How to Cite:
Agarwal, A. K., Mahore, S. K., Mahore, R. K., Mahore, R., & Gupta, N. (2022). A study of the Mental health assessment among COVID 19 patients: A hospital based study. *International Journal of Health Sciences*, *6*(S3), 11150–11160. https://doi.org/10.53730/ijhs.v6nS3.8716

A study of the Mental health assessment among COVID 19 patients: A hospital based study

Dr. Anil K. Agarwal
Professor, Department of Community Medicine G R Medical College Gwalior

Dr. Surendra Kumar Mahore
Demonstrator Department of Microbiology Govt Bundelkhand Medical College Sagar

Dr. Rakesh Kumar Mahore
Assistant Professor Department of Community Medicine Govt Bundelkhand Medical College Sagar

Dr. Ramniwas Mahore*
Assistant Professor, Department of Community Medicine G R Medical College Gwalior
*Corresponding author email: drmahore@gmail.com

Dr. Nishant Gupta
MD STD, Department of Community Medicine G R Medical College Gwalior

***Abstract*---** Background: People's mental health has been impacted by the novel corona virus COVID 19. According to studies, a significant percentage of people who have recovered from the infection have mental health problems. The research was carried out on people who had recovered from COVID 19 in the previous year. Participants were contacted a month after being discharged from the hospital and encouraged to complete a questionnaire that included the DASS and IES scales. Anxiety, depression, stress, and post-traumatic stress disorder were all examined in the results (PTSD). Those with scores that indicated severe levels were encouraged to see a psychiatrist for proper treatment and therapy. The results of the DASS revealed that 2.5 percent of the participants had scores indicative of severe stress, 25.3 percent had scores indicative of severe anxiety, and 7.3 percent had scores indicative of severe depression. According to the results of the IES, 15.1 percent of the participants said the event had a significant impact on their mental health, and 17.2 percent of the participants had scores that indicated the presence of post-traumatic stress disorder symptoms. There is a strong link between IES scores

and the severity of lung involvement. Conclusion: People who have recovered from COVID 19 are at risk for anxiety, depression, and post-traumatic stress disorder (PTSD).

***Keywords*---**COVID-19, survivor, mental health, IES, PTSD.

Introduction

COVID 19, a novel corona virus that was declared a pandemic by WHO on March 11th, is changing the world as we know it. We can only speculate how people who have survived COVID 19 infection would be affected, based on the impact of similar pandemics around the world. Given its varying death rate around the world, ranging from less than 0.1 percent to over 25%(1), in this time of uncertainty and distress. There is a global sense of stress and anxiety among the general population as the world adopts safety measures such as strict social distancing norms and movement restrictions through lockdowns. People seek support from family and friends when they are sick, according to studies. Humane treatment of people suffering from illness has been shown to reduce pain and suffering(2) and hasten recovery. Even in terminally ill patients, loving care and support can help them to feel better (3). Life-threatening illnesses can have long-term psychological effects on people, and the recovered person's functioning may be affected for years to come. People who survive life-threatening illnesses or accidents are more likely to develop post-traumatic stress disorder, depression, anxiety (4)(5), and other issues such as obsessive-compulsive disorder, personality changes, or addiction behaviours, according to studies. These issues can last months or years after the event. When a person is found to be infected with COVID 19, the first steps are to isolate the patient and place them in quarantine or hospitalisation, depending on their symptoms. In addition to the high mortality rate of COVID 19, a person infected with the virus fears being isolated. In contrast to other illnesses, a patient diagnosed with covid 19 must undergo treatment and quarantine without the support of family and in the company of complete strangers, all while dealing with the uncertainty of their own physical condition. This could have a psychological impact on the person, as studies have shown in the past during similar pandemic situations (6). Due to the critical nature of the illness, studies dealing with past pandemics have shown that PTSD, anxiety, and depression (7)(8) ranked first among recovered patients.

As of December 31, 2021, India had over 4 million cases. Those with severe symptoms and comorbid illnesses are admitted to hospitals, while those with mild or moderate symptoms are quarantined in government-supervised settings or at home if self-isolation is possible. COVID 19 viral infections in combination with environmental stress have been proposed as a means of facilitating psychiatric conditions in people(9)(10), and studies are emerging on the possibility of neurocognitive changes in people who have recovered from COVID 19(11). (12). Because our focus is now on reducing the mortality rate due to the illness, there are no local studies on the prevalence of psychiatric illness such as anxiety, depression, or PTSD among those who have recovered from COVID 19. Post-COVID 19 psychiatric illness can cause long-term morbidity, making it difficult for the person to return to normalcy. As a result, we saw a need for early

detection of anxiety, depression, and PTSD symptoms so that these people could be helped. The goal of this study is to determine the levels of stress, anxiety, and depression among COVID 19 survivors. The goal of this study is to determine the prevalence of PTSD symptoms among those who have recovered from covid 19.

Methodology

The study was approved by the ethics committee at the university. The procedures used were compliant with the responsible committee on human experimentation's (institutional or regional) ethical standards, as well as the Helsinki Declaration of 1975, as revised in 2000. From May 2021 to December 2021, the study was conducted among adults (people over the age of 18) who had recovered from covid 19 after being admitted to a super speciality hospital Covid19 care centre JA group of hospitals in Gwalior, Madhya Pradesh. Only those who were admitted to the hospital with mild to moderate COVID 19 symptoms and who expressed a willingness to participate in the study were included in this study. From May to December 2021, 556 COVID 19 patients were released from the hospital. After a month, they were all contacted by phone and informed about the study, with a link to a Google form containing the structured questionnaire being sent only to them. Participants signed an informed consent form indicating their willingness to participate in the study and were assured that no personal information would be shared. At this point, only one clinical psychologist had access to the forms, and the participants' personal information was masked before the data was used for statistical analysis.

403 people filled out the registration forms, but 31 of them were missing information and were thus disqualified. A total of 372 responses were collected for analysis. The prevalence of stress, anxiety, depression, and post-traumatic disorder was examined in individual responses. Participants who indicated that they had clinical symptoms of the conditions listed above were contacted and referred for further clinical evaluation and treatment. The informed consent form was followed by basic statements requesting information about socio demographic details and specific statements regarding their premorbid health issues and the CT severity score (out of 40) during their hospital admission. It also included specific statements from the Impact of Event Scale (IES) to assess the presence of post-traumatic disorder (PTSD), as well as 21 statements from the Depression, Anxiety, and Stress Scale (DASS) to assess the participants' anxiety, depression, and stress levels. In the google form, the statements in the questionnaire were not randomised. The questionnaire had no adaptive questioning options and was four pages long, with the consent form on the first page, followed by basic socio demographic information and premorbid health issues, and the option to leave items blank on the second page. For the questionnaire to be submitted successfully, all of the statements on the next three pages had to be completed.

Assessments

The 15 item IES scale is used to evaluate the presence of post-traumatic disorder after a person has been exposed to a traumatic event(13) and has been proven to be a reliable and valid tool to measure the presence of PTSD in a population. A total score of 9 to 25 indicates that the presence of significant psychological

impact on the individual and a total score of 26 and above indicates the presence of symptoms indicative of post-traumatic stress disorder. The Depression, Anxiety and Stress scale (DASS-21)(14) is a self-report scale and it is a reliable and valid tool for assessing the levels of depression, stress and anxiety(15). Internal consistency for each of the subscales of the 21-items of the questionnaire is typically high at Cronbach's α of 0.96 to 0.97 for DASS-Depression, 0.84 to 0.92 for DASS-Anxiety, and 0.90 to 0.95 for DASS-Stress(16). It has been validated for use in surveys for assessing levels of stress, anxiety and depression among sample populations.

Data analysis

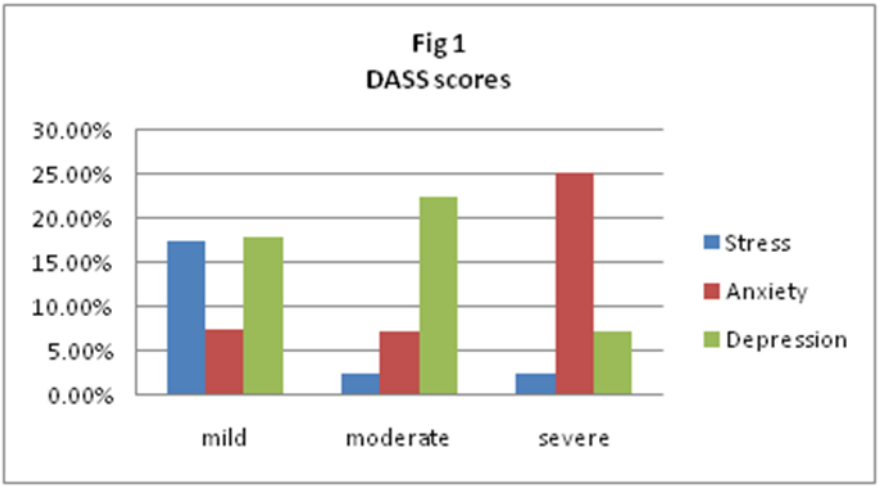
The data was analysed using SPSS - Statistical Package for Social Services software, (IBM Corp. Released 2016. IBM SPSS Statistics for Windows, Version 26, Armonk, NY: IBM Corp). Descriptive statistics was done and mean, ±standard deviation of the scores of stresses, anxiety, depression and IES were calculated in relation to the various socio-demographic details. Analysis of variance (ANOVA) was done to analyse the relationship between various socio-demographic variables and the scores obtained in DASS and IES. Pearson correlation was done between the scores of stress, anxiety and depression and those of the scores in the impact of event scale.

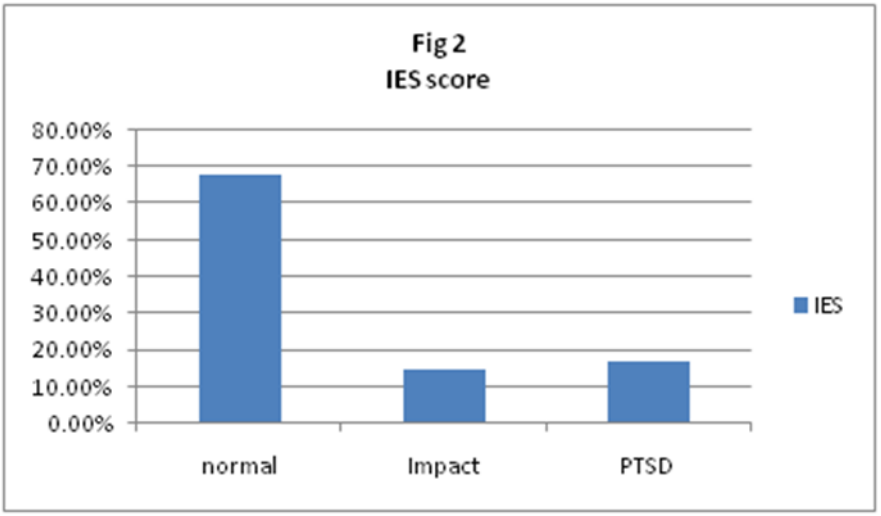
Results

The sample consisted of 372 participants all belonging in the range of ages 26 years and above where in 195 (52.4%) participants were male and 177(47.6%) participants were female and all the participants were married and living with spouses. A majority of the participants (39.2%) were in the age group of 46-55 years of age, while 8.6% of the participants were above 70 years of age. 26.3% of the participants had no formal education, while 42.7% were post graduates, 10.2% had professional degrees and 20.7% were undergraduates. Only 7% of the participants had government jobs while a majority of the persons (39.5%) worked in the private sector and 24.2% of the participants were homemakers. 18.5% of the participants had their own business and 10.8% of the participants were employed otherwise. A majority of the participants (56.2%) reported that they were the sole earning member of the family while the remaining 43.8% reported that they were not the sole earning member in the family. The sample was found to be normally distributed for the socio-demographic variables as calculated by Chi square test at significance $P<.01$

193 (51.9%) participants had no comorbid illnesses while 69 (18.5%) of the participants had diabetes and 48 (12.9%) of them had diabetes and hypertension. 28 (7.5%) of the respondents had heart problem and diabetes while a small percentage of the participants (4.8%) had thyroid dysfunction in addition to diabetes and hypertension and 4.3% of the participants were recovering from cancer and had kidney dysfunction in addition to having diabetes and hypertension. 296 (79.6%) participants belonged to the middle socio-economic status and 10.8% of the participants belonged the low socio-economic status and 9.7% of the participants belonged to the high socio-economic status. The mean score in the CT severity score (out of 40) was at 20.94±3.41 for the sample

population. The scores obtained in the DASS (fig 1) showed that 77.7% of the participants had stress levels well within the normal limits. 17.5% had mild levels of stress and 2.5% of the participants had scores indicative of moderate and severe levels of stress. While analysing the scores of anxieties, it was seen that 60% of the participants had scores within normal levels while 7.5% and 7.3% of the participants had mild and moderate levels of anxiety and 25.3% of the participants had scores indicative of severe anxiety. 52.1% of the participants had scores well within the normal levels of depression while 18% had mild levels of depression. 22.6% of the participants had scores indicating moderate levels of depression while 7.3% of the participants had scores indicative of severe levels of depression. The scores in the IES (fig 2) indicated that nearly 67.7% of the participants had scores well within the normal limits while scores of 15.1% of the participants indicated that there was a significant impact on their mental health due to the event and 17.2% of the participants had scores indicative of the presence of symptoms of post-traumatic stress disorder.





The mean scores of the participants as shown in table 1 indicate that there is a significant difference in mean scores of male and female participants with mean scores in males significantly higher across stress, anxiety, depression and the IES scores. Analysis of variance (ANOVA) was done to find the relationship between the scores obtained in the DASS and IES scales and the variables included in the socio-demographic details and type of co-morbid illnesses found in those persons who had recovered from COVID 19. It was found that there was a significant relationship between gender and scores of anxieties [F(df:1;370) =8.93], depression [F (df: 1;370) =17.35] and IES [F (df: 1;370) =27.42] at significance p<.01. Similarly, there is a strong significant relationship between age, education, occupation, socio-economic status and scores of stresses, anxiety, depression and IES, at p<.001. Interestingly there was no significant relationship between the response to the statement 'Are you the sole earning member in the family?' and the scores on stress, anxiety and depression. When scores of stresses, anxiety, depression and IES were analysed for its relationship to the presence of various co-morbid conditions, it was found that there is a significant relationship between them at significance p<.001(table 2). The correlations between the scores of stress, anxiety, depression and IES to the scores on the CT severity scale were found using Pearson's correlation (Table3). It was found that there is a strong correlation between the scores, with a strong positive correlation between the extent of lung involvement and the scores in the IES scale at significance p<.001.

Table 1
Mean scores of stress, anxiety, depression and IES

Variables		N	Stress	Anxiety	Depression	IES
Gender	Male	195	9.50	8.96	9.64	10.85
	Female	177	8.30	6.85	6.59	5.49
Age	26-35 yrs	70	7.06	6.27	7.17	8.09
	36-45 yrs	45	7.67	3.42	6.51	2.24
	46-55 yrs	146	6.99	7.00	5.80	7.36
	56-70 yrs	79	11.94	9.75	10.70	7.29
	Above 70 yrs	32	16.22	18.00	17.44	24.03
Socio-economic status	High	36	13.33	13.33	16.61	16.67
	Middle	296	8.62	7.35	7.25	6.79
	Low	40	7.25	7.60	7.55	11.95
Education	Not educated	98	10.62	10.86	9.54	10.24
	Under graduation	77	12.27	10.88	10.53	11.19
	Post graduation	159	7.28	5.30	7.20	6.05
	Professional	38	4.66	5.68	4.05	6.82
Occupation	Government	26	11.50	17.31	13.23	20.96
	Private	147	7.94	6.20	7.49	6.45
	Homemaker	90	11.16	11.11	9.37	10.67
	Business	69	8.09	4.38	6.83	2.52
	Others	40	7.33	7.45	7.15	11.50
Comorbid illness	Nil	193	7.62	6.32	6.66	6.80
	Diabetes	69	9.90	6.61	9.09	6.38

	Diabetes, hypertension	48	5.73	4.50	4.13	1.19
	Diabetes, heart problem	28	14.82	19.00	17.00	26.64
	Diabetes, hypertension, kidney disease, recovering from cancer	16	14.56	19.00	17.38	27.44
	Diabetes, hypertension, thyroid dysfunction	18	13.56	13.00	10.00	5.17
Sole earning member in the family	Yes	163	9.77	7.93	8.11	6.64
	No	209	8.27	7.99	8.24	9.59

Table 2
Mean, standard deviation and analysis of variance for stress, anxiety, depression and Impact of event score among people with comorbid illness

Mental Status	Mean &SD	No comorbid illness	Diabetes	BP + diabetes	Diabetes + heart problem	Diabetes + BP+ cancer + kidney	Diabetes + BP + cancer + thyroid	P value (Anova [Df:366; 5])
Stress	M	7.62	9.90	5.73	14.82	14.56	13.56	19.24***
	SD	6.219	6.360	1.698	1.020	1.931	2.064	
Anxiety	M	6.32	6.61	4.50	19.0	19.00	13.00	49.13***
	SD	6.986	3.993	.505	.770	.730	.000	
Depression	M	6.66	9.09	4.13	17.00	17.38	10.00	24.87***
	SD	7.306	5.893	4.129	2.722	2.306	6.287	
IES	M	6.80	6.38	1.19	26.64	27.44	5.17	68.08***
	SD	9.585	5.488	2.140	.780	1.750	.707	

***Significant at P<0.001
M – Mean, SD - Standard deviation, IES - Impact of event score
IES - Impact of event score

Table 3
Correlation between CT severity score, stress, anxiety, depression and Impact of event score

	CT severity score (out of 40)	Stress	Anxiety	Depression	IES
CT severity score (out of 40)	1	.660**	.840**	.745**	.947**
Stress	.660**	1	.792**	.762**	.718**
Anxiety	.840**	.792**	1	.841**	.907**
Depression	.745**	.762**	.841**	1	.810**
IES	.947**	.718**	.907**	.810**	1
**Correlation is significant at p< 0.001 level IES - Impact of event score					

Discussion

According to the findings, people who had recovered from COVID 19 had significant levels of stress (22.3%), anxiety (40%), and depression (47.9%) as measured by the DASS. According to the IES results, nearly 32.3 percent of the participants were psychologically affected by the illness, with 17.2 percent exhibiting symptoms of post-traumatic stress disorder. These findings are consistent with previous pandemics involving SARS virus variants(17)(18)(19)(20), which showed an increase in PTSD, anxiety, and depression symptoms after recovery from infection. The findings of this study are similar to those of Rogers et alglobal .'s meta-analysis (21) and regional studies conducted around the world (22)(23)(24) in 2020. When the mean scores of stress, anxiety, depression, and IES were compared to the mean scores of age, gender, and other variables, the results showed that males have higher stress, anxiety, depression, and IES scores, and those with heart problems, cancer survivors, and those with kidney dysfunction had high mean scores for stress, anxiety, and depression. In contrast to a study in China (25) that found a higher prevalence rate of anxiety, depression, and PTSD among women, men were found to have higher scores across stress, anxiety, depression, and IES. The findings show that there is a significant relationship between the variables, which include various socio-demographic data and DASS and IES scale scores. Following recovery from COVID 19, there was a significant relationship between the level of lung involvement as indicated by the severity score in CT- Lung and the scores in IES indicative of PTSD. Those with scores indicative of stress, anxiety, depression, and PTSD were clinically evaluated by psychiatrists and psychologists for further management and treatment through counselling and therapy.

Conclusion

This study found that people who recovered from COVID 19 after being hospitalised for mild to moderate symptoms had varying levels of stress, with 25.3 percent of participants experiencing severe anxiety and 7.3 percent experiencing severe depression. 32.3 percent of the participants showed clear signs of being

psychologically impacted by the illness, with 17.2% of them suffering from post-traumatic stress disorder.

Limitation

Ours is Because this study was cross-sectional in nature and was conducted with a non-homogeneous, small sample size by a convenience approach in one centre, the results could only be applied to the population studied in that centre.

Conflict of interest: Nil

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