Association of Demographic Variables with COVID-19 Knowledge: A Study on Pakistani Adults

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ABSTRACT

With the outbreak of Novel Coronavirus disease (COVID-19), researchers set out to explore different behavioral patterns. It is natural for researchers to seek the differences in relation to different demographic variables. Research from previous disease outbreaks shows the importance of demographic variables. This research study aims to explore the differences with regard to different demographic variables regarding the knowledge of COVID-19. It was found that the demographic variables; gender, marital status and education level showed no statistical significance but the demographic variables; age group and profession showed statistical significance. Another important finding was that 73% respondents had scored 3-4 on scale of 5 assessing COVID-19 knowledge. Moreover, 51% respondents considered themselves affected psychologically by COVID-19 pandemic.

Key Words: Demographic Variables; COVID-19 Pandemic; COVID-19 Knowledge Questionnaire; Stress; Psychological Effects of COVID-19

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Introduction

Disease outbreaks have always been a source of great stress. As reference to a pandemic, it is not the first time that the world has seen a similar stressful situation. For example, the Influenza Pandemics of 1918, 1957, and 1968 and the Black Death in Europe from 1347 to 1351 were the sources of great stress. These were historically stressful events for the world and within those times, our perception of how people reacted to such unusual circumstances was considerably weaker. Similar to these, the outbreak of the Novel Coronavirus in December 2019

(COVID-19) has put the world in a stressful state.

The World Health Organization (WHO) declared the situation a pandemic of global emergency on January 30, 2020 (WHO, 2020). The first COVID-19 case in Pakistan was reported on February 26th, 2020. The number since then has increased to 64,028 cases as of May 29th, 2020 (Government of Pakistan, 2020). To contain the virus, country wide lockdown has been enforced by the government and has led to the generation of increasing negative emotions within the population. All routine activities have come to a halt leading to growing feelings of stress and helplessness.

Any unusual circumstance always piques the interest and curiosity of the scientific community.

The importance of demographics in a research concerning human behaviors is natural. Demographics are generally the specific characteristics of the sample population such as age, sex, educational

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level. They aid in studying a particular event (pandemic) with respect to variations in the population. The study of demographics helps us understand the variation that exists in results of a specific phenomenon.

The global pandemic has greatly affected the lives of individuals, some people are in more stress and have more knowledge about the pandemic as compared to others. The purpose of the study was to examine the association of demographic variables and knowledge about COVID-19 among people. It was hypothesized that:

1. People with higher education level scored more on CKQ as compared to people with secondary level of education.
2. Students scored more on CKQ as compared to other professionals.
3. Males scored higher on CKQ as compared to females.
4. Young people scored more on CKQ as compared to older people.
5. Married people had more scores on CKQ as compared to people with different marital status.

Method

Research Design and Participants

The study employed the cross sectional, survey research design. Three sixty adults of different age groups including 2 transgender, constituted the sample. They ranged in ages from 18 to 55+ years. Adults from different cities of Pakistan with different professions and ethnicities were included in the sample to incorporate diversity.

Measures

COVID-19 Knowledge Questionnaire (CKQ)

The CKQ is a self-constructed questionnaire consisting of 17 items and it measures the individuals' knowledge regarding the Novel Coronavirus. An individual is required to select the item he/she thinks is correct. The COVID-19 knowledge questionnaire is based on the COVID-19 checklist of the World Health Organization (WHO, 2020). Further, the respondents were asked to rate their knowledge of COVID-19 on a scale of 5 where 5 represented highest knowledge. The CKQ also asked respondents, whether, COVID-19 pandemic affected them psychologically or not?

Demographics Sheet

The demographic variables chosen for the study were: Age group, Profession, Education Level, Marital Status and Gender.

Procedure

The survey was administered online upon willing participants of the general populace using Google forms. The administration of the whole survey took about 20-25 minutes. The data analysis was done by using Statistical Package for the Social Sciences, version 25. The results were reported by Analysis of Variance (ANOVA), and graphs.

Ethical Considerations

Informed consent was attached to the form stating the nature and purpose of the study. Voluntary participation was ensured. Data from willing participants was obtained only. Information obtained from the respondents is kept confidential.

Results

The demographic characteristics of the respondents have been given in Table 1.

Table 1*Frequency Distribution of Demographic Variables*

Demographic Variables	Characteristics	F	%
Age	18-25	266	73.9
	26-35	46	12.8
	36-45	24	6.7
	46-55	23	6.4
	56+	1	.3
	Total	360	100.0
Gender	Transgender	2	.6
	Male	154	42.8
	Female	204	56.7
	Total	360	100.0
Education	Matric or Less	3	.8
	Inter	31	8.6
	Bachelors	216	60.0
	Masters	62	17.2
	MPhil/PhD	48	13.3
	Total	360	100.0
Profession	Public Sector	32	8.9
	Private Sector	27	7.5
	Businessmen	9	2.5
	HCW	31	8.6
	Student	236	65.6
	Others	25	6.9
	Total	360	100.0
Marital Status	Single	268	74.4
	Married	88	24.4
	Divorced	4	1.1
	Total	360	100.0

Note. HCW = Health Care Workers

Table 2*Analysis of Variance for Educational Differences in CKQ (N=360)*

Education	≤Matric	Inter	Bachelor	Masters	MPhil/ PhD	F(4)	Sig.
Variables	M(SD)	M(SD)	M(SD)	M(SD)	M(SD)		
CKQ	25.33 (1.52)	28.22 (3.04)	28.40 (3.07)	28.24 (3.24)	29.45 (5.10)	1.74	.13

It was hypothesized that people with higher education level scored more on the CKQ as compared to people on secondary level of education. The Table 2 describes the results of ANOVA computed to find differences in CKQ scores in people with different education. The result is not statistically significant. It means that people of different education backgrounds had no difference in CKQ scores.

Table 3*Analysis of Variance for Profession wise Differences in CKQ (N=360)*

Profession	Public Sector	Private Sector	Businessme n	HCW	Students	Others	F(5)	Sig.
Variables	M(SD)	M(SD)	M(SD)	M(SD)	M(SD)	M(SD)		
CKQ	28.46 (2.74)	27.40 (6.22)	30.55 (3.16)	31.41 (1.14)	28.16 (3.10)	28.20 (3.31)	6.59	.00

It was hypothesized that students would score more on CKQ as compared to other professionals. The Table 3 describes the results of ANOVA computed to find differences in CKQ scores across different professions. The results are statistically significant. It means that there are significant differences in CKQ scores across professions. The HCW had the highest score on CKQ whereas the people working in the private sector had lowest scores on CKQ. The scores of people working in the public sector, students and others had almost similar scores on CKQ. The scores of businessmen were almost equal to HCW.

Table 4*Analysis of Variance for Gender Differences in CKQ (N=360)*

Gender	Males	Females	Transgender	F(2)	Sig.
Variables	M(SD)	M(SD)	M(SD)		
CKQ	28.72 (3.86)	28.32 (3.06)	24.50 (4.94)	1.93	.14

It was hypothesized that males scored higher on CKQ as compared to females due to their knowledge about current affairs. The Table 4 describes the results of ANOVA computed to find gender differences in CKQ scores. The result is not statistically significant. It means that people of different genders had no differences in CKQ scores.

Table 5*Analysis of Variance for Age wise Differences in CKQ (N=360)*

Age Groups	18-25y	26-35y	36-45y	46-55y	≥56	F(4)	Sig.
Variables	M(SD)	M(SD)	M(SD)	M(SD)	M(SD)		
CKQ	28.21 (3.08)	28.65 (3.38)	28.58 (6.48)	31.04 (1.98)	29.00	3.72	.00

It was hypothesized that young people scored more on CKQ as compared to older people. It was made because young people are usually updated about any new happenings in the world. The Table 5 describes the results of ANOVA computed to find differences in CKQ scores across different age groups. The results are statistically significant. It means that there are significant differences in CKQ scores across age groups. The people in the age group of 46-55 or above years had the highest scores on CKQ. The CKQ scores of the rest of the three age groups were almost similar. The older people had more scores on CKQ than young people.

Table 6*Analysis of Variance for Marital Status Differences in CKQ (N=360)*

Marital Status	Single	Married	Divorced	F(2)	Sig.
Variables	M(SD)	M(SD)	M(SD)		
CKQ	28.23 (3.14)	29.14 (4.16)	29.75 (3.94)	2.60	.07

It was hypothesized that married people had a greater score on CKQ as compared to people with different marital status. It was because married people had a responsibility of a family, hence, greater knowledge to ensure their safety. The Table 6 describes the results of ANOVA computed to find differences in CKQ scores in people with different marital status. The result is not statistically significant. It means that people of different marital status had no differences in CKQ scores.

Figure 1. COVID-19 Knowledge on Scale of 5

For the question exploring the knowledge of respondents regarding COVID-19 on the scale of 5, 11 respondents rated their knowledge on scale of 1 i.e. the lowest level whereas 24 rated their knowledge on scale of 2. 132 respondents rated their knowledge on scales of 3 and 4 respectively as evident from Figure 1. Only 54 respondents claimed to have the knowledge of COVID-19 on a scale of 5 i.e. the highest level.

Figure 2. Psychological Effects of COVID-19

For the question exploring whether COVID-19 had psychological effects on respondents, 185 respondents stated that it was affecting them psychologically with 73 unsure respondents as shown in Figure 2. However, 100 respondents stated that COVID-19 was not affecting them psychologically.

Discussion

Demographics play an overall important role in any research study. Since they cannot be manipulated, they explore the differences in responses to phenomenon among different groups of people. They can also help in generalizing the study results if the sample is representative.

Five demographic variables were taken into consideration in this study. These demographic variables were: age, profession, gender, education level and marital status. The results showed that there is a statistical significance or variance among the different age groups and different professional groups. However, there were no significant statistical differences among gender, different marital status and education level.

It was found that educational level of the respondents had no impact on CKQ score. It was assumed that high education level could lead to high score on CKQ but the results did not supported this assumption.

The demographics of profession was studied with respect to their CKQ score and corresponding knowledge. It was hypothesized that students scored more on CKQ as compared to other professionals. It was because of the assumption that students had updated knowledge due to more use of social media as a source of information. The results were statistically significant. It meant that there were significant differences in CKQ scores across various professions.

The Health Care Workers had the highest score on CKQ. It may be due to the reason that dealing with such patients gives them an insight to the situation more as compared to others. In addition to that, staying updated with new knowledge about COVID-19 is an essential part of their job (Saleh, 2020).

Whereas, the people working in the private sector had lowest scores on CKQ. As the world is going through a global slowdown, small and average sized companies or organizations are affected all the more

intensely (Craven et al., 2020). 31% of small businesses have stopped operating worldwide due to coronavirus (Tognini, 2020). The low scores of people working in private sector could be attributed to closure of businesses.

The scores of people working in the public sector, students and others were almost similar. The scores of businessmen were almost equal to HCWs. It may be due to the reason that to keep their businesses afloat, business leaders and workers are trying to get the best information they can on how to execute various plans and strategies amid the COVID-19 pandemic leading to more exploration and knowledge about Coronavirus (Gerdeman, 2020)

The demographic gender was studied with regard to the knowledge of COVID-19. It was hypothesized that males had greater scores on CKQ as compared to females. This assumption was made due to the greater knowledge of current affairs, news watching and paper reading habits of males. Moreover, researchers found that men show more severe symptoms of Coronavirus and death rate among men is more as compared to females (Schmidt, 2020). This might lead men into staying more updated with the COVID -19 knowledge, thus, leading to higher scores on CKQ. However, the statistical analysis found no significant differences between genders on CKQ.

Two age groups i.e. young adults and older adults were selected to compute differences in their knowledge about COVID-19. It was found that older adults (46-55 and 55+) scored high on CKQ. This may be due to the common misconception about COVID-19 that only old age individuals are affected by Coronavirus, so they had to be updated regarding the COVID-19 knowledge.

It was hypothesized that married people had more knowledge about COVID-19 and thus would score higher on CKQ as compared to single people. This was made by the

assumption that married people are more affected due to the uncertainty of work or even responsibilities which may lead to greater stress and hence, would drive them into exploring more about the pandemic and staying updated with the changes in the current situation. No statistically significant relationship was found to prove that married people know more about the pandemic as compared to single people.

Around 73% respondents scored 3-4 on scale of 5 regarding the knowledge of COVID-19. Only 15% respondents scored 5 on scale of 5 and represented full knowledge of the pandemic. The results showed that people are generally aware of the different aspects of COVID-19.

Using CKQ, adults were also asked if the ongoing pandemic has been affecting them psychologically. Out of 360 adult participants, 185 of the adults answered positively to the question, representing that almost 51.3% of the population perceives this ongoing situation as stressful and are being psychologically impacted. As people are in isolation and away from loved ones, having weakened social support, they are in a psychological crisis. The psychological impact of the pandemic can lead to anxiety, panic attacks or signs of depression (APA, 2020).

Limitations

1. Due to country-wide lockdown, the number of respondents reached was less.
2. In addition, the people who had android phones and internet connection could only participate in the study.
3. As healthcare workers are busy in fighting the pandemic and treating patients, only 8.6% of the healthcare workers were able to participate. It was difficult for them to take out time from their busy schedules and fill a form.

Recommendation

Future research should include more respondents from different spheres of life including the low staff workers and blue-collar workers.

Conclusion

It was concluded that the majority of the respondents are psychologically impacted by the pandemic. Differences in marital status, gender and education level have no statistical significance on CKQ scores whereas age group and profession did show statistical significance and variation in CKQ score from other groups. Further research is needed across all segments of population to allow more understanding about different aspects of COVID-19.

Conflict of Interest

The authors reported no conflict of interest.

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