Comparative Study of Stress Response to COVID-19 and Coping in Patients of Depression and Anxiety Disorder

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Abstract

Objective: Seeing the fatality of the COVID-19 pandemic, stress response is quite expected in the general population and in psychiatric patients. Although studies regarding the same have been done on the general population, not many studies are available on patients having psychiatric illnesses. This study aimed to assess the stress response to COVID-19 and coping in patients with depression and anxiety and compare it with healthy controls.

Methods: About 41 patients suffering from anxiety and depression and 41 age and gender-matched healthy controls aged 18 to 60 years were included in the study. HAM-D was used to rate depression and HAM-A for anxiety. COVID stress scale and fear of COVID-19 scale were used to assess COVID stress. Cope inventory CARVER (Hindi translated version) was used to see how people responded to COVID stress.

Results: Fear of COVID-19 and COVID stress scale scores were significantly higher in the anxiety group than in the control group. Also, adaptive coping, including the use of instrumental social support, positive reinterpretation and growth, restraint, suppression of competing activities, active coping, acceptance, planning, use of emotional and social support, and humor, was used more by healthy controls. Patients suffering from depression used significantly more denial than the other two groups. Those suffering from anxiety used more focus on venting emotion and behavioral disengagement than the other two groups.

Conclusion: COVID stress was more common among those suffering from anxiety. Adaptive coping was used more by the healthy control group.

INTRODUCTION

On 30th January 2020, WHO declared an outbreak of COVID-19 in China to be a Public Health Emergency of International Concern, posing a high risk to countries with vulnerable health systems. This outbreak was triggered in December 2019 in Wuhan city, China and soon it took the whole world into its clutches.

The previous pandemics are instructive of their mental health impact. For example, a study with 285 patients with SARS and 2850 controls without SARS inferred that the SARS cohort was associated with depression, anxiety, post-traumatic stress disorder, acute stress disorder (PTSD/ASD), sleep disorders and

suicide.[1] Similarly, during the coronavirus pandemic, due to extensive reporting and media coverage on the symptoms, nature and mortality rate of COVID-19, it was anticipated that the unpredictability of the spread and virulence of the virus would have additional mental health impact.[2,3] The pressures related to personal finances during the lockdown were also a matter of concern. Levels of loneliness, depression, anxiety, perceived stress, internet use, harmful alcohol and drug use, and self-harm or suicidal behavior were expected to rise.[4]

Coping strategies used by individuals differ from person to person depending on their personality factors, mood states, underlying psychopathology, if any, etc.

A study by Gordon JG Asmundson, which was a comparative study on patients suffering from anxiety, depression and healthy adults, revealed that the anxiety-related disorders group exhibited higher COVID stress scale total scores. Between groups, there were no significant variations in how well coping mechanisms were perceived to work.[5] During the COVID-19 epidemic, Nilamadhab Kar ran an online poll to gauge stress, anxiety, depression, and coping mechanisms. A sizeable portion experienced moderate to severe anxiety (21.2%) and depression (15%). About 34.1% of people reported having stress symptoms that were greater than the PC-PTSD-5 cut-off point of three and suggestive of probable PTSD. Students, people in their 20s to 30s, unmarried, and those with university education were more likely to experience mental health issues. Although considerable percentages of healthcare workers displayed signs of stress (21.4%), anxiety (5.6%), and depression (5.6%), these rates were noticeably lower than those of other professions. Respondents who avoided thinking about the pandemic or appeared unclear of coping mechanisms as well as those who struggled to deal had much higher levels of anxiety and depression.[6]

In a study to assess the impact of coping behaviors, resilience, and social support on students' emotional and social isolation during the COVID-19 pandemic, "consultation and seeking and psychological outcomes in students."[7] Wishful thinking was linked to increased levels of stress in a study to measure perceived stress and coping in university students in Hungary during COVID 19, whereas being a goal-oriented person had the opposite effect. Cognitive restructuring as a coping technique was linked to lower levels of stress and anxiety among domestic students.[7] The majority of 146 students from a high school in US who participated in a study on adolescents coping with pandemic-related psychological discomfort reported having concerns about the COVID-19 virus and overall emotional anguish.[8] A non-resilient personality prototype predicted higher levels of sadness and anxiety, according to an online poll of Indian healthcare employees to assess perceived stress and coping.[9]

Studies comparing the stress response to the COVID pandemic in patients suffering from psychiatric illnesses as compared to healthy controls and the coping mechanisms they used to tackle the situation were lacking, especially in India. Hence, we conducted a cross-sectional observational study with the aim of studying stress response to COVID-19 and coping in patients of depression and anxiety and comparing the stress response to COVID-19 and coping of the above patients with healthy controls.

Materials And Methods

The study was conducted in the Psychiatry Department of a tertiary care hospital in North India between Sept 2021- August 2022. It is a cross-sectional, observational study approved by the Institutional Ethics Committee (Reg no. ECR/262/Inst/UP/2013RR-19), letter no. 100/ethics/2021 dated 12/08/21. All symptomatic patients of depression and anxiety disorders and accompanying non-biological attendants attending adult Psychiatry OPD and emergency on specified OPD days are screened on the selection criteria for the study.

The sample size was calculated by formula $Z_{1-\alpha/2}^2$ p (1-p)/d^2. Keeping proportion of 30% reference study number-(6); p = 0.3; (1-p) = 0.7. With a margin of error to be 10%: d = 0.1. A sample size of 123 was obtained as per the formula (41 in each group). Selection criteria for the patients were to include patients diagnosed with depression (F 32.1, 32.2, 33.1,33.2) with HAM-D score ≥14 or diagnosed with anxiety disorders (F 41.0–41.9) with (HAM-A score >17) according to ICD-10 DCR aged 18 to 60 years willing to give informed consent. Any medical or surgical problem requiring

priority management, mental sub-normality, or any other psychiatric co-morbidity except nicotine dependence were excluded. The inclusion criteria for healthy controls was individuals aged 18 to 60 years who are willing to give Informed consent and GHQ-12 score < 3. Any medical or surgical problem requiring priority management, mental sub-normality assessed clinically and psychiatric illness other than nicotine dependence were excluded.

Patients suffering from depression and anxiety were assessed on the selection criteria for the study. Psychiatric co-morbidities were screened on the basis of clinical interviews. An assessment of socio-demographic and clinical profiles was done. HAM-D was used to rate depression and HAM-A for anxiety. Use of the COVID stress scale to ask about various kinds of worries that individuals might have experienced due to the COVID-19 virus. Fear of COVID-19 scale to assess fear due to COVID-19. Cope inventory CARVER (Hindi translated version) to see how people respond when they confront difficult or stressful events, which was taken as COVID-19.

Similarly, for healthy individuals accompanying patients, GHQ 12 was applied to rule out any psychological symptoms. Evaluation of semi-structured proforma to assess sociodemographic profile was done. COVID stress scale, fear of COVID-19 scale and Cope inventory were used.

All necessary COVID-19-related precautions were taken during the study and it was ensured that the participants and their guardians do not have any symptoms of the same.

Results

To check normalcy, skewness, Kurtosis, Number of Modes and Shapiro wilk test were used. Non-parametric test, including Kruskal Wallis for numerical data, Fischer's exact test and Chi-squared test, were used. The Dunn test method with Sidak correction was used for post hoc analysis. Spearman correlation was used for correlation analysis.

Sociodemographic Details

About 67 patients of depression, 61 of anxiety and 59 healthy controls were screened. Out of the total 187 individuals, 123 were fulfilled the inclusion criteria (41 in each group). The mean (SD) of age (Years) in the depression group was 35.63 (9.60), in the anxiety, group was 39.29 (7.49) and in the control group was 35.76 (9.81). 58.5% of the participants in the group depression, 34.1% of the participants in the group anxiety and 41.5% of the participants in the control group were male. 73.2% of the participants in the group had depression, 78.1% of the participants in the group had anxiety, 61.0% of the participants in the control group were married. 56.1% of the participants in the group had depression, 39.0% of participants in anxiety and 58.5% of the participants in the control group belonged to urban area. 90.2% of the participants in the group depression, 92.7% of the participants in the group anxiety and 85.4% of the participants in the control group were Hindus. 65.9 % in the depression group, 73.2 % in the anxiety group and 73.2% among the control group belonged to a nuclear family. There was no significant difference between the three groups in terms of distribution of age, gender, marital status, domicile, religion and type of family.

Clinical Details

About 53.7% patients suffering from depression had a duration of illness of <6 months, whereas 39.0% of patients suffering from anxiety had a duration of illness of more than 12 months. The mean difference between the two groups was significant (*p-value* 0.009). There was no significant difference between the various groups in terms of distribution of past history ($\chi2$ = 6.150, p = 0.106) and family history ($\chi2$ = 0.172, p = 1.000). Most patients suffering from depression had HAM-D scores in the range of severe (29.3%) and very severe (46.3%). The mean HAM-D score was 22.32 with a standard deviation of 4.47, and those suffering from anxiety disorders had HAM-A scores in the range of mild to moderate (39.0%) and moderate to severe (46.3%). The mean HAM-A score was 26.17 with a standard deviation of 4.95. There was no significant difference between the various groups in terms of distribution of past history of COVID positivity ($\chi2$ = 0.081, p = 0.960) or COVID-related death in family/relatives ($\chi2$ = 5.051, p = 0.080).

Discussion

The current study is a cross-sectional, non-interventional study done to study the stress response

to COVID-19 and coping in patients of depression and anxiety and to compare with healthy controls.

The results of our study indicate that individuals suffering from depression and anxiety experience higher levels of fear and stress related to COVID-19 compared to healthy controls. This is consistent with previous research that has shown a higher prevalence of mental health issues and increased stress levels during pandemics. The COVID-19 pandemic has brought about significant changes and uncertainties in various aspects of life, leading to heightened fear and stress among individuals.

The demographic profile of the study participants revealed some interesting findings. While the prevalence of depression was higher in males (58.5%), anxiety disorders were more common in females (65.9%), which aligns with the general patterns observed in the Indian population.[10] The higher prevalence of depression in males contradicts findings from other studies, suggesting that cultural factors and the specific sample population may play a role in these differences. The majority of individuals in all groups were married, with married individuals outnumbering the unmarried in our study.[11] This could be attributed to the stability and support provided by marriage in the Indian cultural context. However, there were no significant differences among the three groups in terms of demographic characteristics.

Regarding clinical variables, participants with depression had a shorter duration of illness, while those with anxiety disorders had a longer duration.[12] This is consistent with the episodic nature of depression and the fluctuating course of anxiety disorders. The age of onset was also different, with depression typically starting at a younger age, while anxiety disorders had a later onset. These findings align with existing literature on the age distribution of these disorders.[13,14]

The severity of depressive and anxiety symptoms measured by the HAM-D and HAM-A scales, respectively, indicated that the majority of participants in both groups had moderate to severe symptoms. This suggests that individuals seeking treatment tend to present with more severe symptoms that have not resolved on their own. However, there was no significant difference between the groups in terms of past history of COVID-19 infection or COVID-19-re-lated deaths in the family, which could be attributed to the study design limitations.

The Fear of COVID-19 scale revealed significant differences among the three groups (Table 1), with the anxiety group showing the highest fear levels, followed by the depression group and the healthy controls. This is in line with previous studies indicating that individuals with anxiety-related disorders experience more fear and anxiety related to COVID-19.[5] The higher fear levels in the mood disorder group compared to the healthy controls suggest that the underlying psychopathology contributes to heightened fear activation.

The COVID stress scale scores were significantly higher in both the depression and anxiety groups compared to the healthy controls (Table 2). This indicates that individuals with depression and anxiety experience higher levels of stress related to the COVID-19 pandemic. These findings are consistent with previous research that has shown increased stress levels during pandemics, especially among individuals with pre-existing mental health conditions.[11]

In the previous study by Gordon J. G. Asmundson, there was no significant difference between the coping strategies used by the individuals in the three groups of depression, anxiety, and healthy controls.[5] However, in our study, there was a significant difference in coping strategies used in the three groups in all domains of adaptive and maladaptive coping except substance use, in which there was no significant difference in the 3 groups (Table 3). Maladaptive coping strategies were used more by those suffering from anxiety or depression. This means that those suffering from anxiety and depression reduced their efforts to deal with the stressor, thus reflecting on their hopelessness.

In the depression group, there was a moderate positive correlation between denial (maladaptive coping) and fear of COVID-19. This coping style, which involves avoiding or denying problems, is emotion-focused and tends to worsen issues because problems eventually need to be confronted. Individuals with depression tend to withdraw from the world, experiencing inner sorrow, and often rely on self-distraction as their main coping strategy (Table 4).[15]

In the anxiety group, there was a negative correlation with the use of instrumental social support

and a moderate positive correlation with maladaptive coping, specifically behavioral disengagement. Instrumental support refers to seeking help, advice, or information to deal with a situation. However, individuals with anxiety tend to engage in behavioral disengagement, which means reducing their focus on dealing with the problem and instead continuously worrying about it, thus exacerbating the situation. This finding aligns with previous studies that have observed avoidance as a commonly used coping strategy among individuals with anxiety when facing stressors.[16]

Overall, individuals with depression tend to use denial as a coping strategy,[17] individuals with anxiety may decrease their use of adaptive coping and resort to more negative coping mechanisms, and healthy individuals predominantly employ adaptive coping strategies to deal with COVID-related stress (Table 5).

Our study provides insights into the stress response to COVID-19 and coping mechanisms in patients with depression and anxiety disorders. The findings highlight the significant impact of the pandemic on mental health and the importance of addressing the specific needs of individuals with these conditions. Understanding the stressors and coping strategies can help inform interventions and support systems to mitigate the negative mental health effects of the pandemic. Further research is needed to explore the long-term impact and evaluate the effectiveness of interventions in this population.

Table 1 there was a significant difference between the three groups in terms of the fear of COVID-19 Scale ($\chi2$ = 11.629, *p* = 0.003). The post hoc test

Table 1: Comparison of the 3 subgroups in terms of fear of COVID-19 Scale (n = 123)

Fear of COVID-19 scale range 7–35	*Diagnosis*			*Kruskal Wallis test*	
	Depression (N = 41)	*Anxiety (N = 41)*	*Control (N = 41)*	*χ2*	*p-value*
Mean (SD)	14.95 (6.78)	18.15 (5.99)	13.34 (7.32)	11.629	0.003*

Table 2: Comparison of means of the 3 groups of depression, anxiety and healthy controls in terms of COVID stress scale (n = 123)

	Diagnosis			*Kruskal Wallis test*		*Post hoc*		
	Depression (N = 41)	*Anxiety (N = 41)*	*Control (N = 41)*	*χ2*	*p-value*	*Anxiety-control*	*Anxiety - depression*	*Control - depression*
COVID stress scale: Danger mean (SD)	7.10 (4.51)	9.27 (3.94)	7.29 (4.70)	7.030	0.030*	0.058	0.070	1.000
COVID stress scale: Socioeconomic consequences mean (SD)	5.59 (5.19)	7.37 (3.40)	4.80 (5.00)	12.273	0.002*	0.002*	0.040*	0.741
COVID stress scale: Xenophobia mean (SD)	7.12 (5.03)	8.93 (4.58)	6.02 (5.69)	10.051	0.007*	0.005*	0.231	0.388
COVID stress scale: Contamination mean (SD)	6.22 (3.86)	7.73 (3.74)	5.34 (4.69)	12.454	0.002*	0.001*	0.162	0.281
COVID stresss scale: Traumatic stress mean (SD)	3.71 (3.41)	6.10 (4.59)	4.07 (4.16)	6.812	0.033*	0.093	0.054	0.995
COVID stress scale: Compulsive checking mean (SD)	5.49 (3.63)	8.68 (4.33)	6.80 (5.30)	11.599	0.003*	0.054	0.003*	0.719
COVID stress scale: Total mean (SD)	35.22 (21.15)	48.07 (18.59)	34.34 (26.06)	14.250	0.001*	<0.001*	0.018*	0.774

Table 3A: Comparison of mean scores of different dimensions of cope inventory (Adaptive) in the 3 groups of depression, anxiety and healthy controls

COPE adaptive	Diagnosis			Kruskal Wallis test		Post hoc (adjusted p value)		
	Depression (N = 41)	Anxiety (N = 41)	Control (N = 41)	χ2	p-value	Anxiety - control	Anxiety - depression	Control - depression
Use of instrumental social support	9.15 (1.77)	10.51 (2.10)	11.73 (1.52)	34.413	<0.001*	0.007*	0.015*	<0.001*
Religious coping	10.27 (2.15)	12.37 (2.03)	12.07 (2.25)	18.657	<0.001*	0.842	<0.001*	0.003*
Positive reinterpretation and growth	9.20 (1.65)	10.98 (1.71)	11.63 (2.21)	31.187	<0.001*	0.497	<0.001*	<0.001*
Restraint	9.49 (1.72)	9.39 (1.69)	11.93 (1.54)	41.442	<0.001*	<0.001*	0.965	<0.001*
Suppression of competing activities	8.68 (1.56)	10.24 (1.76)	11.76 (2.00)	43.943	<0.001*	0.003*	0.002*	<0.001*
Active coping	10.41 (1.95)	10.07 (1.66)	11.49 (1.87)	11.784	0.003*	0.003*	0.735	0.048*
Acceptance	9.51 (2.57)	9.80 (2.42)	11.78 (1.62)	23.008	<0.001*	<0.001*	0.998	<0.001*
Planning	9.49 (1.75)	10.54 (1.69)	12.39 (1.83)	38.560	<0.001*	<0.001*	0.069	<0.001*
Use of emotional social support	9.90 (3.55)	11.44 (1.80)	11.73 (2.12)	10.679	0.005*	0.933	0.034*	0.007*
Humor	6.17 (2.04)	6.15 (1.61)	7.88 (2.93)	11.188	0.004	0.012	1.000	0.010*

Table 3B: Comparison of mean scores of different dimensions of cope inventory (maladaptive) in the 3 groups of depression, anxiety and healthy controls

COPE maladaptive	Diagnosis			Kruskal Wallis test		Post hoc		
	Depression	Anxiety	Control	χ2	p-value	Anxiety - Control	Anxiety - depression	Control-depression
Mental disengagement	9.76 (2.22)	8.56 (2.41)	8.20 (1.60)	10.371	0.006	0.673	0.094	0.005*
Focus on venting of emotion	9.44 (2.01)	11.95 (1.82)	9.37 (1.95)	34.626	<0.001	<0.001*	<0.001*	0.994
Behavioural disengagement	7.00 (1.73)	7.37 (2.81)	5.80 (1.40)	11.176	0.004	0.015*	0.997	0.009*
Denial	9.68 (2.51)	8.51 (1.85)	6.59 (1.52)	38.522	<0.001	<0.001*	0.214	<0.001*
Substance	5.05 (2.68)	5.29 (2.65)	4.27 (1.12)	3.677	0.159	0.158	0.785	0.631

Table 4A: Corelation in different domains of COPE inventory (Adaptive) with fear of COVID-19 in all the 3 groups

COPE adaptive	Fear of COVID-19		
	Depression	Anxiety	Control
Use of instrumental social support	rho = 0.22, p = 0.161	rho = -0.57, p = <0.001*	rho = -0.08, p = 0.610
Religious coping	rho = 0.29, p = 0.069	rho = -0.16, p = 0.333	rho = -0.03, p = 0.872
Positive reinterpretation and growth	rho = -0.09, p = 0.579	rho = 0.17, p = 0.291	rho = -0.16, p = 0.329
Restraint	rho = 0.14, p = 0.374	rho = 0.23, p = 0.152	rho = -0.19, p = 0.241
Suppression of competing activities	rho = 0.05, p = 0.758	rho = 0.01, p = 0.958	rho = -0.27, p = 0.089
Active coping	rho = 0.29, p = 0.069	rho = -0.3, p = 0.054	rho = 0.02, p = 0.923
Acceptance	rho = 0.12, p = 0.444	rho = -0.22, p = 0.158	rho = -0.08, p = 0.628
Planning	rho = 0.02, p = 0.912	rho = -0.07, p = 0.657	rho = 0.35, p = 0.025*
Use of emotional social support	rho = 0.11, p = 0.485	rho = 0.23, p = 0.152	rho = 0.11, p = 0.485
Humor	rho = -0.3, p = 0.054	rho = -0.21, p = 0.181	rho = -0.5, p = <0.001*

Table 4B: Corelation in different domains of COPE inventory (maladaptive) with fear of COVID-19 in all the 3 groups

	Fear of COVID-19		
COPE maladaptive	*Depression*	*Anxiety*	*Control*
Mental disengagement	rho = 0.28, *p* = 0.075	rho = 0.25, *p* = 0.110	rho = -0.07, *p* = 0.662
Focus on venting of emotion	rho = 0.11, *p* = 0.486	rho = 0.13, *p* = 0.420	rho = 0.3, *p* = 0.055
Behavioural disengagement	rho = -0.16, *p* = 0.311	rho = 0.41, *p* = 0.008*	rho = -0.16, *p* = 0.315
Denial	rho = 0.45, *p* = 0.003*	rho = 0.28, *p* = 0.075	rho = -0.05, *p* = 0.747
Substance	rho = 0.09, *p* = 0.570	rho = -0.13, *p* = 0.406	rho = 0.03, *p* = 0.867

Table 5A: Corelation in different domains of COPE inventory (Adaptive) in depression, anxiety and control with COVID stress scale total score

COPE adaptive	*COVID stress scale: Total (depression)*	*COVID stress scale: Total (anxiety)*	*COVID stress scale: Total (control)*
Use of instrumental social support	rho = 0.16, *p* = 0.321	r = -0.36, *p* = 0.022*	rho = -0.03, *p* = 0.872
Religious coping	rho = 0.27, *p* = 0.085	rho = 0.26, *p* = 0.107	rho = 0.03, *p* = 0.835
Positive reinterpretation and growth	rho = -0.14, *p* = 0.376	rho = 0.22, *p* = 0.173	rho = 0.16, *p* = 0.305
Restraint	rho = 0.04, *p* = 0.801	rho = 0.05, *p* = 0.765	rho = -0.21, *p* = 0.196
Suppression of competing activities	rho = 0.07, *p* = 0.676	rho = 0.17, *p* = 0.292	rho = -0.26, *p* = 0.105
Active coping	rho = 0.26, *p* = 0.107	rho = 0.26, *p* = 0.107	rho = -0.39, *p* = 0.011*
Acceptance	rho = 0.08, *p* = 0.605	rho = -0.15, *p* = 0.338	rho = -0.1, *p* = 0.550
Planning	rho = -0.03, *p* = 0.832	rho = -0.17, *p* = 0.292	rho = 0.31, *p* = 0.047*
Use of emotional social support	rho = 0.27, *p* = 0.085	rho = 0.37, *p* = 0.016*	rho = 0.26, *p* = 0.095
Humor	rho = 0.27, *p* = 0.085	rho = -0.17, *p* = 0.290	rho = -0.39, *p* = 0.011*

Table 5B: Corelation in different domains of COPE inventory (maladaptive) in depression, anxiety and control with COVID stress scale total score

COPE maladaptive	*COVID stress scale: Total (depression)*	*COVID stress scale: Total (anxiety)*	*COVID stress scale: Total (control)*
Mental disengagement	rho = -0.27, *p* = 0.091	rho = 0.22, *p* = 0.164	rho = -0.03, *p* = 0.876
Focus on venting of emotion	rho = 0.09, *p* = 0.558	rho = 0.32, *p* = 0.039*	rho = 0.35, *p* = 0.026*
Behavioural disengagement	rho = -0.1, *p* = 0.553	rho = 0.56, *p* = <0.001*	rho = -0.06, *p* = 0.692
Denial	rho = 0.49, *p* = 0.001*	rho = 0.48, *p* = 0.002*	rho = -0.11, *p* = 0.504
Substance	rho = 0.04, *p* = 0.796	rho = -0.14, *p* = 0.376	rho = -0.01, *p* = 0.956

revealed that there was a significant difference of fear of COVID-19 among groups anxiety and control (Adjusted *p* 0.002). Fear of COVID-19 being highest in the anxiety group.

Table 2 post hoc test reveals significantly more COVID stress scale total scores and in subscales of socioeconomic consequences, xenophobia and contamination in the anxiety group than the control group. There was significantly more socioeconomic scale score and, compulsive checking score and total score in the anxiety group than the depression group.

Strengths and Limitations of the Study

The study utilized a range of standardized scales to assess fear of COVID-19, COVID stress, coping strategies, and mental health symptoms, providing a comprehensive understanding of the psycho-

logical impact of the pandemic. The study design, sample selection criteria, and statistical analyses are well-described, enhancing the transparency and reproducibility of the research. By comparing individuals with depression and anxiety to healthy controls, the study highlights the unique stressors and coping mechanisms associated with mental health disorders during the pandemic. The findings have practical implications for clinicians and mental health professionals, informing interventions tailored to the specific needs of individuals with depression and anxiety.

However, the study acknowledges the limitation of a small sample size, which may affect the generalizability of the findings and limit the statistical power of the analyses. Larger sample sizes would enhance the reliability and validity of the results. Participants were recruited from a tertiary care hospital in North India, which may not represent the broader population. Additionally, individuals with more severe symptoms may be more likely to seek treatment at such facilities, potentially skewing the results. COVID stress must be more during the peak of COVID waves, however, during peaks, a smaller number of patients could be recruited due to due to COVID-19 protocols within the country. The cross-sectional nature of the study limits causal inference and longitudinal assessment of the impact of COVID-19 on mental health. Longitudinal studies would provide valuable insights into the trajectory of psychological symptoms over time. The study acknowledges the limitations of the scales used, including the lack of pre-defined interpretations and potential biases in self-report measures. Additionally, the exclusion criteria based on specific cut-off scores may restrict the generalizability of the findings to individuals with milder symptoms. While the study identifies associations between coping strategies and mental health outcomes, causal relationships are difficult to establish. Factors such as personality traits, social support, and environmental stressors may confound the observed relationships.

Conclusion

Participants who were suffering from anxiety had significantly more fear of COVID-19 than the control group. No such comparison was found to be signifi-

cant in depression and anxiety group. COVID stress scale scores were significantly higher in those suffering from anxiety than controls. There was no significant difference in the COVID stress experienced by those suffering from depression as compared to healthy controls. These findings suggest that there is high fear activation in individuals suffering from anxiety, possibly due to their underlying psychopathology.

Those suffering from anxiety and depression used significantly less of adaptive coping styles. When anxiety and depression groups were compared, those suffering from depression significantly used less of adaptive coping than the anxiety group. These findings suggest that those with depression and anxiety were less likely to use adaptive coping due to their underlying psychopathology.

Fear of COVID-19 was not associated with adaptive coping and or maladaptive coping in both the diagnosis group. Those suffering from anxiety start to use behavioral disengagement as coping in order to escape the situation. This also points out that it is not the fear of COVID rather the psychopathology that leads to faulty cognition.

When the patients suffering from depression faced COVID-19 stress, they used denial to deal with stress. There was no significant correlation with adaptive coping strategies in this group. With the increasing stress of COVID-19, patients suffering from anxiety decreased the use of adaptive coping. With increasing COVID stress, they rather used more maladaptive coping.

Healthy controls with increasing COVID stress use of humor and active coping decreased. This must be because of the fact that during COVID-19 times and lockdown, there was not much to actively cope with the situation rather, people were at home and sought emotional support from friends and relatives. Further among the maladaptive coping, venting of emotions was positively correlated with the COVID stress in the healthy controls.

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