Depression, Anxiety and Fear due to COVID-19 in Pakistan: A Study based on Learning Perspective

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Abstract

Psychological pressures leading towards instability of psychological states like anxiety, stress, fear and depression. The main objectives of present study were to explore the existence of anxiety, depression and fear among public. A cross-sectional study was conducted from 15th April to 4th May, 2020. Three research instruments including Fear of COVID-19 Scale (FCS), Self-Rating Anxiety Scale (SAS) and Self-Rating Depression Scale (SDS) were used. 530 valid questionnaires were received in response to online survey. The results showed that 518 (97.7%) of individuals have fear. The results indicated that those 403 (76.0%) respondents were non-anxious and 127 (46.0%) people were anxious. Depression and non-depression rate was 55.5% and 45.5% respectively. It was revealed that anxiety, depression and fear have significant positive correlation. It was also found that females faced more anxiety, fear and depression than males. Results indicated that following precaution against coronavirus reduces anxiety, depression and fear. Students were found to have higher mean scores on FCS, SAS and SDS as compare to working and unemployed individuals. Compared to students of intermediate, graduation and post-graduation, Undergraduates had higher mean scores which show more fear, anxiety and depression. Therefore, it is requirement due to outbreak of COVID-19 to facilitate psychological state of general public.

Keywords: *COVID-19, Anxiety, Depression, Fear, Correlation*

1. Introduction

COVID-19 abbreviated as Corona Virus Disease 2019, also known as 2019-nCoV. Corona virus disease which emerged in 2019 was latest to world as it has affected poor and rich countries equally. All countries across the world are facing big challenge in order to control and prevent COVID-19. Coronavirus Disease is infectious disease which happens due to infection caused by virus. The word corona is derived from Latin word Corona in 1555 which means garland, wreath and crown. Corona is Ribonucleic Acid (RNA) virus. Historically, in

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1965 Tyrrell and Bynoe named a virus which is called B814 (Tyrrell & Bynoe, 1966). This virus observed in individual embryonic tracheal organ which is obtained from the respiratory tract of an adult with a common cold. In December, 2019 in Wuhan city located in province Hubei of China, an outbreak of a novel coronavirus disease occurred and subsequently attracted worldwide attention (Lu, 2020). The eruption of SARS occurred in 2003 which was said to be produced by another strand of coronavirus and emergence of COVID-19 was considered similar. The causes, epidemiology, features and the rapid transmission procedure of infection for SARS and COVID-19 are similar but the manifestations on clinical basis of these two diseases are not the exact. Moreover, severe acute respiratory syndrome (SARS) has slower rate of transmission as compare to the mediation rate of COVID-19 but when comes to mortality rate; it is lesser in cases of Covid-19 than that of SARS. The estimated and average maturation time span for SARS is 3 days which lies in range of 0–24.0 days (Chen, 2020; China National Health Committee).

COVID-19 is a cluster of acute respiratory illness with no known causes. The route through which transmission occur is totally unknown, but it is known that it can spread from person to person via various mediums like hand shaking, hugging, close physical contacts etc. The transmission modes for corona virus infection are major aerial particularly though breathing decrease (Li et al., 2020). The commonly observed symptoms of this emerging global issue within 2–14 days include fever, fatigue, dry cough, myalgia, and dyspnea (Wang et al., 2020). Infected patients of Covid-19 may found to grow severe and even fatal respiratory diseases (Li & Yang, 2020). One of the historical prevention measures against this viral disease is quarantine and has significant role in controlling spread of pandemic and epidemic (Nafees, 2020). Quarantine is simple isolation of infected person for a specific period of time from rest of people (Manuell & Cukor, 2011). During the isolation, if person is developing symptoms, he or she may be shifted to hospital or health care center for detailed treatment. If person develops no serious symptoms, then is set free (Benjamin & Stratton, 2006). For different diseases different quarantine period are followed. As incubation period shown in studies is 14 days so on these basis same days for quarantine were suggested against corona (Fielding, 2015). The unprecedented experience of ‘home quarantine’ due to COVID 19 which causes lockdown with great the uncertainty for educational and occupational career and was found to have multifaceted impacts on psychological health of students.

1.1 Objectives of Study

1. To investigate the existence of anxiety, depression and fear in people in different areas of Pakistan

2. To study that how duration of quarantine cause anxiety, depression and fear in individuals.
3. To study the effect of precautionary measures against COVID-29 on fear, anxiety and depression.
4. To study the correlation of Anxiety, depression and fear of COVID-19.
5. To study the gender difference in anxiety, depression and fear of COVID-19.
6. To investigate the level of anxiety, depression and fear of COVID-19 in students, employed and unemployed individuals.

1.2 Significance of the Study

This study helped to identify the level of the presence of anxiety and depression in different areas of Pakistan along with the presence of the fear of COVID-19. This study showed significance of the mental health in perspective of COVID-19 in Pakistan where mental health is not considered seriously due to cultural barriers, This study also helped to identify how much the gender and socioeconomic status has levels of anxiety, depression and fear of COVID-19. This study will help government to show the significance of mental health in general population due to COVID-19 and to make policies about it.

2. Literature Review

The infestation of coronavirus in China is considered as a universal health risk and also major outburst of pneumonia since the SARS outbreak in 2003 (Wuhan Municipal Health Commission, 2020). The outbreak of this viral disease was firstly exposed in late December 2019 when bands of pneumonia like case of no known treatment were found to be linked with epidemiological disclosure to a seafood market. It was untraced exposures in the city of Wuhan of Hubei Province (Guan, 2020; Huang, 2020). On basis of pathetic condition and severe outbreak, the World Health Organization (WHO) declared the Covid-19 as a public health emergency of international concern. WHO passed a statement that there is a high risk of COVID-19 spreading to other countries all around the world. In 11th March 2020, World Health Organization (WHO) declared the assessment that Covid-19 can be characterized as a pandemic.

World Health Organization as well as other authorities of public health around the world was acting to contain the Covid-19 upsurge. For COVID-19, treatments and vaccinations are in process of progress but avoidance and helpful care to deal with this pandemic are highly recommended, particularly in countries with ill-equipped healthcare systems. It has suggested by director-general of WHO Tedros Adhanom Ghebreyesus (Nguyen, 2020). Local health care systems may not be properly equipped to handle a large-scale outbreak of this disease. However, current time of crisis is creating stress like scenario throughout the population. The COVID-19 pandemic is likely to put healthcare or medical professionals across the world in such a situation which is unprecedented,

requiring making impossible and challenging decisions and working under extreme pressures. "Universities in developed countries put strict health protocols into action, such as washing hand, using face-mask, advising 'stay-home' strategy when sick, to facilitate continuation of education in higher academia and later switched to campus-wide online learning" (Liguori & Winkler, 2020). The corona situation has let learning process in great difficulty for students.

It was reported that on 26th February, 2020 the first case of COVID-19 was testified in Pakistan who was not a local case therefore but a travel history. Being China as neighboring country and also Iran which were in list of countries who faced huge consequences of COVID-19, Pakistan was one of most vulnerable to this pandemic. Out of total cases reported in Pakistan, about 78 percent of them were visitors from Iran (Nafees & Farukh, 2020). Pakistani Government took serious action with purpose to control the spread of coronavirus by announcing partial lockdown across the country. As it was known that social gatherings and contacts can increase the spread of this disease so by making social distancing or staying at home can be good strategy against corona virus. The rate of spread of this viral disease in Pakistan is less as compare to other countries (WHO). According to statistics provided by Government of Pakistan, till 18th April confirmed cases were 7,993. Out of these 1,868 were recovered cases and 159 deaths were reported. Mostly cases were reported in Province of Punjab. Pakistan being developing country may not have much efficient facilities but still management against the pandemic is appreciable.

During outbreak of any infectious disease, the psychological reaction given by population plays a critical role in shaping spread of the disease and also the occurrence of emotional distress and social disorientation both during and after the outbreak (Cullen, 2020). Because of the abrupt and extremely contagious outburst of Covid-19, it inevitably gave rise DASS among the population (Wang, 2020). As it is known that psychological aspect has vital part for adhesion to general public health related course of action (like vaccination) and in people coping with the risk of contamination and its ensuring losses. These are crucial issues which need to be considering while managing any infectious disease, including Covid-19. Psychological reactions to pandemics include maladaptive behaviors, fear, stress, anxiety, emotional distress, psychological distress and defensive kind of responses (Gulati & Kelly, 2020). Vulnerability increases for People who are liable to mind related problems.

Among the commonly seen non-physical phenomena in case of any disaster, anxiety and depression possibly act as barrier or challenge to rational medical and mental health interventions (Wang, 2020). In present period, the kind of trepidation faced by human is called psychological distress in psychology. Disparity between objective requirements and the subjective

capability which can occur under the influence of the internal and external environment generates a state of tension that adapts to the environment (Craske & Stein, 2016). In current uprising, Covid-19 acts as the greatest stressor to make general public panic.

While facing dangerous or threatening situations anxiety, fear or depression is a natural response of normal person (Wang, 2020). From biological and psychological health perspective, if the people start responding to Covid-19 in appropriate manner and positive way, it can boost drive of the human body to fight against the challenges of present widespread of corona virus.

As reports presented by WHO on media and other sources shows that coronavirus is one of major reason for high morality in different countries of world. This is naturally leading individuals to get worried. Indeed, it was also found through studies that contacting infected individuals by COVID-19 induce fear (Lin, 2020). The emergence of sudden and damaging disease caused by COVID-19 has created fear (Guan, 2020). The characteristic nature of coronavirus is causing fear. Morbidity, mortality, transmission rate and medium of transmission are found to be directly associated with fear. Stigmatization, discrimination and consequential loss are other psychological challenges which were faced (Pappas, 2009). It was revealed that high fear level has effect on thinking and rationality during reacting to coronavirus disease.

As the nature of COVID-19 is sudden and unexpected and the infectious power of this virus is reason which can inevitably lead public in anxiety, depression and other distress reactions (Di & Yu, 2020). However, all over the world efforts and contributions are made to control transmission of COVID-19 and to find treatment for this infection (Dong, 2020). The psychological and social aspects yet need to be considered. Along with providing medical or physical facilities, world should also focus on reducing psychological impact off this disease. The comprehension and investigation of the mental health or psychological distress of public during this tumultuous time (Wang, 2020) is highly necessary. On basis of current pandemic and crucial time it was decided to conduct research in Pakistan to study and understand mental state of individuals. This study focused on investigating anxiety, depression and fear among individuals due to sudden outbreak of COVID-19 in different regions of Pakistan. In aspect of provision of information, awareness, insight, perspective, behavior and psychical support of regime at multiple levels. Comprehending and exploring the public mind states during present epidemic period is of practical importance. Social and familial concentration as well as mental health support is essentials and need of current time.

The present research aimed to find out anxiety, depression and fear among individuals during outbreak of COVID-19 in different regions of

Pakistan. Along with it, also want to discover relationship between fear, anxiety and depression. This study has another objective to explore relation of anxiety, depression and fear due to COVID-19 outbreak with demographic variables (gender, occupation, education, following precautions and number of days in Quarantine).

3. Research Methodology

3.1 Population & Sample

In order to conduct this study survey method of cross-sectional research design was used because this study was conducted in all over Pakistan. The online survey was conducted to collect the data because it was not possible to travel the all over Pakistan for data collection because of the restrictions on travel and lockdown in the country. Simple random and convenient sampling techniques of probability sampling were used to collect the data. The sample was consisted on 530 individuals from which 317 (59.8%) were males and 213 (40.2%) females. Among them, 365 (68.9%) people were of age 18-25, 127 (24.0%) were aged 26-33, 23 (4.3%) people has age of 34-41, 13 (2.0 %) of people were of age 42-49 and 2 (0.4%) people of age 50-56 participated in study. Out of total sample, 252 (47.5%) subjects from Punjab, 9 (1.7%) from Sindh, 13 (2.5%) from Baluchistan, 220 (41.5%) from KPK, 29 (5.5%) from AJK and 7 (1.3%) from FATA were part of study. On basis of marital status; 423 (79.8%) single, 101 (19.1%) married, 4 (0.8%) divorced and 2 (0.2%) widows participated. Education level was as follow: 32 (6.0%) people of Intermediate, 200 (37.7%), Undergraduates, 145 (27.4%) Graduate and 153 (28.9%) Postgraduate level students participated. Occupation was as follow: 314 (59.2%) students, 163 (30.8%) working and 53 (10.0%) unemployed.

3.2 Instrumentation

To find out the existence of anxiety, depression and fear due to outbreak of COVID-19 among individuals living in different regions of Pakistan, following instruments were used in present research:

1. Self- Rating Anxiety Scale (SAS) was designed by William W.K. and Zung in 1971. It is a 20-item self-report assessment scale developed with purpose to find anxiety levels. Each question is scored on a 4 point Likert-type tool. Some questions in scale were negatively worded for avoiding the problem of set response. Overall assessment is done on basis of total score. The total raw scores range from 20-80. The raw score was changed into standard scores which are converted into an "Anxiety Index" score.
2. Self-Rating Depression Scale (SDS) was developed by William W.K. and Zung in 1965 to assess level of depression. It is 20 item self-report assessment tool in which each item is scored on 4 point Likert type scale.

Ten items of scale were negatively worded. Total score was computed which was transformed into standard scores and these score then converted into depression index.

3. Fear of Covid-19 Scale was developed by Daniel et al. (2020). It is seven items scale. It is 5-point Likert scale. The slightest possible score for each item is 1 and the maximum is 5. A total score is calculated by adding score of each item. The higher the score, greater the fear of COVID-19.

3.2.1 Demographic Sheet

Demographic Sheet was used to gather information including age, gender, marital status, qualification, socio-class status, occupation as well as number of days in quarantine.

3.3 Procedure of Data Collection

Online survey was done in present research to study anxiety, depression and fear among individuals living in different areas of Pakistan due to outbreak of COVID-19. Purposive sampling technique was used. SAS, SDS along with FCS were used as research instruments with informed consent and demographic sheet. The participants were briefed about purpose of research and assured to maintain confidentiality through taking consent. There was no time limit for completion of questionnaires. 530 (N=530) individuals from different regions of Pakistan participated in study through online response system. After collecting responses, data was analyzed using SPSS 23 version. Descriptive and correlational quantitative design was employed in current study. After analyzing the research data, findings were obtained and then results were discussed in light of previous literature according to research topic.

3.4 Data Analysis Technique

With purpose to meet objectives of research and to test formulated hypothesis, statistical analysis were carried out on research data. Initially, outliers were identified in data. Total scores for each scale were computed. Total scores of SAS and SDS were converted into standard scores. The standard scores of SAS were then used to divide sample into anxious and non-anxious groups. Similarly, standard scores of SDS were followed to divide sample in depressed and non-depressed groups. Mean and standard deviation was used to express measurement data while counting data has given expression through percentage. Correlation analysis, independent sample t-test and ANOVA were done to test hypotheses. On basis of obtained results, conclusions were drawn.

4. Data Analysis & Interpretation

To test research hypotheses, different statistical analyses were done. Descriptive analysis shows that out of 530 subjects 518 individuals were suffering from fear of coronavirus (97.7%). On SAS, out of 530 sample, 403 of

people were non-anxious (76.0%), 88 people have mild anxiety (16.6%) 38 people have moderate anxiety (7.2%) and 1 person showed symptoms of severe anxiety (0.2%). On self-rating depression scale; from total, 294 people were non-depressed (55.5%), 146 people have mild depression (27.5%), 76 people have moderate depressed (14.3%) and 14 people have severe depression (2.6%). In present study correlation analysis, independent sample t-test and ANOVA was also computed.

It was hypothesized that anxiety, depression and fear occurs during outbreak of COVID-19 have relationship with each other. Number of days in quarantine and following precautionary measures can also be associated with psychological states.

Table 4.1

Correlation analyses for no. of days in quarantine, precautions, anxiety, depression and fear (N=530)

	Quarantine days	Precautions	FCS	SAS	SDS
Quarantine days		-.12**	.01	-.01	-.04
Precautions			-.02	-.02	-.02
FCS				.30**	.24**
SAS					.73**
SDS					

Note. FCS= Fear of COVID scale, SAS= Self-rating Anxiety Scale & SDS= Self-rating Depression scale

Result reveals that fear of COVID-19, anxiety and depression have significant positive correlation. Beside these, quarantine days have non-significant positive relation with fear of COVID-19 and negative relation with anxiety and depression. It was also revealed through analysis that following precautions against corona virus has non-significant negative correlation with fear of COVID-19, anxiety and depression. Quarantine days and precautions show significantly negative correlation with each other.

It was hypothesized in present study that females will have more anxiety, depression and fear during current situation as compare to males. In order to test this hypothesis independent sample t-test was computed.

Table 4.2
Independent Sample t-test (N=530)

	Females (n=213)		Males (n=317)				95% CI		Cohen's
Scale	M	SD	M	SD	t(528)	P	LL	UL	d
FCS	19.54	5.47	19.07	6.17	.89	.37	-1.49	.56	0.08
SAS	35.17	8.09	34.81	7.53	.53	.60	-1.71	.99	0.04
SDS	40.91	10.16	39.93	10.03	1.01	.27	-2.74	.77	0.09

Note. FCS= Fear of COVID scale, SAS= Self-rating Anxiety Scale & SDS= Self-rating Depression scale

Result in Table 4.2 indicates non-significant gender differences on FCS, SAS and SDS. Although female have mean scores higher than males.

Another hypothesis of present study was, employed individuals will have more anxiety, depression and fear during outbreak of COVID-19. To test this hypothesis ANOVA was done on research data.

Table 4.3
Mean, Standard Deviation and F values for FCS, SAS and SDS (N=530)

Scales	Student (n=314)			Working (n=163)			Unemployed (n=53)				
		95%CI			95% CI			95% CI			
	M (SD)	LL	UL	M (SD)	LL	UL	M (SD)	LL	UL	F	P
CFS	19.70 (5.89)	19.05	20.36	18.18 (5.96)	17.26	19.11	19.91 (5.34)	18.43	21.38	3.96	.02
SAS	44.02 (9.70)	42.95	45.10	42.99 (9.78)	41.48	44.50	43.92 (9.43)	41.32	46.51	.63	.54
SDS	51.52 (12.6)	50.11	52.92	47.97 (12.5)	46.02	49.92	51.30 (11.6)	48.10	54.50	4.46	.01

Note. FCS= Fear of COVID scale, SAS= Self-rating Anxiety Scale & SDS= Self-rating Depression scale; CI= Confidence Interval; LL=Lower Limit; UL= Upper Limit

The results in Table 3 indicated that significant differences exist on FCS and SAD but non-significant differences exist on SAS for occupation.

It was hypothesized that undergraduate students will have more anxiety, depression and fear during pandemic of coronavirus. To test this hypothesis, ANOVA was computed on data.

Table 4.4
Mean, Standard Deviation and F values for FCS, SAS and SDS (N=530)

Scales	Intermediate (n=32)			Undergraduate (n=200)			Graduate (n=145)			Postgraduate (n=153)				
		95%CI			95% CI			95% CI			95% CI			
	M (SD)	LL	UL	M (SD)	LL	UL	M (SD)	LL	UL	M (SD)	LL	UL	F	P
FCS	19.38 (5.69)	17.32	21.43	20.09 (6.25)	19.21	20.96	18.93 (5.86)	17.97	19.89	18.46 (5.39)	17.6	1.32	2..42	.07
SAS	43.24 (7.47)	40.55	45.93	44.97 (10.09)	43.56	46.38	44.30 (9.46)	42.75	45.86	41.55 (9.49)	40.04	43.07	3.92	.00
SAD	50.16 (9.04)	46.90	53.41	53.03 (13.09)	51.21	54.86	50.20 (11.30)	48.32	52.07	47.21 (12.99)	45.14	49.29	6.37	.00

Note. FCS= Fear of COVID scale, SAS= Self-rating Anxiety Scale & SDS= Self-rating Depression scale; CI= Confidence Interval; LL=Lower Limit; UL= Upper Limit

The result in Table 4 reveals that mean difference of undergraduate students is more than other groups. There is significant difference for FCS, SAS and SDS for different education groups.

5. Discussion & Conclusion

The current research was conducted with objective to find out the occurrence of anxiety, depression and fear among individual due to outbreak of Covid-19in different regions of Pakistan. Also study aimed to explore relation between three research variables. Fear, anxiety and depression were also studied with demographic variables including gender, occupation and education. Number of days in quarantine and following precautions against coronavirus was correlated with anxiety, depression and anxiety. Results of independent sample t-test yields that mean score for females was higher than males although it was non-significant (Table 4.2). So in light of these findings, another research hypothesis was accepted. Previous literature also showed similar results (Wang & Di, 2020). The finding of current research reveals statistically significant differences for FCS and SDS on occupation. Mean scores for students were higher than working and unemployed subjects. Thus research hypothesis was accepted (Table 4.3). Result of one study done with Chinese people during outburst of COVID-19 also shows same findings (Wang, 2020). Another hypothesis was that students at undergraduate level will have more fear, anxiety and depression due to current scenario. The result of present study reveals that undergraduate students have higher mean scores than other groups. FCS, SAS and SDS outcomes directed that dissimilarities among different academic level were statistically significant (Table 4.4). So result lead toward accepting hypothesis. These results were similar to findings of previous study done in China (Wand & De, 2020).

The outbreak of coronavirus has been emerged as global issue which is creating a great health and economic problems for different countries across the world. Death rate due to COVID-19 is increasing day by day. Along with other challenges, psychological problems must be focused on serious notes during this pandemic scenario. Psychological states have been assessed in current research which revealed that people are facing psychological disturbance. Following proper precautionary measures against this virus can be one solution to fight against COVID-19. Like other countries, Pakistan is also under influence of this infectious disease. Number of factors and aspects related to this viral disease has yet to be explored.

6. Recommendations

Comparative analysis of different populations of different areas (provinces) of Pakistan should be conducted for further study. Mental health also should be studied in the families of patients with disclosure of COVID-19. Similarly mental health of patients with disclosure of COVID-19 should be studied for further knowledge and significance of mental health. A comparative

analysis of the general population and confirmed patients of COVID-19 should be conducted. Similarly stigmatization faced by the patients of COVID-19 should be studied.

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