STUDY ON PSYCHOLOGICAL BEHAVIOR OF HUMAN POPULATION DURING COVID-19 PANDEMIC IN SINDH, PAKISTAN

NAND LAL[1*], NIAZ AHMED[2], NAFEES AHMED[3], JUNAID ALI[3], MUZAMIL AHMED[1]

[1]Department of Zoology, Quaid-i-Azam University Islamabad, Pakistan.
[2]Department of Microbiology, Harbin Medical University, China.
[3]Department of Zoology, University of Sindh Jamshoro, Pakistan.

ARTICLE INFORMATION

ABSTRACT

COVID-19 (Corona Virus Disease 2019) has significantly resulted in a large number of Psychological consequences. The aim of this study is to explore the impacts of COVID-19 on people mental health, to assist policy makers to develop actionable policies, and help clinical practitioners (e.g., social workers, psychiatrists, and psychologists) provide timely services to affected populations. We sample and analyze the 348 Web users using the approach of Online Google Document based on GAD-7 (Anxiety) Scale, and we have found that people of Sindh are under Moderate and Severe Anxiety Disorders.

1. INTRODUCTION

COVID-19 (Corona Virus Disease 2019) is a highly infectious disease with a long incubation period which was caused by Sars-Cov-2 (Severe Acute Respiratory Syndrome Corona virus 2) [1] the number of COVID-19 patients increased dramatically due to hundreds of millions of people traveling and gatherings. COVID-19 not only threaten the people's physical health but it also affect the mental health, especially in term of emotions and cognition. According to many theories like Behavioral Immune System (BIS) theory [2] people are likely to develop negative emotions (e.g., aversion, anxiety, etc.) [3, 4] and negative cognitive assessment [5, 6] for self-protection. Faced with potential disease threat, people tend to develop avoidant behaviors (e.g. avoid contact with people who have pneumonia-like symptoms) [7] and obey social norms strictly (e.g., conformity) [8] Therefore, it is essential to understand the potential psychological changes caused by COVID-19 in a timely manner.

Since psychological changes caused by public health emergencies can be reflected directly in emotions and cognition, and we have tried to investigate those psychological changes through the help of online Google document survey in which we have measured the GAD-7 (Anxiety) Scale to find out the level of anxiety amongst the people of Sindh, Pakistan.

2. MATERIALS AND METHODS

The samples in this study were original web users of different districts of Sindh. Which help us to complete the online survey to measure the psychological impacts of Covid-19. In this online survey we have used the platform of Google Documents that help us to reach the people of different districts of Sindh without physical contact and obeying the precautionary measures of Corona Virus. We have collected 348 responses from 25 districts of Sindh.

Corresponding Author**:** nand8348@gmail.com

Fig: 1.1 showing the data of those districts in which Ghotki is with highest responses of 69 participants and Matiari is with lowest responses of 3 participants, with these sample size we have tried to create and check the hypothesis that are these people are under Minimal Anxiety or under mild, moderate and severe Anxiety. By applying t-test to reject Null Hypothesis under the p-value of 0.05 ($H_0 \leq 4$ and $H_1 > 4$).

3. RESULTS AND DISCUSSION

Among 348 respondents, 75% were males and 25% were females from different districts of Sindh. The Demographic Profile is depicted in Table 1.

In this study we have tried to measure the level of Anxiety among these participants by using GAD-7 Scale which is range between 0 – 21 (0–4: Minimal Anxiety, 5–9: Mild Anxiety, 10–14: Moderate Anxiety, 15–21: Severe Anxiety). Participants has to fill the Online Questionnaire which is based on seven questions by which we can measure the level of anxiety in that person, those questions are; 1. Feeling nervous, anxious, or on edge, 2. Not being able to stop or control worrying, 3.Worrying too much about different things, 4.Trouble relaxing, 5.Being so restless that it is hard to sit still, 6.Becoming easily annoyed or irritable, 7.Feeling afraid, as if something awful might happen.

As we have received all the responses from participants we have converted this data into numerical order by the scale of 0 to 21 (0: Not at all, 1: Several Days, 2: More than half the days, and 3: Nearly Every day). The converted data of each participant is provided in Table 2.

After conversion of numerical data we have applied statistical t-Test at 0.05 p-value to check null hypothesis that population of Sindh is not suffering from severe anxiety disorder ($H_0 \leq 4$ and $H_1 > 4$). So we have applied statistical tests and the results of tests are shown in Table 3.

By the help of *t* Distribution Table, with *Degree of Freedom* 347 and *Probability* 0.05 we have found the *t-value* (right-tailed): 1.655285. Then we calculated *t*-statistics to check our Null Hypothesis, and the resulted *t*-value was 10.793

4. CONCLUSION

In this study we have tried to measure the level of anxiety amongst the populations of Sindh, we have created H_0 with *t*-value 1.6552 and our H_1 state that there will be a significant difference in the level of anxiety due to high impact of Covid-19. And after sampling and statistical tests we have found that there is significant difference with enough evidences (*t* - Value: 10.793) that the population of Sindh is under the Moderate and Severe Anxiety Disorders due to the impact of Novel Corona Virus 2019.

CONFLICT OF INTEREST

All authors have declared that there is no conflict of interest regarding publication of this article.

REFRENCES

[1] Huang, C.L.; Wang, Y.M.; Li, X.W.; Ren, L.L.; Zhao, J.P.; Hu, Y.; Zhang, L.; Fan, G.; Xu, G.; Gu, X.; et al. Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China. Lancet **2020**.

[2] John, A.T.J.; Natalie, J.S.; Michael, A.M. The behavioral immune system and social conservatism: A meta-analysis. Evol. Hum. Behav. 2013, 34, 99–108.

[3] Mortensen, C.R.; Becker, D.V.; Ackerman, J.M.; Neuberg, S.L.; Kenrick, D.T. Infection breeds reticence: The effects of disease salience on self-perceptions of personality and behavioral avoidance tendencies. Psychol. Sci. 2010, 21, 440–447.

[4] Schaller, M.; Murray, D.R. Pathogens, personality, and culture: Disease prevalence predicts worldwide variability in sociosexuality, extraversion, and openness to experience. J. Personal. Soc. Psychol. 2008, 95, 212–221.

[5] Ackerman, J.M.; Becker, D.V.; Mortensen, C.R.; Sasaki, T.; Neuberg, S.L.; Kenrick, D.T. A pox on the mind: Disjunction of attention and memory in the processing of physical disfigurement. J.Exp. Soc. Psychol. 2009, 45.

[6] Schaller, M. Parasites, behavioral defenses, and the social psychological mechanisms through which cultures are evoked. Psychol. Inq. 2006, 17, 96–101.

[7] Houston, V.; Bull, R. Do people avoid sitting next to someone who is facially disfigured. Eur. J. Soc. Psychol. 1994, 24, 279–284.

[8] Schaller, M.; Murray, D.R.; Bangerter, A. Implications of the behavioral immune system for social behavior and human health
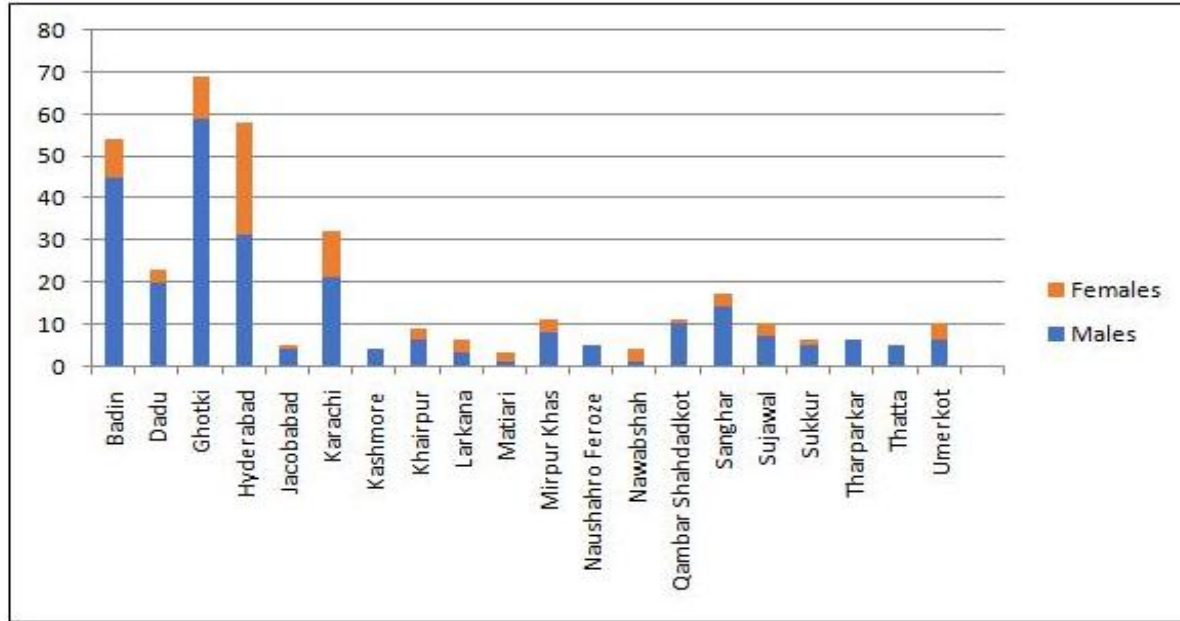
Fig: 1.1 Data Collected from these districts of Sindh, Presented in the form of stacked cylinder columns showing the participants in the categories of male and female.

Table 1: Demographic Profile of Participants.

No.	District	Participants	Male	Female
1	Badin	54	45	9
2	Dadu	23	20	3
3	Ghotki	69	59	10
4	Hyderabad	58	31	27
5	Jacobabad	5	4	1
6	Karachi	32	21	11
7	Kashmore	4	4	0
8	Khairpur	9	6	3
9	Larkana	6	3	3
10	Matiari	3	1	2
11	Mirpur Khas	11	8	3
12	Naushahro Feroze	5	5	0
13	Nawabshah	4	1	3
14	Qambar Shahdadkot	11	10	1
15	Sanghar	17	14	3
16	Sujawal	10	7	3
17	Sukkur	6	5	1
18	Tharparkar	6	6	0
19	Thatta	5	5	0
20	Umerkot	10	6	4
	Total	**348**	**261**	**87**

Table 2: Numerical Data of each Participant

0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	1	0	2	1	0	0	1
0	0	1	0	0	1	1	3	2	0	0	3
0	2	2	2	0	1	1	3	3	1	1	4
2	2	2	2	0	3	2	3	3	2	2	4
2	3	3	2	0	3	3	3	3	3	3	5
2	3	3	2	1	3	3	4	3	3	3	5
2	4	3	3	1	3	4	4	4	3	3	5
2	4	4	3	2	4	4	5	4	3	4	5
3	5	5	3	2	4	4	5	4	3	4	5
3	5	5	4	3	4	4	6	5	4	4	5
4	6	5	5	3	5	4	7	5	5	4	6
4	6	5	5	4	5	5	7	6	6	5	6
4	7	5	6	5	5	5	7	6	6	6	6
5	7	6	6	5	5	5	8	6	6	6	7
5	7	6	7	6	6	5	9	6	8	7	9
5	7	6	8	6	6	6	9	7	8	7	9
6	8	7	8	6	6	6	9	8	8	9	9
6	8	7	9	6	7	7	10	9	8	9	10
6	9	8	9	7	7	7	10	9	10	9	10
6	10	9	9	7	7	7	10	9	10	9	10
6	10	10	10	8	7	8	11	10	10	9	11
7	10	11	10	8	9	8	12	10	10	10	12
7	11	11	11	9	10	9	13	10	11	10	12
7	11	12	11	11	12	9	13	11	11	11	12
10	12	13	12	11	12	9	13	11	13	12	13
11	12	13	12	13	12	10	17	12	13	12	14
16	15	14	16	14	13	12	21	13	13	13	15
21	19	14	19	14	21	14	21	18	17	15	16

Table 3: Statistical Results of Data

Statistical Tests	Results
Mean	6.612
Mode	3
Median	6
Range	21
Minimum	0
Maximum	21
Total (n)	348
Sum (Σx)	2301
Variance (s2)	20.4513
Standard Deviation s	4.5223
df	347