

Research Paper

A comparative study on psychological impact of COVID-19 in Delhi and Himachal Pradesh

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ABSTRACT

The purpose of this research is to find out the Psychological impact (Anxiety, Stress, and Depression) of COVID-19 amongst two demographic regions (Delhi and Himachal Pradesh). The data was collected from May 5, 2020 to May 25, 2020 in Delhi and Himachal Pradesh. The data was collected through random sampling from 400 respondents with the ratio of 1:3 of Himachal Pradesh and Delhi 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 two experts specialized in the area of Psychology and Textiles. The level of anxiety, depression, and, stress was measured by the scale, ADSS-BSPSA developed 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 Delhi and Himachal Pradesh during COVID-19.

Keywords: *Anxiety, Depression, Stress, COVID-19, Himachal Pradesh, and Delhi*

The novel coronavirus disease that surfaced at the end of 2019 began seriously impacting the health and survival of millions of people after a few weeks. Extremely contagious with the likelihood of causing acute respiratory disease, it has rapidly affected public health systems and governments. These have responded by announcing a public health emergency of national and international concern, as well as by undertaking certain preventive measures to stop the contagion and control the outbreak. Millions of lives have been seriously amended, and a worldwide, multi-level, and challenging stress-coping-adjustment process is in progress. The COVID-19 disease has now attained pandemic status. The World Health Organization has provided guidelines for coping with the problem from both biomedical and psychological aspects. The outbreak was first reported in Wuhan, Hubei Province, China in December 2019. As of this writing, it has now been confirmed on

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six continents and in more than 100 countries. As the world's health systems are in action studying, managing, and preventing infections in people, new information is released on a daily basis. 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.

India reported around 49,000 cases of the coronavirus as of May 5, 2020 out of which Delhi and Himachal Pradesh reported around 5100 and 45 cases of coronavirus respectively. The number of people infected with the virus was growing across the south Asian country and the government had swung into action to curtail further spread of the outbreak. The Indian government has taken several measures to control the spread of the virus in the country such as Nation-wide lock-down, welfare package for the poor, travel restrictions, necessary drug availability, screening and testing at airports, and planned evacuation from other affected countries. 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. In terms of the mental health of the public, the major psychological impact to date is enhanced rates of stress or anxiety. 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 behavior are also expected to increase. 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). 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 (Delhi and Himachal Pradesh).*
2. To find the overall level of anxiety, depression, and stress.
3. To find the effect of Region (Delhi and Himachal 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.

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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 Delhi and Himachal Pradesh, it was chosen as per our feasibility. The sample consisted of 400 people which comprise 100 from Himachal Pradesh and 300 from Delhi (including NCR). 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 May 5, 2020 - May 25, 2020. The sample consisted of 400 people which comprise 100 from Himachal Pradesh and 300 from Delhi (including NCR). 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

State/city

Gender

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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 Himachal Pradesh and Delhi, 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 (Delhi and Himachal 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	0.688081188	1	
Stress scale	0.733915305	0.796596382	1

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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	1.75575245	0.079130687	1.959963985	-1.959963985	FALSE
Gender	-4.05243218	0.000050688	1.959963985	-1.959963985	TRUE
Age group	15.6624333	0	1.959963985	-1.959963985	TRUE
Employment status	15.3525772	0	1.959963985	-1.959963985	TRUE
Household income	31.7402372	0	1.959963985	-1.959963985	TRUE
Marital status	-0.08167144	0.93490799	1.959963985	-1.959963985	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	-3.209171015	0.00133118	1.959963985	-1.959963985	TRUE
GENDER	-8.075589454	0.00000000	1.959963985	-1.959963985	TRUE
AGE GROUP	11.02489313	0	1.959963985	-1.959963985	TRUE
EMPLOYMENT STATUS	11.54888034	0	1.959963985	-1.959963985	TRUE
HOUSEHOLD INCOME	28.27840744	0	1.959963985	-1.959963985	TRUE
MARITAL STATUS	-4.001192352	0.00006302	1.959963985	-1.959963985	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	-4.113980657	0.00003889	1.959963985	-1.959963985	True
Gender	-8.891921337	0	1.959963985	-1.959963985	True
Age group	10.23456249	0	1.959963985	-1.959963985	True
Employment status	10.87740635	0	1.959963985	-1.959963985	True
Household income	27.68960852	0	1.959963985	-1.959963985	True
Marital status	-4.758385374	0.000001951	1.959963985	-1.959963985	True

**significant at 0.05 level*

Table 5 Showing frequency and percentage distribution of state wrt anxiety

State/ scale	Delhi (n=300) Frequency (%)	Himachal (n=100) Frequency (%)
No Anxiety	168 (56%)	54 (54%)
Mild Anxiety	67 (22%)	40 (40%)
Moderate Anxiety	50 (17%)	4 (4%)
Severe Anxiety	15 (5%)	2 (2%)

Table 6 Showing frequency and percentage distribution of state wrt depression

State/ Scale	Delhi (N=300) Frequency (%)	Himachal (N=100) Frequency (%)
No Depression	136 (45%)	53 (53%)
Mild Depression	67 (22%)	28 (28%)
Moderate Depression	56 (19%)	14 (14%)
Severe Depression	41 (14%)	5 (5%)

Table 7 Showing frequency and percentage distribution of state wrt stress

State/ Scale	Delhi (N=300) Frequency (%)	Himachal (N=100) Frequency (%)
No Stress	135 (45%)	44 (44%)
Mild Stress	68 (23%)	31 (31%)
Moderate Stress	50 (17%)	20 (20%)
Severe Stress	47 (16%)	5 (5%)

DISCUSSION

The main objective of the study was to analyze the psychological impact of Pandemic (COVID-19) in two demographic regions (Delhi and Himachal 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 0.68 between anxiety and depression, 0.73 between anxiety and stress, and 0.79 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, findings suggest that out of 300 respondents (Delhi), 132 (44 percent) have anxiety symptoms, among them 67 (22 percent) have Mild, 50 (17 percent) Moderate, and

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15 (5 percent) Severe. While out of 100 respondents (Himachal Pradesh), 46 (46 percent) have anxiety symptoms, among them 40 (40 percent) have Mild, 4 (4 percent) Moderate, and 2 (2 percent) have Severe level of anxiety.

In Table 6, findings suggest that out of 300 respondents (Delhi), 164 (55 percent) show symptoms of depression, among them 67 (22 percent) have Mild, 56 (19 percent) Moderate, and 41 (14 percent) Severe. While out of 100 respondents (Himachal Pradesh), 47 (47 percent) have symptoms of depression, among them 28 (28 percent) have Mild, 14 (14 percent) Moderate, and 5 (5 percent) have Severe level of depression.

In Table 7, findings suggest that out of 300 respondents (Delhi), 165 (55 percent) have stress symptoms, among them 68 (23 percent) have Mild, 50 (17 percent) Moderate, and 47 (16 percent) Severe. While out of 100 respondents (Himachal Pradesh), 56 (56 percent) have stress symptoms, among them 31 (31 percent) have Mild, 20 (20 percent) Moderate, and 5 (5 percent) have Severe level of stress.

Based on our findings we can say that Himachal Pradesh has higher levels of anxiety and stress in comparison with Delhi. Whereas in the case of depression, Delhi has a higher level in comparison with Himachal Pradesh.

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.

Findings suggest that out of 300 respondents (Delhi), 132 (44 percent) have anxiety symptoms, among them 67 (22 percent) have Mild, 50 (17 percent) Moderate, and 15 (5 percent) Severe. While out of 100 respondents (Himachal Pradesh), 46 (46 percent) have anxiety symptoms, among them 40 (40 percent) have Mild, 4 (4 percent) Moderate, and 2 (2 percent) have Severe level of anxiety. Out of 300 respondents (Delhi), 164 (55 percent) show symptoms of depression, among them 67 (22 percent) have Mild, 56 (19 percent) Moderate, and 41 (14 percent) Severe. While out of 100 respondents (Himachal Pradesh), 47 (47 percent) have symptoms of depression, among them 28 (28 percent) have Mild, 14 (14 percent) Moderate, and 5 (5 percent) have Severe level of depression.

Out of 300 respondents (Delhi), 165 (55 percent) have stress symptoms, among them 68 (23 percent) have Mild, 50 (17 percent) Moderate, and 47 (16 percent) Severe. While out of 100 respondents (Himachal Pradesh), 56 (56 percent) have stress symptoms, among them 31 (31 percent) have Mild, 20 (20 percent) Moderate, and 5 (5 percent) have Severe level of stress. Based on our findings we can say that Himachal Pradesh has relatively higher levels of anxiety and stress in comparison with Delhi, though the difference is a minor one. Whereas in the case of depression, Delhi has a higher level in comparison with Himachal Pradesh.

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 Delhi. The intensity of

psychological disorders is alarmingly high, which is a matter of serious concern and requires immediate attention.

Suggestions

In present circumstances anxiety, depression, and stress have become quite common. Active steps at the personal and central level are necessary to tackle this situation. The government should come forward to provide a platform for NGOs and essential service providers. COVID-19 has hampered our lifestyles in various ways, but we must learn to adapt and act accordingly. Following the lockdown regulations and attentively taking care of overall hygiene. Physical activities, yoga, meditation, and acquiring a new hobby during this time can be extremely productive as well as refreshing.

We all should join hands to help ourselves endure times like these. Proper sleep cycle and diet can surely help minimize the mental damage caused by the deadly virus. A daily to-do list and productivity challenges can also help divert the mind and engross it more into self-care. Further studies are needed to explore the attitude of students, working-class, and essential workers towards these issues on a large scale.

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Conflict of Interest

The author declared no conflict of interest.

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