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COVID-19 and Mental Health: A Retrospective study to assess the Effects of COVID 19 on Mental Wellbeing of Post COVID Patients using Global Mental Health Assessment Tool (GMHAT) in Madhya Pradesh, India

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ABSTRACT

Introduction

COVID-19 caused by the SARS-CoV-2 virus has shown its rapid progression across the globe. With the first case reported in December 2019, the pandemic witnessed an unprecedented escalation, leading to the World Health Organization declaring the outbreak a Public Health Emergency of International Concern in January 2020 and a Pandemic in March 2020. Soon the rage of the Pandemic brought the world to a grinding halt with nations including India declaring the biggest documented lockdowns in history.

Methods

A retrospective telephonic interview-based study was carried out for months. Data was collected from the SARTHAK Portal. Data coinciding with the peak of COVID-19 patients that was observed from 24th April 2021 was obtained. Respondents of 2 weeks prior the peak and 2 weeks after the peak were considered. The selected candidates were interviewed by JHPIEGO RISE (Reaching Impact, Saturation, and Epidemic Control) counselors.

Result

The Majority of patients of COVID-19 belong to the age group of 30-39 (23.25%). Patients belonging to urban areas (81.25%) were affected more as compared to rural areas (18.75%). Out of 400 patients, males (64.25%) constitute more positive cases as compared to females (35.75%).

Conclusion

As the coronavirus pandemic rapidly sweeps across the world, it induces a considerable degree of fear, worry and concern in the population at large and among certain groups in particular, such as older adults, care providers and people with underlying health conditions. As new measures and impacts are introduced – especially quarantine 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 rise.

Keywords: COVID-19, Mental health, Post-COVID patients, Global Mental Health Assessment Tool (GMHAT), Madhya Pradesh.

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INTRODUCTION

The COVID-19 virus, which is caused by the SARS-CoV-2 virus, is quickly spreading over the world. The pandemic saw an unusual escalation following the first case was recorded in December 2019, prompting the World Health Organization to declare the outbreak a Public Health Emergency of International Concern in January 2020 and a Pandemic in March 2020. [1] The pandemic soon brought the globe to a standstill, with countries like India imposing the largest known lockdowns in history. UNICEF in their report published on December 2020 titled "LIVING THE PANDEMIC AS A NEWBORN, ADOLESCENT AND YOUTH stated that "Flight cancellations, the avoidance of big gatherings, the required use of face masks in many countries, social isolation, teleworking, homeschooling of children, and health directives to stay at home were among the other measures. [2] Fear and worry spread over the world due to the unique nature of the COVID 19 Pandemic. Psychological symptoms, emotional disturbance, melancholy, stress, post-traumatic stress disorder (PTSD), and irritability have all been linked to large-scale epidemics, as observed in the SARS pandemic. Various stressors, such as fear of infection, longer quarantine periods, sadness, loneliness, lack of knowledge and monetary loss, have been shown in the literature to worsen poor mental health. [3]With worldwide COVID 19 infections nearing 38 million and infected population in India around 15 lakhs (as of 3 February 2022) [4], a similar evaluation of the psychological impacts of COVID'19 infection across geographies is urgently needed to provide appropriate steps for patient rehabilitation, if necessary. [5] Madhya Pradesh is one among the high-incidence states, with a population of over 8.74 crore (projected data from census 2011) people and 9.8 lakh positive cases (as of 3 February 2022) via Government of India COVID 19 portal.As a result, this research can shed light on the requirement of assistance for former COVID-19 patients. With a focus on COVID-19 patients, this study can evaluate the need for adopting comparable rehabilitation approaches. The study aims to assess the impact of COVID-19 on the mental health status of the COVID-positive patients and observe any correlation between the severity of the disease and post-COVID mental health status.

METHODOLOGY

A retrospective telephonic interview-based study was carried out over a period of 3 months. Data was collected from SARTHAK Portal, developed by MP government for compilation and updation of COVID data.. In our study, we defined the "peak" of COVID-19 cases as the date with the highest recorded number of daily confirmed cases, based on official data from Directorate of health Services, Madhya Pradesh. This peak was identified as occurring on 24th April 2021, which marked the maximum daily caseload observed during the second wave of the pandemic in our region. We chose to collect data from two weeks prior to and two weeks following this peak (i.e., from 10th April to 8th May 2021) to capture the trends immediately before and after the surge. This window was selected to ensure a balanced representation of the pre-peak escalation, the peak itself, and the immediate post-peak decline in patient numbers. By doing so, we aimed to analyse the clinical and demographic characteristics of patients during the most critical phase of the wave, providing insights into disease burden and healthcare response during a time of maximum pressure on the system. We believe this approach offers a focused yet comprehensive view of the pandemic's peak period. The selected candidates were interviewed telephonically by a team of counsellors supported by JHPIEGO organization under RISE (Reaching Impact, Saturation, and Epidemic Control) program. COVID-19 infected population, above 18 years of age, that had tested positive for the virus and then have been declared negative were included in the study.Data was collected using pre-designed and pre-tested Mental Health Assessment Tool- Global Mental Health Assessment Tool (GMHAT/PC) Hindi and English version through telephonic calls. The data was analyzed in MS Excel and represented in the form of percentages depicted through graphs and tables.

GMHAT/PC - The GMHAT/PC is a computerized clinical assessment instrument created by Cheshire & Wirral Partnership NHS Foundation Trust and Liverpool University, UK to assess and diagnose

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mental health disorders in primary care. The initial screen contains patient information as well as Programme management. [6] The evaluation software begins with basic instructions on how to use the instrument and grade the symptoms. The subsequent screens are made up of a sequence of questions that lead to a complete yet short mental state evaluation, concentrating on the following symptoms or disorders in order: Anxiety, worries; and panic attacks, mania/hypomania, concentration, sleep, including suicidal ideation; depressed mood, appetite, eating disorders; obsessions and compulsions, memory impairment, phobia, hypochondriasis, psychotic symptoms (delusions and hallucinations), disorientation, thought disorder, alcohol and drug abuse, personality issues. The tool offers a diagnosis at the conclusion of the interview and main computer diagnostic is based on a hierarchical model and is based on the ICD-10 code set. The diagnostic software considers the intensity of the symptoms (moderate to severe). It also comes up with other diagnoses depending on the presence of symptoms from different illnesses.

RESULTS

Table 1 depicts the distribution of COVID-19 positive patients based on type of isolation This table illustrates that both males and females were more frequently isolated at home (66.5% males, 33.5% females) compared to hospitals (62% males, 38% females). Overall, a majority of patients (64.25% males, 35.75% females) were managed at home, indicating a preference for home isolation.

Table 1: Distribution of COVID-19 positive patients based on type of isolation

Type of Isolation	No. of males (%)	No. of females (%)	Total
Home	133 (66.5)	67 (33.5)	200
Hospital	124 (62)	76 (38)	200
Total	257 (64.25)	143 (35.75)	400

Age wise distribution of the patients is depicted in **Table 2** where data shows that the age group 30-39 years had the highest percentage of COVID-19 cases (23.25%), followed by the age groups 40-49 and 50-59 years. Males were more affected across all age groups, except for the age group ≥70 years where females had a slightly higher percentage.

Table 2: Age wise distribution of patients

Age Group (years)	Male(%)	Female(%)	Total (%)
<20	11 (52.38)	10 (47.61)	21 (5.25)
20-29	45 (73.77)	16 (26.22)	61 (15.25)
30-39	60 (64.51)	33 (35.48)	93 (23.25)
40-49	55 (66.26)	28 (33.73)	83 (20.75)
50-59	46 (56.79)	35 (43.20)	81 (20.25)

60-69	28 (80)	7 (20)	35 (8.75)
≥70	12 (46.15)	14 (53.84)	26 (6.5)
Total (%)	257(64.25)	43(35.75)	400

Table 3 shows area wise distribution of patients where urban areas accounted for a higher percentage (81.25%) of COVID-19 cases compared to rural areas (18.75%). This indicates a higher prevalence of the disease in urban settings, possibly due to population density and mobility.

Table 3 : Area wise distribution of patients

Type of Isolation	Urban (%)	Rural (%)	Total (%)
Home	160 (80)	40 (20)	200
Hospital	165 (82.5)	35 (17.5)	200
Total	325 (81.25)	75 (18.75)	400

Anxiety scoring of patients based on type of isolation is depicted in **Table 4**. Most patients in both home (84%) and hospital (83%) settings reported no anxiety symptoms. A small percentage had mild anxiety (home: 14%, hospital: 17%). No severe anxiety symptoms were reported, suggesting moderate levels of psychological impact.

Table 4: Anxiety scoring of patients based on type of isolation

Type of Isolation	No Anxiety (0)	Mild (1-4)	Moderate (5-8)	Severe (>8)	Total
Home	168(84)	28 (14)	04 (2)	00	200
Hospital	166 (83)	34 (17)	00	00	200
Total	334 (83.5)	62 (15.5)	04 (1)	00	400

Depression scoring of patients based on type of isolation is depicted in **Table 5** where a majority of patients reported no depression symptoms, with mild depression reported by 12% of patients overall. Moderate and severe depression symptoms were rare (0.75% combined), indicating relatively low psychological distress among COVID-19 patients. Very few patients (6.75%) reported mild phobia symptoms, with no moderate or severe cases reported

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Table 5: Depression scoring of patients based on type of isolation

Type of Isolation	No Depression (0)	Mild (1-7)	Moderate (8-16)	Severe (>17)	Total
Home	177(88.5)	20 (10)	03 (1.5)	00	200
Hospital	172 (86)	28(14)	00	00	200
Total	349 (87.25)	48 (12)	03 (0.75)	00	400

This suggests that COVID-19 patients generally did not experience significant phobias related to their condition or isolation. **(Table 6).** Memory loss was more commonly reported among patients isolated at home (20.5%) compared to those in hospitals (10.5%).

Table 6: Phobia scale for patients based on type of isolation

Type of Isolation	No phobia (0)	Mild (1—3)	Moderate (4-6)	Severe (7-9)	Total
Home	185 (92.5)	15(7.5)	00	00	200
Hospital	188 (94)	12(6)	00	00	200
Total	373 (93.25)	27 (6.75)	00	00	400

This difference may reflect varying stress levels and environmental factors affecting cognitive function during isolation. **(Table 7).**

Table 7: Gender wise difference on scoring of memory loss based on type of isolation

Type of Isolation	No memory loss (0)	Mild (1-2)	Moderate (3-4)	Severe (5-6)	Total
Home	173(35.34)	26 (22.05)	01 (100)	00	200
Hospital	158 (28.70)	42 (42.64)	00	00	200
Total	331 (82.75)	68 (20.5)	01 (0.25)	00	400

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Most patients (84.25%) reported no loss of appetite, with mild to severe appetite loss reported by 11.5% and 4.25% of patients respectively. This indicates that while appetite disturbance was present in a minority, it was generally mild to moderate. **(Table 8)**

Table 8: Appetite scoring of patients based on type of isolation

Type of Isolation	Mild (0)	Moderate (1)	Severe (2)	Total
Home	167 (83.5)	26(13)	07 (3.5)	200
Hospital	170 (85)	20 (10)	10 (5)	200
Total	337 (84.25)	46 (11.5)	17 (4.25)	400

Discussion

In our study involving 400 COVID-19 positive patients, an equal distribution was made between home-isolated and hospitalized individuals (200 each). A similar methodological approach was seen in the study by Ju Y et al. in China, which analysed psychological distress among 95 patients, dividing them into centralized isolation (n=50) and home isolation (n=45). [6] Our study observed a male predominance, with 257 (64.25%) males and 143 (35.75%) females, where males were more commonly home-isolated while females were more frequently hospitalized. This aligns with Ju Y et al., who also found a higher proportion of males (53.7%) among COVID-positive individuals. [7] The gender disparity observed could be attributed to biological susceptibility, higher occupational exposure among working-age males, or differences in health-seeking behavior. Age-wise, the majority of COVID-19 cases in our study were in the 30–39 years age group (23.25%), reflecting the demographic actively engaged in work and social activities in India. This is supported by Jakhmola S et al., who found individuals aged 20–49 years to be the most commonly affected in the Indian population. [8] However, contrasting data from Hoffman C and Wolf E, which analyzed 20 European countries, the USA, and Canada, revealed that COVID-19 cases were more common in the population aged 70–75 years and above. [9] These differences emphasize the influence of demographic structure and social behaviour, with the Indian scenario marked by a younger population being more exposed due to occupational demands. Geographical analysis revealed that 81.25% of patients belonged to urban areas, showing a higher burden in cities. This is in line with the findings of Paul R et al. in the United States, where the proportion of counties with confirmed cases was higher in urban areas (0.79) than rural areas (0.03) [11] However, Mohanan M et al. found equal prevalence in urban and rural areas in Karnataka, India. [10] The urban predominance in our study may reflect higher testing availability, denser populations, and earlier exposure due to international and inter-city connectivity.Psychological impact assessments showed that 83.5% of patients exhibited no anxiety, 15.5% had mild anxiety, and 1% had moderate anxiety—with no cases of severe anxiety reported. Slightly higher anxiety was observed among hospitalized patients, potentially due to environmental unfamiliarity, absence of family, and the psychological toll of hospitalization. This is consistent with Ju Y et al., who reported that although centralized isolation helped limit spread to family members, it did not provide sufficient psychological support. [7] Uvais NA et al. also found that 94.2% of COVID-positive individuals had no anxiety, with only a minority presenting with mild or severe symptoms. [12]

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Regarding depression, 87.25% of our patients had no symptoms, 12% reported mild depression, and only 0.75% had moderate symptoms. No cases of severe depression were identified. Ezzelregal HG et al., using the Beck Depression Inventory in Egypt, similarly reported that 57.8% had no depression, while 23.5%, 15.7%, and 2.9% had mild, moderate, and severe depression respectively. [13] The relatively lower depression rates in our study may reflect the dominance of mild COVID cases and the buffering effect of family presence in home-isolated individuals.

Neurocognitive effects were also observed, with 20.75% of patients reporting mild to moderate memory loss. Soraas A et al. found that 82% of COVID-positive individuals who reported memory issues also experienced worsening of overall health, supporting the possibility of post-viral cognitive dysfunction in SARS-CoV-2 infections. [14] These findings emphasize the need for post-recovery follow-up and mental health support, especially for patients who continue to experience cognitive symptoms. Finally, 15.75% of our patients reported loss of appetite, mainly mild to moderate in severity. This is lower than the findings of Zeng Q et al., who reported appetite loss in 100% of their study population. [15] Differences may be attributed to disease severity, nutritional status, or study design variations. Our findings suggest that in mild to moderate COVID cases, appetite loss, though present, is not as universal. In synthesis, our findings highlight male predominance, age clustering in young adults, and urban dominance in COVID-19 distribution. While psychological impacts such as anxiety and depression were relatively low, especially in home-isolated cases, the neurocognitive and nutritional aspects call for integrated care. Comparisons with global literature suggest contextual differences, underscoring the need for localized strategies that address both medical and psychological needs of COVID-19 patients.

Conclusion

As the SARS-CoV-2 pandemic spreads around the world, it is causing widespread dread, anxiety, and concern among the community as well as specific groups such as geriatric folks, caregivers, and those with underlying health concerns. Loneliness, sadness, destructive drinking and drug use, and suicide or self-harm behavior are all likely to escalate when additional measures and affects are implemented, particularly quarantine and its implications on many people's customary activities, routines, or livelihoods. Health care professionals may help patients manage stress and cope (by organizing activities and sticking to routines), connect them to social and mental health resources, and advise them to seek professional mental health help if necessary. Contact with pandemic-related news should be monitored and minimized since media coverage can be emotionally distressing. Because parents sometimes underestimate their children's discomfort, honest dialogue about their responses and worries should be encouraged. Health system executives, first responders, and health care workers should get education and training on psychological difficulties. The mental health and emergency management communities should collaborate to find, produce, and promote evidence-based resources on disaster mental health, mental health triage and referral, unique populations' requirements, and death notification and bereavement care. Psychiatrists and psychologists can assist in the creation of messages for trustworthy leaders to deliver. In a broader sense, this study will point to the need for institutionalized processes and specialized organizations to respond quickly to the rehabilitation of persons who have been affected by such and similar Public Health Emergencies.

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