

# Measuring the Impact of COVID-19 Pandemic fear on Stress, Anxiety, and Depression among General Public in Sindh

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## Abstract

*The study has examined the level of stress, anxiety, and depression among the general public due to coronavirus. Coronavirus has been declared as an international pandemic that started in Wuhan, China in December 2019. The outbreak changes the lives of people and restricted them to self-quarantine. The world is at risk of poor economic conditions. The pandemic reaches to 210 countries. Coronavirus challenged people to live in some other ways, an unprecedented way. With this deadly pandemic new problem arises among the public. The virus is a big threat to the lives of people as the number of deaths reaches more than 100 thousand. The data was collected by using a structured questionnaire from the public of Sindh province, Pakistan in March and April. The research was quantitative. Collected data were analyzed by using SPSS 26.0 for descriptive and Smart PLS 3.2.9 for further analysis. A total number of 462 responses were received through an online survey as no other option was under consideration due to the pandemic. The research findings revealed that there is a significant relationship between Covid-19 and stress, anxiety and depression. The people of every age are in deep worries because of this pandemic. The increasing cases of coronavirus have increased fear and stress, depression, and anxiety has increased among individuals. Further, findings exposed that people of affected areas like Karachi, Sukkur, and Hyderabad are more fearful than other areas of Sindh and the stress and anxiety among people in these areas are high.*

**Keywords:** Covid-19, Stress, Anxiety, Depression, Pandemic

## 1. Introduction

Currently, Coronavirus is a serious issue in the world. Virus present in coronavirus is comprised of genome consists of a single strand of ribonucleic acid. Coronavirus, which infected nearly two million people in the world and killed more than a hundred thousand people, the medical experts are concerned about it (New York Times, 2020). The virus, which is transferable to any other person or animal, belongs to the family of the pathogen that causes severe acute respiratory syndrome (SARS). The first case of this deadly virus was identified on 17 December 2019 in Chinese city, Wuhan. To challenge this invisible disease China government ban travel in intercity to cope with this outbreak. Though the lockdown was the only choice for the communities, who affected criticized the government despite this and this created problems to provide medical aid and supplies (Nature Research, 2020). As the disease is transferable from one person to other person or animal through direct or indirect contact, so this pandemic has officially named as COVID-19 (Coronavirus disease, 2019) by the WHO chief scientist and declared as world pandemic on 11 March 2020, when it reaches more than 110 countries and affected more than 118,000 cases.

### 1.1 Coronavirus Pandemic in Pakistan

In Pakistan, Zafar Mirza, the Prime Minister's special assistant on health, confirmed the first two cases at the end of February. The first patient was a student of the University of Karachi, Sindh and second patient at Pakistan's capital Islamabad, and both patients had travel history. To cope with this pandemic, initially, the government of Sindh announced to close all the educational institutes in the Sindh for two days and then for 15 days until 15 March 2020. Unfortunately, the pandemic could not be stopped and cases increased

throughout the country by the travelers of different countries. After the rapid increase in the cases, all the provinces were locked down including the Islamabad Capital territory. The intercity transport banned and all the markets and industries except grocery and medical stores even many institutions of the provincial and federal government were closed down and the train services are suspended. Currently, the total number of confirmed cases in Pakistan is 5,716 with 96 deaths and 1,378 recoveries.

**Table 1. Area wise cases of coronavirus pandemic**

Cases Location	Confirmed Cases	Active Cases	Deaths	Recoveries
AJK	43	39	0	4
Balochistan	231	105	2	124
GB	233	75	3	155
Islamabad	131	115	1	15
KPK	800	612	35	153
Sindh	1452	2294	24	508
Punjab	2826	1002	31	419

Source: [covid.gov.pk/stats/Pakistan](https://covid.gov.pk/stats/Pakistan)

## 1.2 Stress, Anxiety, and Depression

Anxiety, Stress, and depression have been the most challenging concerns during the pandemics or critical conditions for health-related professionals and caregivers. Various Studies suggest different mental conditions these people experience under such critical circumstances while the combined pattern of these conditions is unknown. In some studies, it was examined that they could vary according to the demographic features; these factors may be associated with the high risk of developing and causing different mental disorders. Among these disorders depression, anxiety, and stress are the most widespread and have the most significant attention in the field of psychological research among Individuals (Letvak, et al. 2012)

According to Adler, et al., (2006) the impacts of stress, anxiety, and depression on the individuals as well as an organizational basis are extensively recorded. Mental disorders have significant associations with work absenteeism, intending to give up the job and high turnover. The existence of one or more of these psychological health issues can be the contributors to professional accidents as said by [1]. Separation in the work performance, Making errors while being judgmental and negativity was evident toward the work as said by (Arafa, et al.,2003). Furthermore, research conducted [2] on the 'Effect of university students' sedentary behavior on stress, anxiety, and depression' on the university students that sedentary behavior could also be the contributor in the increase of anxiety, stress, and depression. They collected the data from 244 university students using self- reported using time by using the Perceived Stress Scale, the Beck Anxiety Inventory, and the Centre for Epidemiological Studies Depression Scale.

## 1.3 The objective of the Study

The main objective of the study is to examine the impact of Covid-19 on stress, anxiety, and depression among the general public of Sindh.

## 1.4 Hypothesis

- H1. Covid-19 Pandemic has a positive relationship with Stress.
- H2. Covid-19 Pandemic has a positive relationship with Anxiety.
- H3. Covid-19 Pandemic has a positive relationship with Depression.

## 2. Literature Review

The literature is available on stress, anxiety, depression, and psychological factors, which are impacted on the human efficiency and mental approach, but in Pakistan, it is less examined in the context of Pakistan to observe human psychology. Here are some contributions of authors in literature from a different perspective.

Wacogne, et al.,(2003), stress and anxiety were shown higher in the migraine group as compare to the control group although depression is a primordial factor in the triggering and perpetuation of a migraine attack. The study also shows that the major item for stress and anxiety is intrusive thoughts about work, morning fatigue, and feeling under pressure, impatience and irritability. (Rawson, et. 2010), stress and illness, anxiety and illness, and depression and illness have a significant relationship; furthermore, there were no differences between genders regarding stress, anxiety, and depression with illness although they have different impacts with different standards of college students.

Newbury-Birch & Kamali, (2001) described that stress has a more negative impact on job satisfaction. In England, both males and females have more impact on stress and anxiety on job satisfaction and personality characteristic that ultimately influence the patient in the hospital and customers of the organization. (Leung, et al, 2006) stated that the stress-coping behavior affects the estimation of performance and a moderate level of stress supports the estimator of performance and co-operative relationship between colleagues for senior estimators. Although time management and stress management training to be provided to senior estimator to relieve their stress effectively and ensure work efficiency.

According to Bashir & Ramay, (2010) found that the relationship of job stress and job performance was negative correlation and the bank employees in Pakistan have the stress of “Overload Work”, “Role Ambiguity”, “Responsibility for people”, “Participation and Lack of Freedom.” They may influence to increase job stress that ultimately reduces job performance. Ajay Thapar et al. (2008), depression comes due to anxiety and stress and then it converts into seizure regency and frequency. Besides, it shows the importance of depression management besides seizure management to assess and treatment of epilepsy in adults.

According to “Lee KJ, Kim JI” (2015), Factors that contribute to higher stages of stress among health care professionals can be described as job and none - job-related factors. Various conditions of job are associated with a greater threat of mental stress, which may include the status of insecurity in employment, huge work burden, and emotional behavior on getting the patients suffered and expired, organizational issues and conflict, the violent outcome of a workstation.

According to “Cheung et al.” (2016), although, the signs and symptoms of psychological and mental discomforts seem to be multifarious and common mental disorders such as depression, anxiety, and stress are predictable due to the regularity of co-occurrence, interactions between them are blurred, especially among nursing staff. Most studied have found only single mental disorders or the findings have been witnessed on stress, anxiety, and depression in the segregation, even in the studies that have evaluated these three altogether studied by “Kaur et al” (2013). However, it would be significantly useful to measure alongside and interpret anxiety, depression, and stress as together regardless of describing the psychological health status of the study of subjects to avoid non-compulsory duplication of research and intervention of efforts as said by “Beuke et al.” (2003).

## 3. Research Methodology

The data was collected using an online survey questionnaire. The convenience sampling technique of non-probability was applied in a quantitative research design. A link was forwarded to fill online survey form through different social media groups with a request that due to the current international pandemic of coronavirus we cannot directly approach you. Different Likert scale was used ranging from strongly disagree to strongly agree. The questionnaire was consist of two parts, the first part comprised of the demographic profile of respondents and the second part comprised of items of coronavirus pandemic, stress, anxiety, and depression. The pre-test parameters of instruments were ignored during the survey because of the availability of options. The questionnaire was organized by using previous literature, where the scale of

Sheldon Cohen (1994) for stress and Hamilton (1960) for depression and Taylor Manifest (1953) for anxiety was used. The general public of Sindh province was the targeted population for this study, where many portions of responses were received from major affected areas like Sukkur, Hyderabad, and Karachi division. The Responses were collected from the youngsters, middle age and senior citizens. The larger portion of responses was received from the young generation because of technological advantage (see table 1 demographic profile). A total number of 462 responses were received within one month from March 15, 2020, to April 15, 2020.

#### 4. Data Analysis

Smart PLS version 3.2.8 (Ringle, et al., 2015) used for data analysis as a statistical tool in which partial least square modeling was used. We have examined the measurement and structural model.

According to Chin, et al. (2003) this statistical tool does not require normality assumption.

Common Method Bias was used first since the data was collected by using a single source to test full collinearity as suggested by [3] and (Kock, 2015). We assume that there is no bias in data from a single source if  $VIF \leq 3.3$  and all variables will be regressed alongside a common variable in this method. There is no serious concern with our data because the VIF is less than 3.3 in the analysis yield.

**Table 2. Demographic Details**

Table Variable	Categories	Respondents Division	%	
Gender	Male	423	91.1	
	Female	41	8.9	
Age	18-28	141	30.4	
	29-39	121	26.1	
	40-50	109	23.5	
	51 and Above	93	20.0	
	Division	Sukkur	104	22.4
Division	Larkana	37	8.0	
	Shaheed Benazir Abad	41	9.0	
	Hyderabad	117	25.2	
	Mirpur Khas	32	6.7	
	Karachi	133	28.7	
	Level of Study	Intermediate	83	17.9
		Bachelor	212	45.7
Masters		128	27.6	
M.Phil./Ph.D.		41	8.8	
Positive Cases in your District	Yes	293	63.1	
Test Facility Available in your District	No	171	36.9	
	Yes	319	68.8	
Already Suffering from Disease like Diabetes, Heart Problem	No	145	31.2	
	Yes	133	28.2	
Smoking Habit	No	331	71.8	
	Yes	187	40.3	
	No	277	59.7	

#### 4.1 Measurement Model

Anderson & Gerbing (1988) recommended a two-step approach was followed to test the developed model. In the first step, the measurement model was tested and the reliability and validity of the instrument were

tested as mentioned by (Hair, et al., 2019) and after the developed hypothesis was tested ran the structural model.

Loadings, average variance extracted (AVE), and composite reliability (CR) were assessed for the measurement model. The scores of loadings, AVE, and CR should be higher or equal to 0.5, 0.5, and 0.7. Table 2 shows that all the scores are meeting the requirements of loadings, AVE, and CR respectively, which means results for measurement model, are acceptable.

Discriminant validity was assessed by using the HTMT criterion in step two than by following the updated guidelines of [4] previously (Henseler, et al., 2015) suggested. As per suggestion the stricter score for the HTMT should be less than or equal to 0.85 and it should be less than or equal to 0.90 in lenient mode score criteria. Table 3 shows the results of the HTMT criterion for stricter values, and all values are less than 0.85. Therefore, we conclude that the distinction of all 3 constructs understood by respondents. Both validity tests were taken together which shows that measurement items are valid and reliable.

**Table 3. Measurement Model**

Constructs	Items	Loadings	CR	AVE
Stress	ST1	0.782	0.926	0.558
	ST2	0.732		
	ST3	0.718		
	ST4	0.660		
	ST5	0.696		
	ST6	0.860		
	ST7	0.672		
	ST8	0.831		
	ST9	0.807		
	ST10	0.683		
Anxiety	AX1	0.789	0.927	0.560
	AX2	0.824		
	AX3	0.806		
	AX4	0.654		
	AX5	0.748		
	AX6	0.760		
	AX7	0.734		
	AX8	0.733		
	AX9	0.776		
	AX10	0.638		
Depression	DP1	0.651	0.916	0.538
	DP2	0.627		
	DP3	0.550		
	DP4	0.899		
	DP5	0.917		
	DP6	0.891		
	DP7	0.875		
	DP8	0.608		
	DP9	0.746		

Constructs		1	2	3	4
1. Anxiety					
2. Stress		0.477			
3. Depression		0.538	0.495		
4. Covid-19 Pandemic		0.356	0.412	0.498	
Coronavirus Pandemic	DP10	0.349			
	CP1	0.594		0.936	0.624
	CP2	0.945			
	CP3	0.823			
	CP4	0.703			
	CP5	0.745			
	CP6	0.899			
	CP7	0.733			
	CP8	0.654			
	CP9	0.929			

**Table 2. Discriminant Validity (HTMT)**

#### 4.2 Structural Model

Suggestions of Hair, et al. (2017) and Cain, et al. (2016) were followed to assess the multivariate Skewness and Kurtosis. As per the results, the collected data was multivariate normal. Mardia’s multivariate skewness and Mardia’s multivariate kurtosis ( $\beta=2.902$ ,  $p<0.01$ ) and ( $\beta=19.02$ ,  $p<0.01$ ) respectively. Therefore, as per the guidelines of (Hair, et al., 2019) for the structural model, we reported the path coefficients, the standard error, t-value, and p-value using a 5,000 sample resample bootstrapping procedure. Furthermore, for hypothesis testing p-value was criticized by [5], according to authors to judge the significance of the hypothesis only based on the p-value is not a good criterion. Therefore, along with p-value, some other criteria were included such as confidence intervals and effect sizes. The summary shown in table 5 describes the criteria to test the developed hypothesis we have used. The table shows that all the hypotheses H1, H2, and H3 are supported because the relationship CP -> AX, CP -> DP and CP -> ST is positive and significant.

**Table 4. Hypothesis Testing**

Hypothesis	Relationship	Std Beta	Std Error	T-Value	P Values	BCILL	BCIUL	f <sup>2</sup>	VIF
<b>H1</b>	CP -> AX	0.477	0.067	7.066	0.000	0.323	0.592	0.015	1.000
<b>H2</b>	CP -> DP	0.495	0.077	6.439	0.000	0.315	0.626	0.030	1.000
<b>H3</b>	CP -> ST	0.412	0.072	5.709	0.000	0.258	0.539	0.038	1.000

#### 5. Discussion and Conclusion

The study findings revealed that there is a positive and significant relationship between COVID-19 pandemic and stress, depression, and anxiety. Individual stress has a direct impact on the immunity system, the system becomes lowered and it creates illness among individuals. Depression is also part of the

relationship between stress-illness and in the case of anxiety among individuals. The increasing cases of coronavirus have increased the fear of it through stress, depression, and anxiety has increased among individuals. The major portion of old age people in the world has affected by the virus, but in Pakistan, the majority of youngsters are infected by the virus which created panic among young individuals and the level of stress, depression, and anxiety among them has increased. The hypothesis of the study is supported that coronavirus created a high level of stress, anxiety, and depression among individuals. Study findings show that stress, depression, and anxiety across the Sindh differs. The effect is moderate if individuals have social support and coping behavior otherwise they feel fear and their stress, and anxiety level become increased and response to the situation is different. The gender difference was also taken into account and found different responses from both genders; the male gender compared to female is more stressful. Further, findings exposed that people of affected areas like Karachi, Sukkur, and Hyderabad are more fearful than other areas of Sindh and the stress and anxiety among people in these areas are high. In last, the findings also revealed that those individuals who are already affected by any other disease like Diabetics, Heart Disease, Spinal cord injury, lung disease, people with a weak immune system, and smokers are more worried and stressed.

## 6. Recommendations

The following are the recommendations to avoid/cope with stress, depression, and anxiety.

- ✚ People are recommended to make a schedule of the day.
- ✚ People are recommended to make them engage in different activities.
- ✚ People are recommended to watch media channels as the only source of information.
- ✚ People are recommended to keep social distancing.
- ✚ People are recommended to keep themselves sanitize.
- ✚ People are recommended to avoid social media networks.
- ✚ People are recommended to remain update about positive cases in their areas.
- ✚ People should be properly educated for this disease.
- ✚ People are recommended to wear masks and hand gloves before leaving home.
- ✚ People are recommended to maintain the diet.
- ✚ People are recommended routine exercise.

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