Investigating the Association Between Stress Levels and Mental Health Among Covid-19 Infected Hospitalised Males in Himachal Pradesh

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ABSTRACT

This study investigates the association between stress levels and mental health among COVID-19 infected hospitalised male patients in Himachal Pradesh. Utilizing a linear regression model, the study examines whether elevated stress levels are significantly linked to diminished mental health outcomes. To ensure sample diversity, data were collected from 100 hospitalised male patients across five districts: Lahaul-Spiti, Kullu, Mandi, Una, and Shimla. Statistical analysis revealed a significant negative correlation, indicating that higher stress levels were associated with poorer mental health, which in turn deteriorated the psychological health status of this population. These findings underscore the importance of integrating psychosocial support into clinical care, particularly during public health crises such as the COVID-19 pandemic.

Keywords: COVID-19, Stress, Mental Health, Psychological Well-being, Hospitalised Males, Himachal Pradesh.

INTRODUCTION

Health is an overall construct that transcends physical robustness, encompassing mental, emotional, and social well-being. It reflects a state of internal balance, where individuals can manage challenges, maintain resilience, and engage meaningfully with life. Mental health, in particular, forms the core of this balance, impacting not only how individuals think and feel but also how they respond to stress and relate to others. The interplay between mental and physical health is bidirectional. While physical illness can impair psychological well-being, prolonged psychological stress can also weaken the immune system and elevate the risk of chronic conditions. Mental wellness is therefore integral to overall health, enabling individuals to navigate social roles, perform daily tasks, and face adversity with a stable outlook.

In recent decades, stress has emerged as a pervasive concern in both public health and academic discourse. It is frequently associated with emotional exhaustion, cognitive disruptions, and somatic symptoms. Defined broadly, stress refers to a state of mental or emotional strain resulting from demanding or threatening circumstances. It can manifest as a reaction to both acute life events and sustained pressures, triggering behavioural, psychological, and physiological changes. Theoretical frameworks by Selye (1956), Lazarus (1966, 1975), and Appley and Trumbull (1967) have shaped our understanding of stress. These scholars emphasized that stress is not merely an external stimulus, but a subjective experience shaped by perception, coping ability, and cognitive appraisal. Lazarus, in particular, described stress as the perceived discrepancy between environmental demands and an individual's ability to cope. The outbreak of the COVID-19 pandemic created a global atmosphere of uncertainty and fear. Beyond the physical health implications, the pandemic introduced profound psychological distress due to factors such as isolation, fear of contagion, loss of loved ones, and disruption of social routines (Lu et al., 2020; Ahmed et al., 2020). Hospitalised patients, in particular, faced heightened vulnerability, not only from the virus itself but also from prolonged confinement, separation from family, and constant exposure to medical procedures. Numerous studies have reported increases in symptoms of anxiety, depression, and post-traumatic stress among individuals affected by the pandemic. The emotional toll of social isolation, along with fears of mortality and uncertain recovery, intensified mental health challenges, especially among hospitalised COVID-

19 patients (Xiang et al., 2020). Early reports even linked severe distress during the pandemic to neurotic behaviours, underlining the urgent need for psychosocial support.

Psychological stress, when left unaddressed, can manifest in various mental health disorders, including insomnia, withdrawal, irritability, emotional numbness, and depressive episodes. These symptoms may appear immediately after trauma or develop gradually over time. In this context, understanding stress as a potential predictor of Mental Health becomes critically important. The present study aims to examine the extent to which COVID-19-related stress can serve as a predictor of mental health outcomes in hospitalised male patients. By focusing on a vulnerable population within Himachal Pradesh, this research seeks to provide insights that can inform future mental health strategies and pandemic preparedness frameworks.

Objective

- To assess the association between stress levels and mental health among Covid-19 infected hospitalised males in Himachal Pradesh.

Hypothesis

- There would be no significant predictive relationship between stress levels and mental health among Covid-19 infected hospitalised males in Himachal Pradesh.

METHODOLOGY AND DESIGN

The primary objective of this study was to examine the predictive influence of COVID-19 induced stress on the Mental Health of hospitalised males, diagnosed with COVID-19 across five districts of Himachal Pradesh namely; Lahaul-Spiti, Kullu, Mandi, Una, and Shimla. The research aimed to explore how psychological well-being was affected by the experience of infection within the distinct socio-geographical settings of these regions. A total of 100 male participants were included in the study, with an equal representation of 20 individuals from each district. Data collection was carried out using the snowball sampling technique, which enabled participant recruitment through community-based referrals, particularly effective given the sensitive and health-related context of the research.

To investigate the mental health of the participants, the Hindi version of the Mental Health Battery (MHB) developed by Arun Kumar Singh and Alpana Sen Gupta was administered. This instrument consists of 130 items. To measure stress levels, the Hindi adaptation of the Student Stress Scale (SSS) by Dr. Zaki Akhtar was employed. The scale comprises of 51 items designed to identify stress among individuals. The reliability of both instruments was confirmed through split-half and test-retest methods, with reliability coefficients exceeding 0.70, indicating strong consistency and suitability for statistical analysis, including linear regression. A total of 100 male participants were selected for the study. They completed both assessment tools, and the responses were analysed to determine the predictive relationship between stress and mental health outcomes.

Statistical Analysis, Findings and Results

The collected data were systematically analysed to identify significant trends and patterns across the selected districts. To examine the predictive relationship between stress levels and Mental Health of hospitalised Covid-19 infected males in Himachal Pradesh, a linear regression analysis was applied. In this model, stress was treated as an independent variable, while mental health served as dependent variable. The level of statistical significance was set at 0.01, ensuring a high threshold for determining meaningful associations.

Table 1: ANOVA TEST for Regression Predicting Mental Health from Stress Levels among Hospitalised Males

Model	**Sum of Squares**	**df**	**Mean Square**	**F**	**p-value**
Regression	3196.283	1	3196.283	336.29	0.00*

Residual	931.427	98	9.504		
Total	**4127.710**	99			

*Significant at 0.01 Level

Table 1 presents the results of an ANOVA test conducted to evaluate whether stress levels significantly predict mental health among hospitalised COVID-19 infected males. The analysis revealed that the regression model was highly statistically significant, $F(1, 98) = 336.29$, $p < 0.01$, indicating that stress is a significant predictor of mental health in this population.

Table 2: Model Summary for Regression Predicting Mental Health from Stress Levels among Hospitalised Males

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.880	0.774	0.772	3.082

Table 2 exhibits the model summary for the simple linear regression analysis conducted to predict mental health based on stress levels among hospitalised males. The analysis yielded a strong positive correlation **(**R = 0.880**),** and the R Square value of 0.774 indicates that 77.4% of the variance in mental health scores can be explained by stress levels. The adjusted $R^2 = 0.772$ accounts for the number of predictors in the model, showing minimal shrinkage, which supports the model's reliability. The standard error of the estimate (3.082) suggests a reasonably good fit, indicating that the predicted values are close to the actual observed values.

Table 3: Regression Coefficients for Predicting Mental Health from Stress Levels among Hospitalised Males

Model	Unstandardized Coefficients		Standardized Coefficients	t	p-value
	B	Std. Error	Beta		
(Constant)	133.821	3.318	--	40.327	0.00*
Stress	-0.321	0.018	-0.880	-18.338	0.00*

*Significant at 0.01 Level

Table 3 reveals the regression coefficients for predicting mental health from stress levels among hospitalised males. The unstandardized coefficient for stress ($B = -0.321$, $SE = 0.018$) indicates that for every one-unit increase in stress, mental health decreases by approximately 0.321 units, assuming all other factors remain constant. The t-value = -18.338 with $p < 0.01$ signifies that this effect is statistically significant.

Furthermore, the standardized coefficient (Beta = -0.880) suggests a strong negative relationship between stress and mental health. This implies that higher levels of stress are strongly associated with poorer mental health among the hospitalised male population.

CONCLUSION

The findings of the present study clearly demonstrate that stress levels significantly and negatively impacted the mental health of hospitalised COVID-19 infected males in Himachal Pradesh. The regression analysis revealed that stress is a strong predictor of mental health, explaining 77.4% of the variance in mental health scores. The strong negative correlation (R = 0.880) and statistically significant regression coefficients ($p < 0.01$) indicate that as stress increases, mental health deteriorates considerably which further effects psychological well-being.

Consequently, the null hypothesis i.e. "There would be no significant predictive relationship between stress levels and mental health among Covid-19 infected hospitalised males in Himachal Pradesh" stands **rejected**.

RECOMMENDATIONS

These results underscore the urgent necessity of integrating stress management strategies into the care pathways for COVID-19 patients to support better emotional and recovery outcomes.

1. Implementation of validated tools such as PSS-10 can be to identify at-risk patients early and enable timely psychological support. Early detection enables timely intervention and support.
2. Offering of cognitive-behavioural techniques, guided breathing, relaxation, and educational sessions. Such interventions can reduce anxiety and depressive symptoms effectively in clinical trials. Teaching of post-Covid-19 adaptive coping strategies and support psychological resilience through workshops or short interventions to mitigate stress-induced psychological symptoms.
3. Establish telehealth or telephone follow-up for mental health check-ins and psychoeducation to prevent relapses or delayed emotional distress. Further, allowing virtual visits or family support during isolation and objective support strongly buffers anxiety, depression, and insomnia in hospitalised patients.
4. Train nurses and doctors with skills in supportive communication, empathy, and early distress recognition to help alleviate patient's emotional burden during hospital stays.
5. Encouragement of peer-group sessions or debriefs for patients and staff to share experiences, build social connection, and reduce feelings of isolation. Mindfulness-based interventions and group support can prove effective.

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