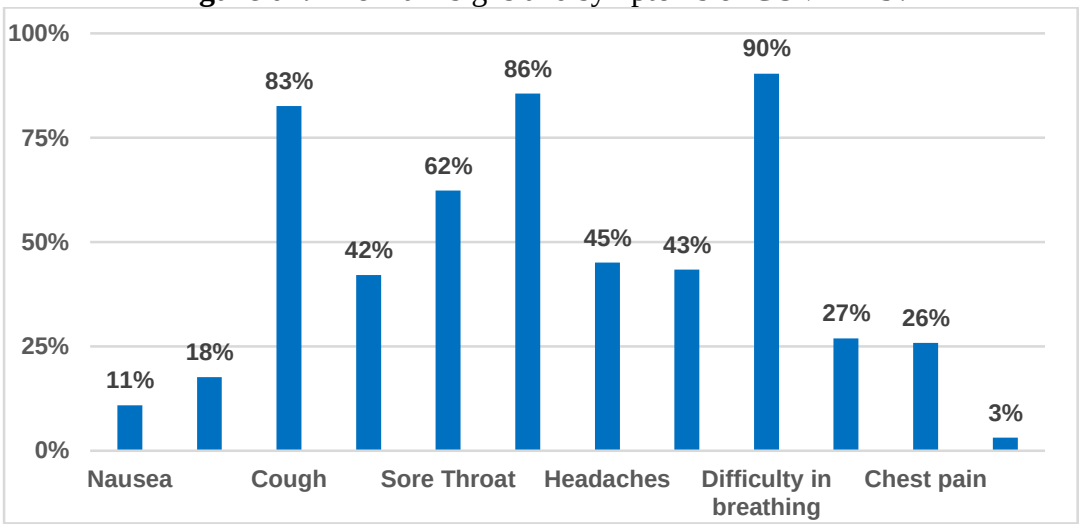


Figure- 3: Risk factors of COVID-19?

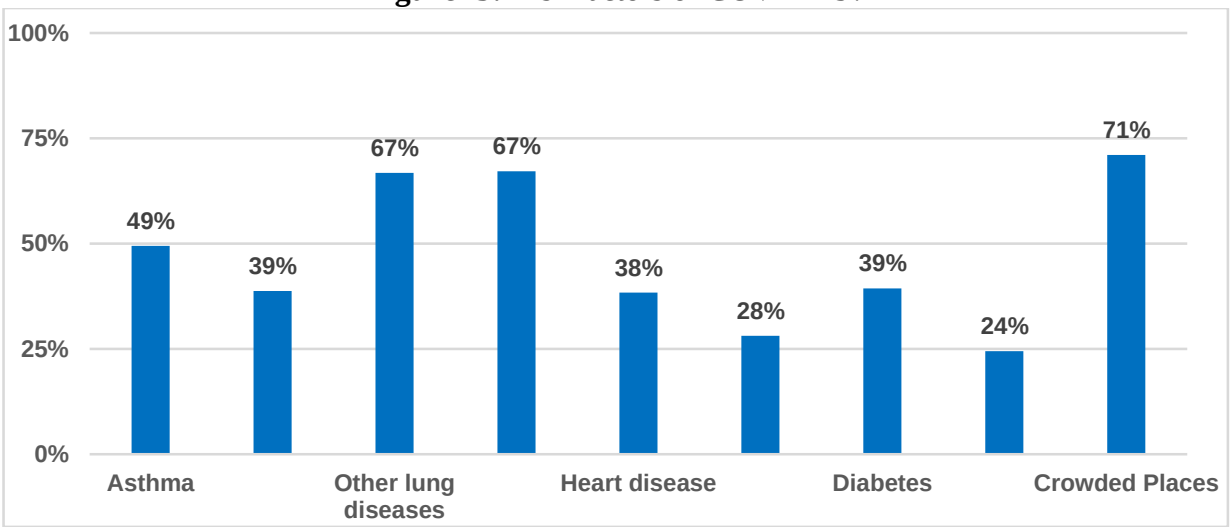
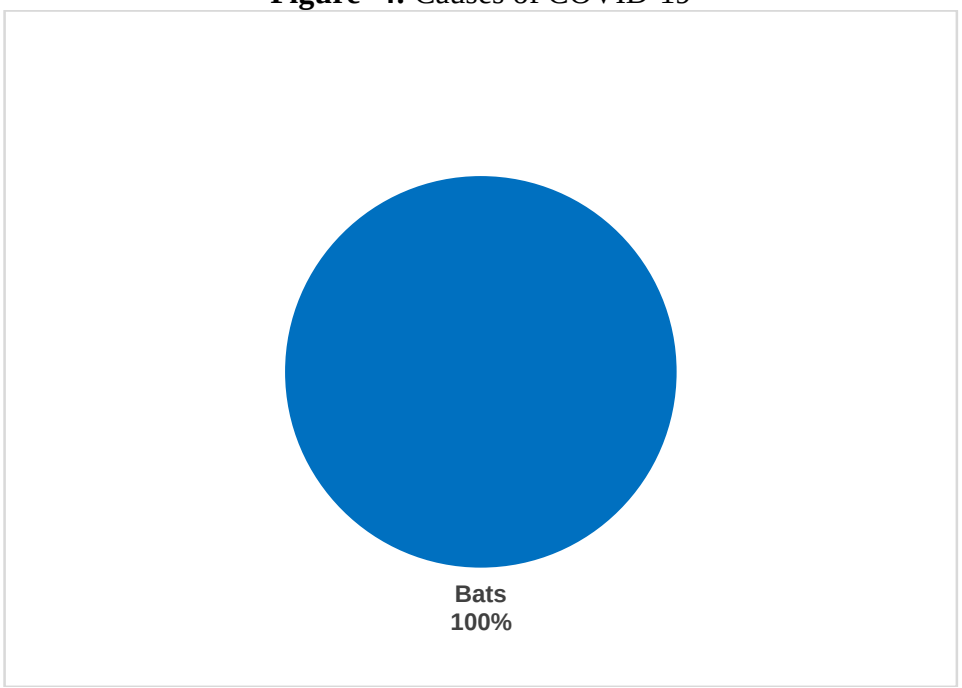


Figure- 4: Causes of COVID-19



Association of socio demographic variables with the attitudes and beliefs of the study population in relation to COVID- 19 is depicted in detail through **Table-2.** In the attitudes section, questions were asked to understand what beliefs the people of Peshawar had regarding certain aspects of COVID-19. These questions were then co-related with socio-demographic characteristics. All of the chosen variables were found to be significant with the questions ($p<0.05$).

Similarly, socio-demographic variables were compared with responses of the participants with questions regarding practices of the people of Peshawar. Age and employment status of the respondents were found to be significant with the variables ($p<0.05$) **(Table-3).**

Finally, in the behavior towards survivor's section, demographic characteristics were juxtaposed with pertinent questions. Gender, age, education levels and employment status were found to be significant when compared ($p<0.05$) **(Table-4).**

Table 02: ASSOCIATION OF SOCIO-DEMOGRAPHIC VARIABLES WITH THE ATTITUDES AND BEHAVIORS OF THE STUDY POPULATION IN RELATION TO COVID- 19.

Characteristics		A1: Can someone have COVID-19 and not show signs and symptoms		A2: Practices effective in controlling COVID 19		A3: Alternative medications can heal COVID-19		A4: Pakistan will control COVID-19		A5: Has COVID-19 negatively impacted your life	
		Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Gender	Male	387 (81)	93 (19)	470 (98)	10 (2)	155 (33)	325 (67)	365 (76)	115 (24)	391 (81)	89 (19)
	Female	262 (90)	28(10) ***	287 (99)	3 (1)	88 (30)	202 (70)	179 (62)	111 (28) ***	229 (79)	61 (21)
Age	18-27	276 (87)	43 (13)	313 (98)	6 (2)	94 (29)	225 (71)	201 (63)	118 (37)	260 (82)	59 (18)
	28-37	143 (79)	38 (21)	180 (99)	1 (1)	63 (35)	118 (65)	154 (85)	27 (15)	149 (82)	32 (18)
	38-47	78 (87)	12 (13)	87 (97)	3 (3)	32 (36)	58 (64)	65 (72)	25 (28)	72 (80)	18 (20)
	48-57	88 (82)	19 (18)	105 (98)	2 (2)	33 (31)	74 (69)	74 (69)	33 (31)	81 (76)	26 (24)
	>58	64 (88)	9 (12)	72 (99)	1 (1)	1 (2)	52 (98)	50 (68)	23 (32) ***	58 (79)	15 (21)
Education	Matric/O-levels	14 (93)	1 (7)	15 (100)	0 (0)	6 (40)	9 (60)	15 (100)	0 (0)	10 (67)	5 (33)
	F Sc/A-levels	61 (81)	14 (19)	74 (99)	1 (1)	28 (37)	47 (63)	47 (63)	28 (37)	58 (77)	17 (23)
	Bachelors	277 (87)	40 (13)	312 (98)	5 (2)	88 (28)	229 (72)	209 (66)	108 (34)	261 (82)	56 (18)
	Masters	281 (81)	65 (19)	339 (98)	7 (2)	115 (33)	231 (67)	263 (76)	83 (24)	279 (81)	67 (19)
	PhD	6 (86)	1 (14)	17 (100)	0 (0)	6 (35)	11 (65)	10 (59)	7 (41) **	12 (71)	5 (29)
Employment	Employed	382 (82)	86 (18)	463 (99)	5 (1)	153 (33)	315 (67)	349 (75)	119 (25)	378 (81)	90 (19)
	Unemployed	267 (88)	35 (12) *	94 (90)	8 (10)	90 (30)	212 (70)	195 (65)	107 (35) **	242 (80)	60 (20)
Occupation	HCW	188 (94)	11 (6)	196 (98)	3 (2)	42 (21)	157 (79)	129 (65)	70 (35)	164 (82)	35 (18)
	Others	461 (81)	110 (19) ***	561 (98)	10 (2)	201 (35)	370 (65) ***	415 (73)	156 (27) *	456 (80)	115 (20)

N (%) = Number of Respondents (Percentage of Respondents)
***P < 0.05, **P < 0.01, *** P < 0.001.**

Table 03: Association of Demographic Variables with Practices towards COVID-19.

Characteristics		P1: Leave home for essential work only		P2: Cover face while sneezing and coughing		P3: Practice Social Distancing		P4: Would you accept vaccine if available		P5: Continue safe practices once COVID-19 is controlled	
		Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Gender	Male	458 (95)	22 (5)	466(97)	14(3)	457 (95)	23 (5)	422 (88)	58 (12)	394 (82)	86 (18)
	Female	274 (94)	16 (6)	284(98)	6 (2)	279 (96)	11 (4)	254 (88)	36 (12)	238 (85)	52 (15)
Age	18-27	300 (94)	19 (6)	309(97)	10 (3)	300 (94)	19 (6)	292 (92)	27 (8)	269 (84)	50 (16)
	28-37	170 (94)	11 (6)	180(99)	1 (1)	174 (96)	7 (4)	160 (88)	21 (12)	159 (88)	22 (12)
	38-47	89 (99)	1 (1)	87(97)	3 (3)	85 (94)	5 (6)	75 (83)	15 (17)	74 (82)	16 (18)
	48-57	104 (97)	3 (3)	103(96)	4 (4)	106 (99)	1 (1)	94 (88)	13 (12)	79 (74)	28 (26)
	>58	69 (95)	4 (5)	71(97)	2 (3)	71 (97)	2 (3)	55 (75)	18 (25) *	51 (70)	22 (30) *
Education	Matric/O-levels	12 (80)	3 (20)	14(93)	1 (7)	14 (93)	1 (7)	13 (87)	2 (13)	9 (60)	6 (40)
	F. Sc/A-levels	70 (93)	5 (7)	70(93)	5 (7)	73 (97)	2 (3)	66 (88)	9 (12)	65 (87)	10 (13)
	Bachelors	301 (95)	16 (5)	310(98)	7 (2)	301 (95)	16 (5)	282 (89)	35 (11)	265 (84)	52 (16)
	Masters	332 (96)	14 (4)	339(98)	7 (2)	331 (96)	15 (4)	99 (68)	47 (23)	281 (81)	65 (19)
	PhD	17 (100)	0 (0)	17(100)	0 (0)	17 (100)	0 (0)	16 (94)	1 (6)	12 (71)	5 (29)
Employment	Employed	451 (96)	17 (4)	456(97)	12 (3)	448 (96)	20 (4)	411 (72)	57 (28)	388 (83)	80 (17)
	Unemployed	281 (93)	21 (7) *	294(97)	8 (3)	288 (95)	14 (5)	265 (87)	37 (13)	244 (81)	58 (19)
Occupation	Healthcare Worker	188 (94)	11 (6)	194(97)	5 (3)	188 (94)	11 (6)	178 (89)	21 (11)	168 (84)	31 (16)
	Others	544 (99)	7 (1)	556(97)	15 (3)	548 (96)	23 (4)	498 (87)	73 (13)	464 (81)	107 (19)

N (%) = Number of Respondents (Percentage of Respondents)
***P<0.05, **P<0.01, ***P<0.001.**

Table 04: Demographic Association with Behavior towards COVID-19 Survivors

Characteristics		S1: Can a recovered person be re-infected with COVID19		S2: Treatment from recovered Healthcare worker		S3: Buy goods from recovered shopkeeper		S4: Social interaction with recovered person		S5: Can a person be infected for life	
		Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Gender	Male	344 (72)	136 (28)	392 (82)	88 (18)	368 (77)	112 (23)	379 (79)	101 (21)	148 (31)	332 (69)
	Female	211 (73)	79 (27)	206 (71)	84 (29) **	194 (67)	96 (33) **	200 (69)	90 (31) **	60 (21)	230 (79) **
Age	18-27	227 (71)	92 (29)	246 (77)	73 (23)	224 (70)	95 (30)	233 (73)	86 (27)	80 (25)	239 (75)
	28-37	34 (42)	47 (58)	146 (81)	35 (19)	134 (74)	47 (26)	141 (78)	40 (22)	68 (38)	113 (62)
	38-47	69 (77)	21 (23)	70 (78)	20 (22)	69 (77)	21 (23)	70 (78)	20 (22)	22 (24)	68 (76)
	48-57	74 (69)	33 (31)	82 (77)	25 (23)	85 (79)	22 (21)	80 (75)	27 (25)	18 (17)	89 (83)
	>58	51 (70)	22 (30)	54 (74)	19 (26)	50 (68)	23 (32)	55 (75)	18 (25)	20 (27)	53 (73) **
Education	Matric/O-levels	11 (73)	4 (27)	11 (73)	4 (27)	10 (67)	5 (33)	10 (67)	5 (33)	4 (27)	11 (73)
	F. Sc/A-levels	59 (79)	16 (21)	48 (65)	27 (35)	53 (71)	22 (29)	57 (76)	18 (24)	15 (20)	60 (80)
	Bachelors	231 (73)	86 (27)	246 (78)	71 (22)	232 (73)	85 (27)	240 (76)	77 (24)	74 (25)	243 (75)
	Masters	243 (70)	103 (30)	277 (80)	69 (20)	252 (73)	94 (27)	259 (75)	87 (25)	113 (23)	233 (77)
	PhD	11 (65)	6 (35)	16 (94)	1 (6) *	15 (88)	2 (12)	13 (76)	4 (24)	2 (12)	15 (88) *
Employment	Employed	329 (70)	139 (30)	382 (82)	86 (18)	359 (77)	109 (23)	372 (79)	96 (21)	139 (30)	329 (70)
	Unemployed	226 (75)	76 (25)	216 (72)	86 (28) **	203 (67)	99 (33) **	207 (68)	95 (32) **	69 (23)	233 (77) *
Occupation	Healthcare Worker	142 (71)	57 (29)	162 (81)	37 (19)	153 (77)	46 (23)	155 (78)	44 (22)	50 (25)	149 (75)
	Others	413 (73)	158 (27)	436 (76)	135 (24)	409 (72)	162 (28)	424 (74)	147 (26)	158 (28)	413 (72)

N (%) = Number of Respondents (Percentage of Respondents)
***P < 0.05, ** P < 0.01, *** P < 0.001.**

Discussion

The present study showed that the population of Peshawar had relatively good grasp on the knowledge of COVID-19. Compared to similar studies that assessed knowledge scores, such as conducted in Wuhan, China; The mean knowledge score was higher in Wuhan as compared to Peshawar (10.80 vs

8.41). As seen in the same research, when comparisons were made between demographic variables and knowledge scores, there were certain common aspects which were significant such as occupation status of participants [12].

There are still common misconceptions prevalent about the origins and prevention techniques of COVID-19 among the population. More than half of the respondents (52.5%) believed that consuming particular foods would prevent them from contracting the virus. No study, to our knowledge, has shown an association between eating a certain food item and a decreased risk of being infected by COVID-19. Likewise, another misconception regarding the prevention of COVID-19 is that exposure to high temperatures or direct sunlight (UV radiation) can deactivate or destroy the virus. This topic has no definitive answer as of this moment and much more introspection is required. Some studies like conducted in Iran stated that a temperature increase and sunlight can facilitate the destruction of the virus. It also mentioned that an increase in ambient air temperature by 1°C causes the cumulative number of cases to decrease by 0.86% [13]. On the other hand, a study conducted in China revealed no association of COVID-19 transmission with temperature or UV radiation in Chinese cities [14].

Social media and the internet are playing a huge part in spreading information to the masses regarding COVID-19. Although this technological marvel has its benefits, it also has its drawbacks. When asked about the reliability of the information that was being given in our study, a large proportion of participants (75.7%) held a favorable view. Studies conducted in China and South Korea emphasize on the impact it has had on the perceptions of this virus among the public and urges the need for greater control on the matter [15, 16].

In this study, the attitudes of the respondents towards COVID-19 yielded interesting results. Latest researches have shown that individuals that contract COVID-19, do not necessarily display the typical signs and symptoms of the virus [17, 18]. A majority of our respondents believed the same and the results showed significance with multiple variables (Table-2). Many entities such as the Centre for Disease Control (CDC) and WHO was leading the fight against COVID-19 have highlighted the importance of social distancing and hand washing as effective measures to control the spread of the virus [19, 20]. Although almost all of the participant believed the same, there was no significance among any variable and this question. Alternative medicine approaches such as homoeopathy etc. have been in existence for centuries and still have a following today. The use of this avenue to heal COVID-19 generated mixed reviews among the respondents. To our knowledge, there are no official guidelines which include this as treatment options for COVID-19.

When asked if Pakistan will control the spread of the virus, the people of Peshawar resoundingly agreed that it would. Surprisingly, all socio-demographic variables that were compared with this question had significant values ($p<0.05$). A study conducted in Wuhan, China, considered the epicenter of the virus, had a similar question and yielded similar optimistic responses [12]. The toll COVID-19 has had on every individual is unparalleled. Whether it is physical, emotional or financial this virus has had a negative effect no doubt. A recent study by Pakistani psychiatrists concluded that COVID-19 has had a severe detrimental psychological impact on individuals, especially healthcare workers (HCW) [21]. The participants of the present study agreed that the virus has negatively impacted their lives but no significance was noted when compared to the variables.

Many campaigns have been launched by governments around the world especially in countries that have been severely affected like the US and UK, as well as Pakistan, urging people to leave home only for essential work, cover their face when coughing and to maintain social distancing among other precautions [19, 22, 23]. When asked, our respondents generally practiced following these instructions, although significance was only noted when compared with the employment status of the individual ($p=0.038$) (Table-3). Another recent study conducted in Italy also explored this issue and received optimistic responses regarding the positive outcome of following these measures [24]. An ever-looming question is whether a vaccine will be available soon and if it is; Will the general public be willing to get vaccinated? Respondents of this study showed a positive outlook on this issue and 676 (87.8%) of the participants would get vaccinated if they had the chance. There was an association between this question and age when compared ($p=0.002$). To the best of our knowledge, this study is

the first to ask if participants will continue the practices they have adopted during this pandemic in the future. The respondents generally held an overall positive view and vowed to continue practices like frequent hand washing etc. There was a significant value (p=0.002) when the responses of this question were co-related with the age of the participants.

An issue that is overlooked is the behavior the general public had towards survivors of COVID-19. This study gauged this issue by asking relevant questions and made certain observations. HCW's have been essential in helping combat the disease throughout the world. When asked whether the public would receive treatment from an HCW that has recovered from COVID-19, more than three-quarters of the respondents agreed they would. These results were significant with gender (p=0.001), level of education (p=0.017) and employment status (p=0.001) (Table-4). Another potential outcome that can have an effect is on the small-business community. The present study explored whether the virus would alter the behavior of the public towards them. Almost three-quarters of the participants would not have any concern engaging in business activity with them. Gender (p=0.003) and employment status (p=0.004) were significant when compared to the question. Apart from these, respondents were asked if they would partake in social interactions with survivors. The participants responded positively in this aspect too with associations found with gender (p=0.002) and employment status (p=0.001). A long-term inference that can be made regarding the survivors of COVID-19 is that would they remain infected with the virus for life. The participants answered assuredly, stating this was not the case. All the socio-demographic variables ($p<0.05$) were significant except occupation status. To the best of researcher's knowledge, these behavior and attitude aspects of the general public towards COVID-19 survivors had not been delved into as of yet.

The limitations of the current study included an online questionnaire that could only be sent via social media applications. Although clear cut instructions and measures like requesting e-mail addresses and phone numbers were added to avoid duplicity, there can still be margin of error which is not under the control of researchers. Some of the participants may enter more than once, rush through the questions, drop out without completing with possible confidentiality concerns. The sample demographics only included those people of Peshawar that had access to the internet disregarding those that did not. A large proportion of our respondents were well educated and may lead to selection bias. Sample size calculation was done through a software, although it was accurate but one cannot ensure adequate randomization and that may affect generalizability. Non-factual components like attitudes of participants are difficult to assess and it may change according to the environment of the respondent. Future studies should explore paper-based options to ensure a wider demographic of the population is covered.

Conclusion

Knowledge regarding COVID-19 among the people of Peshawar was good but can be improved by programs designed by the government to dispel any false information regarding the virus. Majority of the respondents believed Pakistan will control COVID-19 in the region. Most participants pledge to continue practicing hygienic measures once the threat of COVID-19 diminishes. Overall, the behavior towards COVID-19 survivors was positive. There is a great need for further studies exploring the impact COVID-19 has had in Pakistan, especially on the psychological aspect and survivors of the virus.

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