A Comparative Study of the Effect on Mental Health in Young, Middle and Older Adults Recovered from COVID-19

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Abstract: **COVID-19, is an infectious disease which is caused by coronavirus. Mental health issues have been rising due to various changes pandemic has brought in every one's life and also because of the infection itself. In this study, we aimed to assess and compare the mental health on the domains of depression, anxiety and stress of young, middle and older adults recovered from Covid-19. To assess certain impacts of Covid-19 on Indian population who have recovered from the same, a sample of 150 people divided in three groups that is young adults, middle adults and older adults were surveyed online during the time of June 2020 to August 2020. Quantitative analysis was done using Perceived Stress Scale, Generalised Anxiety Disorder Scale, and Beck Depression Inventory. Descriptive and Inferential statistical methods were used for data analysis in SPSS Software. This study revealed that young adults experience high levels of depression and stress as compared to other groups. Anxiety was found to be highest in middle adults. The possible reasons are discussed in the paper. This study helped to gain a better insight into the prevalence of psychiatric symptoms in different age groups so that necessary actions and mental health interventions can be provided to the needy people.**

Keywords: **COVID-19, Anxiety, Depression, Stress, Mental health interventions.**

1. Introduction

As per WHO, Covid-19 is an infectious disease which is caused by coronavirus. It is for the third time a zoonotic coronavirus crossed species to infect human populations (Perlman, 2020). It is one of the most threatening health crises the world has faced till date. The virus was first identified in December 2019, in Wuhan, Hubei province, China. This disease is transmitted by inhalation or direct contact with the infected droplets and the incubation period of coronavirus can range from 2 to 14 days (Singhal, 2020). Quick human-to-human transmission of coronavirus resulted in imposition of lockdowns to stop the further transmission. A pandemic cannot be just a medical event, it can damage and disrupt the normal lifestyle of individual and society as a whole.

The various psychological impact a pandemic can posit are increase in anxiety level, stress, stigma, xenophobia, etc. (Javed et al., 2020). Not only the new measures like quarantine and self-isolation have impacted the mental health but also the people having been infected has also experienced mental health issues. Patients with severe Covid-19 disease experience aftermaths affecting physical health, respiratory status and mental health for many weeks after discharge from hospital (Weerahandi et al., 2021). Also, it is evident that anxiety, depressive and sleep symptoms develop in Covid-19 patients while in hospitals but anxiety can persist after recovery as well (Wu J et al., 2020). The psychological response to Covid-19 pandemic has shown similarity with the post-traumatic stress disorder (PTSD) symptomatology in hardly-hit population (Liu et al., 2020). Similarly, Covid-19 patients who survived, are likely to develop post-traumatic stress disorder symptoms and depressive symptoms (Vindegaard et al., 2020). A meta-analysis also reported the most frequent complaints in post-illness stage which were irritability, depressed mood, fatigue, insomnia, memory impairment, anxiety and traumatic memories (Rogers et al., 2020).

Since the individual differences determine the patient's likelihood to develop psychological symptoms and these affects how they respond to disease (Janiri et al., 2020). According to American Psychological Association, anxiety is an emotion characterised by apprehension and somatic symptoms of tension in which an individual anticipates impending danger, catastrophe, or misfortune. A significant proportion of patients in Italy self-rated 31% for depression, 40% for insomnia, 42% for anxiety, 28% for post-traumatic stress disorder, 20% for obsessive-compulsive symptoms and females suffered more for both depression and anxiety (Mazza et al., 2020). Patients reported 30% psychological and 52.4% physical symptoms, 1-3 months after recovery from Covid-19, also persistence of depression and anxiety was independently associated with ongoing physical symptoms.

Psychological stress is therefore one of the chief concerns for patients with Covid-19 and should not be ignored during hospitalisation and follow up (Tomasoni et al., 2020). It was also found in Hubei, China that the prevalence of depression was 43.1% and low quality of life in clinically stable patients with Covid-19 (Ma YF et al., 2020). Females younger than 50 years, who recovered from Covid-19 was significantly associated with higher probability of depression and anxiety

(Khademi, Harami and Shams, 2021). In a cohort of African American patients without any previous psychiatric condition who recovered from Covid-19 showed 44% incidence of depression (Olanipekun et al., 2021).

Given the correlations between the three constructs which are depression, anxiety and stress with Covid-19, we aimed to assess and compare the mental health of young, middle and older adults after Covid-19 recovery.

2. Methodology

This study had a cross sectional research design and was conducted from June 2020 to August 2020. The study population included participants from India aged between 18-75 years who have recovered from Covid-19. By the use of convenience sampling 150 participants were included in the study. These participants were divided into three groups based on their age that is young adults (18-35 years), middle adults (36-55 years) and older adults (56-75 years). Each group consisted of 50 participants. Both the genders were included in the study and participation in this study was voluntary.

Data collection instruments: The data was collected electronically (Google forms) by the use Perceived Stress scale (Cohen et al., 1983) to assess people's perception of stress, Generalised Anxiety Disorder Scale-7 (Spitzer et al., 2006) to measure the anxiety symptoms experienced in the last two weeks and Beck Depression Inventory (Beck et al., 1961) to assess characteristic attitudes and symptoms of depression. Total 38 questions were asked along with basic demographic details including name, gender, marital status, occupation, domicile, education, socio-economic status, period of recovery from COVID-19 and severity of symptoms.

Data analysis: The data collected was put in SPSS version 23. ANOVA was used to find significant difference among the three age groups on stress, anxiety and depression. Pearson's correlation was used to find the relationship between variables. Descriptive indicators were used to analyse socio demographic data. A P-value less than 0.05 was considered as statically significant.

3. Results

Table 1
Socio demographic details of the sample population

Item	Mean (SD)/ % (n)
Gender	
Male	47.3% (n= 71)
Female	52.7% (n=79)
Age	
Young Adults (18-35)	33.3% (n=50)
Middle Adults (36-55)	33.3% (n=50)
Older Adults (56-75)	33.3% (n=50)
Education	
12th Standard	3.3% (n=5)
Graduation	26% (n=39)
Above Graduation	70.7% (n=106)
Marital status	
Married	68.7% (n=103)
Unmarried	30% (n=45)
Divorced	0.7% (n=1)
Occupational Status	
Employed	64% (n=96)

Unemployed	36% (n=54)
Type of Family	
Joint	32.7% (n=49)
Nuclear	66% (n=99)
Staying Alone	1.3% (n=2)
Domicile	
Urban	93.3% (n=140)
Rural	6.7% (n=10)
Covid Severity	
Asymptomatic	4% (n=6)
Mild	30% (n=45)
Moderate	47.35 (n=71)
Severe	18.7% (n=28)
Time Duration Since Recovery	
1-15days	34% (n=51)
1 month	29.3% (n=44)
More than 1 month	36.7% (n=55)

Table 2
Analysis of variance (ANOVA) on anxiety between young, middle and older adults

Source	Sum of Squares	DF	Mean of Squares	F
Between group	4.5	2	2.256	4.590**
Within group	72.2	147	0.492	

**ANOVA is Significant at 0.01 level

Table 3
Analysis of variance (ANOVA) on stress between young, middle and older adults

Source	Sum of Squares	DF	Mean of Squares	F
Between group	31.5	2	15.7	113.4**
Within group	20.4	147	0.139	

**ANOVA is Significant at 0.01 level

Table 4
Analysis of variance (ANOVA) on depression between young, middle and older adults

Source	Sum of Squares	DF	Mean of Squares	F
Between group	12.3	2	6.15	16.09**
Within group	56.2	147	0.383	

**ANOVA is Significant at 0.01 level

Table 2, Table 3 and Table 4 shows analysis of variance on anxiety, stress and depression between young, middle and older adults. There was found to be significant difference between young, middle and older adults for anxiety, stress and depression.

Table 5
Mean and standard deviation of anxiety, stress and depression among young, middle and older adults

Dimension	Groups					
	Young		Middle		Older	
	Mean	SD	Mean	SD	Mean	SD
Anxiety	10.98	4.86	11.17	5.49	9.02	4.00
Stress	20.56	4.62	18.39	6.66	10.1	1.0
Depression	20.34	12.72	10.98	9.72	8.02	7.6

Table 5 shows the mean and standard deviation of anxiety, stress and depression among young, middle and older adults, it was found that more intensity of stress and depression was experienced by young adults than middle & older adults and more intensity of anxiety was experienced by middle adults than young and older adults.

Table 6
Correlation between anxiety, stress and depression and severity of COVID-19 symptoms

Dimensions	Severity of COVID systems
Anxiety	.136*
Stress	.030*
Depression	.137*

*Correlation is significant at the 0.05 level

According to Table 7, there was found to be significant positive correlation between severity of covid symptoms and anxiety, stress and depression experienced by sample after recovery from covid, which means that more severe the symptoms of covid experienced by the individual, more will be the severity of depression, anxiety and stress after recovery.

4. Discussion

The aim of the research study was to compare the mental health of young, middle and older adults after Covid-19 recovery. To assess certain impacts of Covid 19 on Indian population who have recovered from the same, a sample of 150 people divided in three groups that is young adults (18-35 years), middle adults (36-55 years) and older adults (56-75 years) were surveyed online during the time of June 2020 to August 2020. Quantitative analysis was done as the questions were closed ended and structured. The data collected was put in SPSS version 23. ANOVA was used to find significant difference among the three age groups on stress, anxiety and depression. Pearson's correlation was used to find the relationship between variables. Descriptive indicators were used to analyse socio demographic data.

On answering questions from the BDI, many people from the age group of young adults reported after recovering from Covid-19, they don't enjoy things the way they used to enjoy and they also have become critical of themselves for their weaknesses or mistakes. Also, after the recovery they have reported to be less interested in other people than they used to be earlier. Maximum number of people have reported that they get tired more easily than earlier. People of this age group has started remaining worried about the physical problems as compared to other groups. Although maximum people have not found any recent change in their interest in sex. One of the reason for depressive symptoms in this young adults could be loss of jobs or who was about to join but due to lockdown and Covid infection they could not continue the job. Hence there was found to be significant difference in the depression among young, middle and older adults. Similar findings were found in other studies suggest that after recovery people has shown increased level of depression during the day and disturbed sleep (Ortiz et al., 2020).

Anxiety level was found to be highest in the middle-adults group as they expressed that they feel anxious and nervous for several days and is not able to control or stop worrying. Majority of people from this age group has reported trouble in relaxing and become easily annoyed or irritable as compared to other two groups. Some studies have reported the same that that 45% of college students had high levels of psychological impact and long-term consequences on their mental health especially

anxiety and lack of motivation (Browning et al., 2021).

Stress was found to be significantly higher in young adults as they reported to be upset because of something that happened unexpectedly. Maximum have felt stressed after the recovery and have been angered due to things that were outside of their control. A study has revealed that most common psychological problems were acute stress disorders after recovery from Covid-19 (Ferrario et al., 2021).

Significant negative correlation was found between the time duration since recovery and stress experience the sample, which means that more the time since recovery from Covid-19, lesser will be the anxiety experienced by them. On the other hand, no significant correlation was found between the time duration since recovery from Covid-19 and stress and depression. Moreover, a significant positive correlation was found between the severity of Covid-19 symptoms and anxiety, stress and depression levels in the sample. This indicates that the more severe the Covid-19 condition (mild, moderate and severe) in an individual, he or she will experience high levels of stress, anxiety and depression. (Zandifar, 2020)

After knowing the prevailing condition of mental health of people after Covid-19 recovery, it becomes important to discuss about the interventions that can be provided to make their condition better. First and foremost, family and friends (through telephones and social media) should have closer contact and observation with such people in order to detect the need for intervention (Pinto et al., 2020). An Indian study has shown that various types of ecotherapy such as Social and therapeutic horticulture can be done to deal with depressive feelings, anxiety and stress in adults during Covid-19. Other type of ecotherapy called Animal-assisted interventions can be effective in dealing with stress, anxiety coming due to uncertainty of situation and decreasing loneliness (Chaudhary & Banerjee, 2020). Another study showed the possibility of effectiveness of online group therapy to reduce the depressive symptoms (Weinberg,2020). Mindfulness and Diaphragmatic breathing exercises have found to be beneficial for the anxiety and depressive symptoms. Cognitive restructuring and problem-solving therapy have helped patients to validate their emotional experiences and also to regulate their emotions (Jaywant et al., 2021). A study has shown that psychological intervention helps to reduce distress symptoms and enhance psychological health in the post-acute phase of Covid-19 (Ferrario et al., 2021).

The main strength of this study is that it has compared the mental health of young, middle and older adults who have recovered from Covid 19. It helped to gain a better insight into the prevalence of psychiatric symptoms in different age groups so that necessary actions and interventions can be provided to the needy people. Another strength of the study is it has almost equal number of participants in all the three age groups which increases the validity of the research. Sample size could have been larger for better results and purposive sampling could also yield significant results. Concluding the results of the study, there was found to be significant positive correlation between severity of covid symptoms and anxiety, stress and depression experienced by sample after recovery from covid, which means

that more severe the symptoms of covid experienced by the individual, more will be the severity of depression, anxiety and stress after recovery. Thus, a holistic approach should be taken while treating Covid-19 including the physiological as well as mental health aspects of Covid-19.

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