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Dr. Kamlesh Dubey
Guest Lecturer, Department of Psychology, A.P.S. University, Rewa, Madhya Pradesh, India

Corresponding Author:
Dr. Kamlesh Dubey
Guest Lecturer, Department of Psychology, A.P.S. University, Rewa, Madhya Pradesh, India

A comparative study on psychological impact of Covid-19 in Rewa and Satna district Madhya Pradesh

Dr. Kamlesh Dubey

Abstract
The present paper deals a comparative study on psychological impact of COVID-19 in Rewa and Satna District Madhya Pradesh. The purpose of this research is to find out the Psychological impact (Anxiety, Stress, and Depression) of COVID-19 amongst two demographic regions (Rewa and Satna district Madhya Pradesh). The data was collected from April 20, 2021 to May 10, 2021 in Rewa and Satna district Madhya Pradesh. The data was collected through random sampling from 400 respondents with the ratio of 1:2 of Satna and Rewa district respectively, including all age groups. The data had been collected via an online questionnaire consisting of Socio-demographic details, General questions (during lockdown), Anxiety scale, Depression scale, Stress scale, and Feedback. It was validated by in experts in the area of Psychology. The level of anxiety by Pallavi Bhatnagar *et al*., Department of Psychology at Lucknow University. Hypothesis Testing, Correlation, and z-test were applied for data analysis. The results reveal that there is a significant impact of anxiety, depression, and stress among people of Rewa and Satna district Madhya Pradesh during COVID-19.

Keywords: anxiety, depression, stress, COVID-19, Rewa and Satna district

Introduction
The novel coronavirus disease (COVID-19) has already affected over 6.9 million people, claiming more than 400 000 lives in over 200 nations all over the world. As on June 9, 2020, most of the cases were reported from the United States of America, Brazil, and Russia. While some nations (like China and South Korea) have successfully been able to flatten the pandemic curve, other nations are finding it difficult to achieve the same. In the absence of any definite therapy against COVID-19, the resilience of the health care infrastructure and health professionals is being put to test.

The novel coronavirus disease has also infiltrated into India; hitherto over 250 000 cases have been reported from the country. With a population of more than 1.3 billion people, India could become the new epicenter of COVID-19. Due to the remarkable population density, poor socioeconomic conditions and health care resources, the World Health Organization (WHO) recently stated that the "future of the pandemic will depend on how India handles it. **[1].** Here, we have presented a summary of the present scenario of COVID-19 in India, the country's response and major challenges that lie in the road ahead.

India has promptly responded to the novel threat. International borders have been shut and nationwide lockdown has been imposed since March 25. As per the Oxford COVID-19 Government Response Tracker, India's response has been rated as one of the most stringent in the world, exceeding the United States, Germany, France, Italy, and the United Kingdom [2]. In the absence of containment and timely lockdown, India would have had 820 000 cases by April 15 [3]. On the contrary, the reported number of COVID-19 cases in India as of April 15 was 11 438, thereby preventing more than 800 000 cases.

The COVID-19 infection is communicated from one person to others through tiny droplets generated from the respiratory system of infected people, mainly during coughing or sneezing. As per the current data, time from exposure to the beginning of symptoms is around two to fourteen days, with an average of five days.

The first four cases of the COVID-19 pandemic in Jabalpur, Madhya Pradesh were confirmed on March 20, 2020**.** As of August 14, 2021, Madhya Pradesh has confirmed a total of 791,998 cases, and has recorded 10,514 deaths. Rewa district has confirmed a total of 16,431 cases and has recorded 16,217 recovered, 155 deaths and 6 active case.

Satna district has confirmed a total of 11,965 cases and has recorded 11,829 recovered, 133 deaths and 3 active case [4].
As the coronavirus pandemic rapidly sweeps across the world, it is causing a considerable degree of fear, worry, and concern in the population at large and among certain groups in particular, such as the elderly, essential workers, and people with chronic health conditions [5-10]. In terms of the mental health of the public, the major psychological impact to date is enhanced rates of stress or anxiety [11-20]. But as new preventive measures and impacts are initiated – particularly lockdown and its effects on many people's usual activities, routines or livelihoods–levels of loneliness, depression, harmful alcohol, and drug use, and self-harm or suicidal behaviour are also expected to increase [21-27].
It can even be concluded that the whole population experiences stress and anxiety to some degree. Thus, it is estimated that there is a rise in the incidence of psychological disorders (between one-third and one-half of the exposed population may suffer some psycho-pathological manifestation, depending on the intensity of the event and the degree of vulnerability) [22-26]. However, it should be noted that not all the psychological and social problems that occur can be described as diseases; majorly they are normal responses to an unusual situation.

Objective
1. To analyze the psychological impact of Pandemic (COVID-19) in two demographic regions (Rewa and Satna district Madhya Pradesh).
2. To find the overall level of anxiety, depression, and stress.
3. To find the effect of Region (Rewa and Satna district Madhya Pradesh) on anxiety, depression, and stress.

Sub-Objectives
1. To find the impact of Gender on anxiety, depression, and stress.
2. To find the impact of Age-group on anxiety, depression, and stress.
3. To find the impact of Employment Status on anxiety, depression, and stress
4. To find the impact of Monthly Household Income on anxiety, depression, and stress.
5. To find the impact of Marital Status on anxiety, depression, and stress.

Hypotheses
1. A significant impact of Region on anxiety, depression, and stress.
2. A significant impact of Gender on anxiety, depression, and stress.
3. A significant impact of Age-group on anxiety, depression, and stress.
4. A significant impact of Employment Status on anxiety, depression, and stress.
5. A significant impact of Monthly Household Income on anxiety, depression, and stress.
6. A significant impact of Marital Status on anxiety, depression, and stress.

Methodology
Sample: The locale of the study was Rewa and Satna district Madhya Pradesh, it was chosen as per our feasibility. The sample consisted of 400 people which comprise 200 from Satna district and 200 from Rewa district. The cluster sampling method was used overall; random sampling method was applied to further filter out the responses. All age groups were considered.

Variables: In this research, we analyzed the impact of six experimental variables (age, gender, monthly income, region, employment status, and marital status) on three criterion variables (stress, anxiety, and depression).

Procedure
The data collection for our research was done via an online questionnaire, it was open from April 20, 2021 to May 10, 2021. The sample consisted of 400 people which comprise 200 from Satna district and 200 from Rewa district. The cluster sampling method was used overall; to further filter out the responses random sampling method was applied. All age groups were considered. After establishing rapport, informed consent was taken. An online questionnaire was then circulated via Google Forms. The ADSS is calculated by assigning scores of 0, 1, 2, and 3, to the response categories of 'not at all', 'several days', 'more than half the days', and 'nearly every day', respectively. Adding together the score of 17 questions in Anxiety Scale, the score of 10 questions in Depression Scale and score of 14 questions in Stress scale.

Anxiety Scale: Out of a total of 51, scores of 8, 16, and 27 are taken as the cut-off points for mild, moderate, and severe anxiety, respectively.

Depression Scale: Out of a total of 30, scores of 5, 10, and 15 are taken as the cut-off points for mild, moderate, and severe depression, respectively.

Stress Scale: Out of a total of 42, scores of 7, 14, and 21 are taken as the cut-off points for mild, moderate, and severe stress, respectively.

Measuring Tools
Online Questionnaire: A specially designed questionnaire was used for collecting information about various details of the study sample. The Questionnaire is divided into 5 major sections i.e. Socio-demographic details, General questions (Quarantine), Anxiety scale, Depression scale, and Stress scale (Appendix A).
Socio-Demographic Details
District
Gender
Age Group: <18 years, 18-25 years, 26-50 years, 50-65 years, and >65 years
The intervals are non-uniform since the most affected age-group is 26-50 years, while the maximum death rate is above 65 years. Therefore, to accommodate the statistics, proper segregation, and efficient analysis we have opted for the aforementioned intervals.
Education
Employment Status
Type of Industry
Monthly Household Income
Marital Status
Others

General Questions (Quarantine): Questions regarding concentration, sleep cycle, strain, productivity, and overall well-being.

Anxiety Scale: This section is divided into 3 categories i.e. Physical symptoms, Apprehensions, and Dryness of mouth.

Depression Scale: This section is divided into 2 categories i.e. Inertia - Loss of Interest & Worth and Poor Emotional Control.

Stress Scale: This section is divided into 2 categories i.e. Emotional Arousal and Negative Life Events.

Anxiety Depression Stress Scale (ADSS): To assess the levels of anxiety, depression, and stress among people of Satna and Rewa district, ADSS constructed by Megha Singh and Pallavi Bhatnagar (2016) was used. The scale consists of 41 items with three subscales designed to measure the level of anxiety, depression, and stress with 17, 10, and 14 items respectively. 4-point Likert scale scored as 0, 1, 2, and 3 was used.

Statistical tools: The statistical analysis of the data was performed on MS Excel software. We examined group differences using a two-tailed z-test and correlation analysis. The percentage method was used to analyze the data since the homogeneity of variances was not there. The data was converted into a tabular form which was further used to graphically (bar graphs) represent the data. A comparative analysis was done to attain a result.

Results

The interpretation and description of the analytical data in an attempt to present the result of the study entitled - A comparative analysis of the psychological impact of Pandemic (COVID-19) in two demographic regions (Rewa and Satna district Madhya Pradesh). The result of the whole data analysis involved both descriptive as well as inferential statistics.

Table 1: Showing correlation among anxiety, depression, and stress

	Anxiety scale	Depression scale	Stress scale
Anxiety scale	1		
Depression scale	0.664081084	1	
Stress scale	0.713215402	0.772596383	1

Table 2: Showing two tailed z-test summaries of anxiety with socio-demographic details

	Z	P (z<=z) two tail	Z critical two-tail	Z critical two-tail negative	Condition
State	1.75473215	0.079130687	1.959963985	-1.959963985	False
Gender	-4.052343201	0.000050688	1.959963985	-1.959963985	True
Age group	15.652432	0	1.959963985	-1.9599963985	True
Employment status	15.3405471	0	1.959963985	-1.9599963985	True
Household income	31.7301352	0	1.959963985	-1.9599963985	True
Marital status	-0.08157124	0.93490799	1.959963985	-1.9599963985	False

*Significant at 0.05 level

Table 3: Showing two tailed z-test summaries of depression with socio-demographic details

	Z	P (z<=z) two tail	Z critical two-tail	Z critical two-tail negative	Condition
State	-3.208171014	0.00123016	1.959963985	-1.959963985	True
Gender	-8.074569453	0.00000000	1.959963985	-1.959963985	True
Age group	11.02386312		1.959963985	-1.9599963985	True
Employment status	11.51868031		1.959963985	-1.9599963985	True
Household income	28.6841711		1.959963985	-1.9599963985	True
Marital status	-4.001162132	0.00006201	1.959963985	-1.9599963985	True

*Significant at 0.05 level

Table 4: Showing two tailed z-test summaries of stress with socio-demographic details

	Z	P (z<=z) two tail	Z critical two-tail	Z critical two-tail negative	condition
State	-4.103970647	0.00003786	1.959963985	-1.959963985	True
Gender	-8.871931327	0	1.959963985	-1.959963985	True
Age group	10.24556249	0	1.959963985	-1.9599963985	True
Employment status	10.86741623	0	1.959963985	-1.9599963985	True
Household income	27.65970851	0	1.959963985	-1.9599963985	True
Marital status	-4.748285073	0.000001941	1.959963985	-1.9599963985	True

*Significant at 0.05 level

Table 5: Showing frequency and percentage distribution of district wrt anxiety, depression and stress.

District/scale	Rewa (n=200) Frequency (%)			Satna (n=200) Frequency (%)		
	Anxiety	Depression	Stress	Anxiety	Depression	Stress
No	54.00	44.00	44.00	52.00	54.00	43.00
Mild	19.00	21.00	22.00	39.00	26.00	30.00
Moderate	17.00	20.00	18.00	5.00	12.00	21.00
Severe	10.00	15.00	16.00	4.00	8.00	6.00

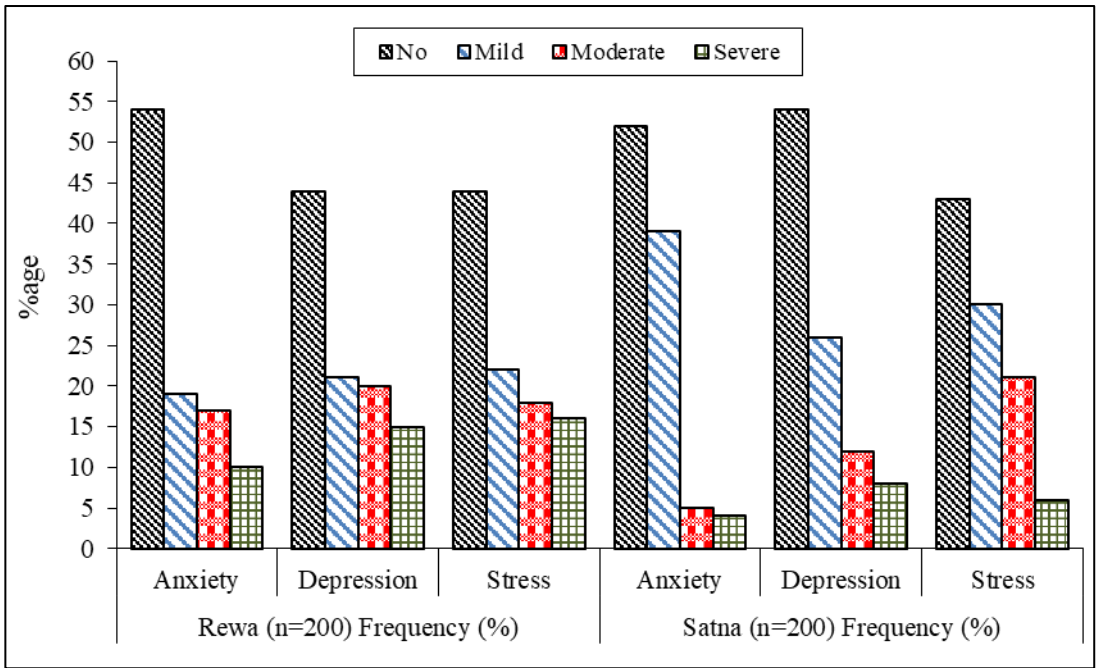

Fig 1: Graph analysis of frequency and percentage distribution of district wrt anxiety, depression and stress.

Discussion

The main objective of the study was to analyze the psychological impact of Pandemic (COVID-19) in two demographic regions (Rewa and Satna district Madhya Pradesh). For this purpose data was collected via an online questionnaire in the above-mentioned regions. The results reveal that there is a significant impact of anxiety, depression, and stress among people of Delhi and Himachal Pradesh during COVID-19. A significant difference was found at 0.05 level.

In Table 1, it shows a strong positive correlation between the three main psychological parameters i.e. Anxiety, Depression, and Stress. Also, the three parameters have a strong as well as positive interrelation with the degree of the coefficient being 0.66 between anxiety and depression, 0.71 between anxiety and stress, and 0.77 between depression and stress.

In Table 2, 3, and 4 depicts that the z-values and p-values of respondents which covers Gender, Age-group, Employment Status, Monthly Household Income, and Marital Status.

The results in tables show that in Region the p-value < 0.05, which signifies the significant impact of Depression and Stress with Region, and not with Anxiety (p-value > 0.05). Thus, our hypothesis -

A significant impact of Region on anxiety, depression, and stress is partially true. The results in tables show that in Gender, Age-group, Employment Status, and Monthly Household Income the p-value < 0.05 indicating that there is a significant impact of Anxiety, Depression, and Stress with Gender, Age-group, Employment Status, and Household Income. Thus our hypothesis - A significant impact of Gender, Age-group, Employment Status, and Monthly Household Income on anxiety, depression, and stress is accepted.

The results in tables show that in Marital Status the p-value < 0.05, which signifies the significant impact of Depression and Stress with Marital Status, and not with Anxiety (p-value > 0.05). Thus our hypothesis -A significant impact of Marital Status on anxiety, depression, and stress is partially true.

In Table 5 & Fig. 1, findings suggest that out of 200 respondents (Rewa district), 54.00% have anxiety symptoms, among them 19.00% have Mild, 17.00% Moderate, and 10.00% Severe. While out of 200 respondents (Satna district), 52.00% have anxiety symptoms, among them 39.00% have Mild, 5.00% Moderate, and 4.00% have Severe level of anxiety.

In Table 5 & Fig. 1, findings suggest that out of 200 respondents (Rewa district), 44.00% show symptoms of depression, among them 21.00% have Mild, 20.00% Moderate, and 15.00% Severe. While out of 200 respondents (Satna district), 54.00% have symptoms of depression, among them 26.00% percent) have Mild, 12.00% Moderate, and 8.00% have Severe level of depression.

In Table 5 & Fig. 1, findings suggest that out of 200 respondents (Rewa district), 44.00% have stress symptoms, among them 22.00% have Mild, 18.00% Moderate, and 16.00% Severe. While out of 200 respondents (Satna district), 43.00% have stress symptoms, among them 30.00% have Mild, 21.00% Moderate, and 6.00% have Severe level of stress. Based on our findings we can say that Satna district has higher levels of anxiety and stress in comparison with Rewa district. Whereas in the case of depression, Rewa district has a higher level in comparison with Satna district.

Conclusion

To sum up, considering the results of our research, we might conclude that there is a significant impact of anxiety, depression, and stress among people of Delhi and Himachal Pradesh during COVID-19. Since the onset of one of the largest lockdowns in the world, the two regions have witnessed a significant increase in psychological disorders like anxiety, depression, and stress due to the pandemic. Some of the reasons being lack of sleep, lack of concentration, and distress. The rapid increase in COVID-19 cases as well as the overall uncertainty can also be accounted for this.

Based on our findings we can say that Satna district has relatively higher levels of anxiety and stress in comparison with Rewa district, though the difference is a minor one. Whereas in the case of depression, Rewa district has a higher level in comparison with Satna district.

If we compare the levels of anxiety, depression, and stress i.e. mild, moderate, and severe, the percentage of the moderate and severe level is quite high in Rewa district. The intensity of psychological disorders is alarmingly high, which is a matter of serious concern and requires immediate attention.

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