Impact of COVID-19 Pandemic on Mental Health

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ABSTRACT: A novel coronavirus called Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) was identified in Wuhan City, Hubei Province in China, at the end of 2019. Due to the emergence of the COVID-19 pandemic, there was complete lockdown in the world which lead to a situation of socio-economic crisis and psychological distress among the population. Objectives: The main goal of the study was to study the impact of COVID-19 pandemic on mental health in the general population. Methods: This was an observational study. The subject's demographic details and responses were collected with the help of a standardized questionnaire. The collected data were entered in Microsoft Excel and appropriate descriptive and inferential statistical analysis was performed. Results: It was found that the Fear of Covid-19 (FCV-19) scores, on average, were increased among younger adults (16.15), older adults (17.78) and females (17.2). According to this study, the prevalence of depression, anxiety and stress was higher in younger adults (18-27 years) when compared to older adults. Female subjects had a higher prevalence of depression, anxiety and stress when compared to the males. Conclusion: From this study, it is evident that there is a need for early strategies, programs and mental health policies to mitigate the impact of the pandemic on mental health. People should be educated regarding the COVID-19 disease, its preventive measures and also the importance of mental health during the times of this deadly pandemic.

Key words: COVID-19, Mental health, Fear, Depression, Anxiety, Stress.

INTRODUCTION

Coronavirus disease-2019, is a recently identified coronavirus which has the potential to induce infection. The first case of COVID-19 was reported to the WHO on December 31, 2019, in Wuhan, China. On the 11th of March 2020, the virus was classified as worldwide pandemic. Coronavirus had infected 214 countries and territories as of April 2020, and it was spreading rapidly. The highest mortality rate, according to Chinese authorities, was among those over the age of 80. Even though the source of the pandemic is unknown, it is largely considered to be spread through bats, that act as transitional hosts between the pathogen and people; this notion is currently being researched.¹

Most of the individuals diagnosed with the coronavirus infection will experience mild or moderate pulmonary complaints and will heal without the need for therapy. People who are aged 65 years and above, including people with existing health conditions like heart disease, diabetes mellitus, prolonged lung illness and cancer are more likely to acquire a life threatening disease.

The coronavirus infects mostly by particles of salivary or nasal discharge whenever a sick individual is coughing or sneezing, thus nasal hygiene is particularly vital (for instance, covering the cough or sneeze with a bent elbow).

COVID-19 and Mental Health

Fear, anxiety, and tension are all typical responses to actual or true dangers, along with confusion and the unfamiliar. Fear is reasonable and acceptable in the context of the COVID-19 outbreak.

The concern of acquiring the infection in an outbreak like COVID-19 is amplified by the enormous modifications to our everyday lives since our activities are constrained in favor of attempt to curb and limit the disease's transmission. Working remotely, temporary joblessness, home-schooling kids, and an absence of actual interaction with the members of the household, friends, and coworkers are all changing circumstances that require us to look after each of physical and mental wellbeing.²

The following are number of consequences of stress:

- Panic, rage, sorrow, concern, numbness, or irritation
- Changes in appetite, strength, aspirations, and goals
- Concentration and decision-making issues
- Sleep disturbances or night terrors
- Chronic health problems such as headaches, body pain, gastrointestinal difficulties, and skin irritation, become worse.
- A deterioration of mental health conditions.
- Tobacco, alcohol, and other substances are being used more frequently.³

Individuals are unaccustomed with widespread household isolation directives, that expresses worries as to how organisations and individuals may behave. A latest overview of psychological effects in tests of quarantined individuals and healthcare professionals demonstrated tension, depressed mood, lethargy, sleeplessness, worry, uncertainty, anguish, unhappiness, loneliness, as well as problems attached with confinement; a few of these sentimental results remained after the lockdown was lifted.

Prolonged duration of isolation, limited resources, difficulties accessing medical treatment as well as drugs, and the ensuing monetary loss all added towards the distress. The COVID-19 crisis poses a hazard to personal and group health, and also socio-emotional performance. Aside from healthcare, existing overwhelmed medical-care providers should supervise socio -emotional requirements as well as impart psychological services to their patient populations, medical groups and the general population through operations that can be included into general outbreak medical services.⁴

As the pandemic has great impact on mental health, there is increasing need to study its effect on the general population. The goal of this study is to see how the COVID-19 pandemic has affected people's mental health.

MATERIALS AND METHODS

Subjects for the study were identified by the investigators during community visits based on the inclusion and exclusion criteria. The patients were explained the purpose of the study and the informed consent was obtained. Relevant data (demographic details) was recorded, and the subjects were administered with other study tools to obtain relevant information. The data thus obtained was entered in a Microsoft Excel sheet and appropriate analysis will be performed.

Study Site: The study was conducted in selected villages of Hesaraghatta area of Bengaluru for 6 months.

Study Design: This is a prospective observational study.

Study Criteria: A total of 202 subjects fulfilling the inclusion criteria were included in the study.

- Inclusion Criteria:
- a. Subjects who are willing to give consent.
- b. Subjects of age 18 years and above.
- c. Subjects of both the gender. Exclusion Criteria:
- a. Individuals with past history of mental illness.
- b. Individuals who are currently COVID-19 +ve.

Ethical Approval: The study was approved by Institutional Ethics Committee of Acharya and BM Reddy College of Pharmacy, Bengaluru-560090, Karnataka, India.

Data collection tools:

- 1. Self-designed demographic data sheet: To collect relevant demographic details of the study subjects.
- 2. Fear of COVID-19 Scale (FCV-19): Fear of COVID-19 is a 7 item scale that has robust psychometric properties. It is reliable and valid in assessing fear of COVID-19 among the general population.
- 3. Depression, Anxiety, and Stress Scale-21(DASS-21): The Depression, Anxiety, and Stress Scale -21 items (DASS-21) is set of 3 scales designed to measure the emotional states of depression, anxiety, and stress.
- 4. Modified Kuppuswamy Scale: This scale was devised by Kuppuswamy and is the most widely used scale for determining the socio-economic status of an individual or a family.

Statistical Analysis:

All recorded data were entered into MS Excel software and analyzed using SPSS 22 version software for determining for the statistical significant. Descriptive statistics such as mean and standard deviation were computed for quantitative variables and frequencies and percentages were calculated for categorical variables. Histogram and pie charts were applied to find the nature of data distribution. Spearman's correlation was done to find the correlation between age, DASS-21 and FCV-19 scores and also the correlation between gender, DASS-21 and FCV-19 scores. Paired t-test was conducted for DASS 21 and FCV-19 scores based on gender.

RESULTS

The study was conducted in the subjects drawn from the population within selected villages of Hesaraghatta area of Bengaluru who were fulfilling the inclusion criteria and had provided the informed consent to participate in the study.

Age distribution of subjects

Out of 202 study subjects, majority of them 110 (54.45%) were from the age group of 18-27 years, while the least (0.5%) with only one subject each were from the 68-77 and above 78+ age groups.

Table 1: Age distribution of subjects.

Age groups	Number of subjects	Percentage %
18-27	110	54.45
28-37	34	16.83
38-47	27	13.37
48-57	20	9.9
58-67	9	4.45
68-77	1	0.5
78+	1	0.5
TOTAL	202	100

Distribution of subjects by gender

Out of 202 subjects included in the study, the majority of the subjects 109 (53.96%) were males. The percentage of females 93(46.04%) included in the study were lesser than the males.

Table 2: Distribution of subjects by gender.

Gender	Number of subjects	Percentage%
Male	109	53.96
Female	93	46.04

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Distribution of subjects by modified Kuppuswamy socio-economic scale

This scale was devised by Kuppuswamy and is the most widely used scale for determining the socio-economic status of an individual or a family. The total score of Kuppuswamy SES ranges from 3-29 and it classifies families into 5 groups, "upper class, upper middle class, lower middle class, upper lower and lower socio-economic class."

In this study, majority of the subjects 88(50.57%) belonged to Lower Middle Class and the least 5(2.87%) belonged to the Upper Class. A total of 28 subjects refused to provide information required to categorize them as per the Modified Kuppuswamy socio-economic scale.

Table 3: Distribution of subjects by Modified Kuppuswamy socio-economic scale

Socio-economic class	Number of subjects	Percentage %
Upper	5	2.87
Upper Middle	61	35.06
Lower Middle	88	50.57
Upper Lower	20	11.5
Total	174	100



Figure 1: Distribution of subjects by Modified Kuppuswamy Socio-Economic Scale. Distribution of Fear of Covid-19 (FCV-19) scores

Fear of COVID-19 is a 7 item scale that has robust psychometric properties. It is reliable and valid in assessing fear of COVID-19 among the general population. Out of the total of 202 subjects, the majority 92(45.55%) of them had FCV-19 score in the range of 15-22 and the least 4(1.98%) of them had 31+ FCV-19 score.

Table 4: Distribution of FCV-19 Scores.

FCV-19 Score	Number of subjects	Percentage %
7-14	87	43.07
15-22	92	45.55
23-30	19	9.4
31+	4	1.98
Total	202	100





Age and Fear of Covid-19 scores:

In this study, the average FCV-19 score was the highest (17.78) in the age group of 58-67 years and the least (13.95) in the 48-57 years age group.

Table 5: Age groups and average FCV-19 score.

Age groups	Average FCV-19 Score
18-27	16.15
28-37	14.91
38-47	15.67
48-57	13.95
58-67	17.78



Figure 3: Age groups and average FCV-19 scores.

Distribution of Depression, Anxiety and Stress Scale-21 (DASS-21) scores :

The Depression, Anxiety, and Stress Scale -21 items (DASS-21) is set of 3 scales designed to measure the emotional states of depression, anxiety, and stress. Each of the three DASS-21 scales contains seven items, divided into sub scales with similar content. Scores for depression, anxiety, and stress are calculated by summing the scores for the relevant items. Table 6: Distribution of DASS-21 scores

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DASS-21 levels	Number of subjects	Percentage%
No Depression	73	36.14
Depression	129	63.86
No Anxiety	54	26.73
Anxiety	148	73.27
No Stress	97	48.02
Stress	105	51.98



Figure 4: Distribution of DASS-21 scores.

Distribution of DASS-21 Scores among females:

In the present study, the majority 57(71.25%) of female subjects had some level of depression, and only 23(28.75%) of them had no depression. The number of females with some level of anxiety 59(73.75%) were higher than those with no anxiety 21(26.25%). 44(55%) of the females had some level of stress compared to 36(45%) who had no level of stress.



Figure 5: Distribution of DASS-21 scores among females.

Distribution of DASS-21 Scores among males:

In the present study, the majority 54(57.45%) of male subjects had some level of depression, and only 40(42.55%) of them had no depression. The number of males with some level of anxiety 69(73.40%) were higher than those with no anxiety 25(26.6%). 45(47.87%) of the males had some level of stress compared to 49(52.13%) who had no level of stress.





Distribution of FCV-19 scores among females:

Out of 80 female subjects, the majority 44 (55%) of females had FCV-19 scores in the range of 15-22 and the least 1(1.25%) of them had FCV-19 score of 31 and above. The average FCV-19 scores for females was found to be 17.2.



Figure 7: Distribution of FCV-19 scores among females.

Distribution of FCV-19 scores among males:

Out of 94 male subjects, the majority 54(57.45%) of males had FCV-19 scores in the range of 15-22 and the least 2(2.13%) of them had FCV-19 score of 31 and above. The average FCV-19 scores for males was found to be 14.72.



Distribution of Depression levels by SES:

In the present study, the majority i.e., 53(47.75%) of the subjects with some level of depression belonged to the 'lower middle' class, followed by 43(38.74%) subjects belonging to 'upper middle' class and 10(9.01%) subjects belonging to the 'upper lower' class. The least i.e., 5(4.5%) of them belonged to the 'upper' class.



Figure 9: Distribution of Depression levels by SES.

Distribution of Anxiety levels by SES:

In the present study, the majority i.e., 63(49.22%) of the subjects with some level of anxiety belonged to the 'lower middle' class, followed by 48(37.5%) subjects belonging to 'upper middle' class and 12(9.38%) subjects belonging to the 'upper lower' class. The least i.e., 5(3.91%) of them belonged to the 'upper' class.



Figure 10: Distribution of Anxiety levels by SES.

Distribution of Stress levels by SES:

In the present study, the majority i.e., 44(48.89%) of the subjects with some level of stress belonged to the 'lower middle' class, followed by 36(40%) subjects belonging to 'upper middle' class. The least i.e., 5(5.56%) of them each belonged to the 'upper' and ' upper lower' classes.



Figure 11: Distribution of Stress levels by SES.

DISCUSSION

This observational study was conducted in the community within a 5 km radius of Acharya Institutes, Bengaluru for a period of 3 months from January 2021 to March 2021. A total of 202 subjects were enrolled in the study, based on various inclusion and exclusion criteria.

The subjects were categorized according to age, gender and socioeconomic status. Out of the 202 subjects who participated in the study, the majority of them belonged to the age group of 18-27 years (54.45%) (n=110), and the number of males (53.96%) (n=109) were more than the females (46.04%) (n=93). The 'Lower Middle' class had the most number of subjects (50.57%) (n=88).

Our study showed an increased fear among the subjects aged 18-27 years (16.15%) as well as among the females (55% of them had FCV-19 score in the range of 15-22) which was evident from the study conducted by *Mamun A. Mohammed et. al.*, (2021) in which fear towards the pandemic increased among the young people and the women.⁵

In this study, it was found that females had higher scores in depression, anxiety and stress, these results were similar to the study done by *Zhang Yao et. al.*, (2020), which reported that females suffered a greater psychological impact from COVID-19 outbreak, with higher scores in depression, anxiety and stress.⁶

In the present study, the prevalence of anxiety was found to be 73.27% which similar to the study done by *Passos Lígia et. al.*, (2020) where the prevalence for the anxiety was 71.3%.⁷

This study also concluded that more than 2/5th of subjects are experiencing anxiety (73.27%) and depression (63.86%) due to the COVID-19 pandemic which when compared to a study conducted by *Grover Sandeep et. al.*, (2020) concluded similar results that more than 2/5th of people are experiencing anxiety and depression due to the lockdown and the prevailing COVID-19 pandemic.⁸ The prevalence of stress in this study was higher in females (55%) when compared to males (47.87%) which was also evident from the study conducted by *Torales Julio et. al.*, (2020) where women perceived more stress than men during the COVID-19 pandemic.⁹

The results of this study also indicate that the prevalence of depression, anxiety and stress was higher in young subjects when compared to the older adults. Similar results were found in a study conducted by *Izu Nwachukwu et. al.*,(2020) where the mean scores across the depression, anxiety and stress scales decreased in severity from younger to older age.¹⁰

In the present study, it was found that the females had higher fear levels (17.2), on average, than males (14.72). These results were similar to the study conducted by *Yehudai Mor et. al.*, (2020) which showed that females reported higher fear levels, on average, than males.¹¹

This study showed an increased fear and psychological distress among the young adults as well as among the females (55% of them had FCV-19 score in the range of 15-22). These results were similar to a study conducted by *Niedwiedz Claire et. al., (2020)* which concluded that psychological distress increased among women and young adults after one month of lockdown.¹²

The females had higher levels (71.25%) of depression when compared to the males (57.45%). Similar findings were observed in a study conducted by *Delmastro Marco et. al.*, (2020) that showed that females had higher scores of depressive symptoms.¹³

CONCLUSION

Coronavirus disease (COVID-19) is a newly discovered coronavirus that tends to cause infectious disease. Due to the emergence of the COVID-19 pandemic, there was complete lockdown in the world which lead to a situation of socio-economic crisis and psychological distress among the population.

A high prevalence of adverse psychological systems was reported in this study. Due to lack of awareness regarding COVID-19, a panic like situation was created in the subjects. It was found that the Fear of Covid-19 (FCV-19) scores, on average, were increased among younger adults, older adults and females.

A high prevalence of depression, anxiety, and stress symptoms were observed during the pandemic, as evidenced by this study. According to this study, the prevalence of depression, anxiety and stress was higher in younger subjects when compared to older adults. Female subjects had a higher prevalence of depression, anxiety and stress when compared to the males.

It was also observed that the majority of the subjects who had certain level of depression, anxiety and stress belonged to the 'Lower Middle' class.

From this study, it is evident that there is a need for early strategies, programs and mental health policies to mitigate the impact of the pandemic on mental health. People should be educated regarding the COVID-19 disease, its preventive measures and also the importance of mental health during the times of this deadly pandemic.

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Conflict of Interest

The authors of this study declare no conflict of interest.

ABBREVIATIONS

COVID-19: Coronavirus disease; SARS-CoV-2: Severe Acute Respiratory Syndrome Coronavirus 2; FCV-19: Fear of COVID-19; DASS-21: Depression, Anxiety and Stress Scale - 21 item; SES: Socio Economic Status; WHO: World Health Organization. SUMMARY

A novel coronavirus called Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) was identified in Wuhan City, Hubei Province in China, at the end of 2019. Due to the emergence of the COVID-19 pandemic, there was complete lockdown in the world which lead to a situation of socio-economic crisis and psychological distress among the population. The main goal of the study was to study the impact of COVID-19 pandemic on mental health in the general population. This was an observational study. The subject's demographic details and responses were collected with the help of a standardized questionnaire. It was found that the

Fear of Covid-19 (FCV-19) scores, on average, were increased among younger adults (16.15), older adults (17.78) and females (17.2). According to this study, the prevalence of depression, anxiety and stress was higher in younger adults (18-27 years) when compared to older adults. Female subjects had a higher prevalence of depression, anxiety and stress when compared to the males. From this study, it is evident that there is a need for early strategies, programs and mental health policies to mitigate the impact of the pandemic on mental health. People should be educated regarding the COVID-19 disease, its preventive measures and also the importance of mental health during the times of this deadly pandemic.

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