Psychological impact of COVID-19 pandemic on adults: Time for a holistic approach

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Abstract

Background: COVID outbreak has escalated the burden of psychological distress and developing countries are struggling to manage cases and prevent deaths. To create a holistic approach its necessary to understand the psychological status during pandemic. Hence a study was conducted to evaluate psychological status of adults during COVID pandemic and to assess the relationship between psychological status and socio-demographic factors.

Methods: Cross sectional study design and snow ball sampling technique was employed. The study was conducted on 647 adults using online based questionnaire distributed through the social media application and Email between April 2021 and june 2021. The Patient Health Questionnaire (PHQ-9) and Generalized Anxiety Disorder-7 (GAD-7) were used to assess depression and anxiety respectively along with Socio-demographic details and COVID-19 status.

Results: 64.60% belonged to age group 18-24 years, 55.17% were females, 72% of them were unmarried and 61.8% were not working. Mean scores of PHQ-9 were 7.42±6.01 and GAD-7 was 5.78±5.23. There was a significant positive correlation between PHQ-9 and GAD-7 scores. 13.44% of participants reported severe depression category and 6.64% reported severe anxiety. Significant higher grades of severe depression and anxiety was found among Age <25 years and who studied up to graduate compared to their counter parts ($p<0.05$).

Conclusion: Prevalence of anxiety and depression are high among general population during COVID pandemic. The psychological impact of COVID-19 on general population should be recognized as a public health priority by health care providers and policy makers who should urgently adopt strategies for a holistic approach in COVID pandemic.

Key words: Psychological impact, COVID-19, depression, anxiety, adults, mental illness

Introduction

It's been more than a year since the COVID-19 pandemic began in India and has affected the livelihood of people in terms of morbidity, mortality and quality of life. Globally as of January 2022, World health Organization (WHO) has reported 290 million confirmed cases of COVID-19, including 5.45 million deaths[1].

India is currently experiencing third wave following a disastrous second wave in first half of 2021, where the number of cases and deaths were three times that of the first wave. There is a rapid increase in the number of cases due to COVID in the world and in India[2]. Country faced a huge insufficiency of health care facilities in terms of hospital beds, oxygen supply, ICU and ventilator care. Although the lockdown norms are relaxed after second wave, with the emergence of third wave all states have begun to imposed strict lockdown again which has a huge toll on social life. Though several vaccines have been approved in several countries and 63.5% of the adult Indian population is vaccinated with 2 doses of vaccine, there is still fear of re-infection. Indian government has suggested for a booster dose of vaccine considering waning of antibody titre and impending third wave. The spread of mutated virus in various parts of the

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world has added much more burden to the currently existing problem[3]. Preventive measures like wearing masks, social distancing guidelines, hand hygiene and partial lockdowns still remain mainstay of COVID control.

Mental health is essential for the overall wellness of the person has disrupted[4,5]. All these factors have led to disturbances in the physical and psychological wellbeing of the individuals. It has led to substantial economic costs, societal disruption, anxiety, fear, depressive symptoms, sense of loneliness, sleep disturbances, anger, among people. Lockdowns, seal downs and quarantines imposed to contain COVID -19 spread, anxiety provoking information provided by media has led to fear and anxiety in the society[6]. Reactions to pandemic may differ from simple stress to collective hysteria to feeling of hopelessness and desperation sometimes associated with dreadful outcomes like suicidal behaviour[7]. Elevated anxiety can impact even on health seeking behaviour which is key in COVID-19 care and prevention[8].

Deranged mental status can result in incorrect decision making and ignorance towards self care practices which can in turn lead to increased disease spread. Currently majority of the research is focusing on the COVID-19 virus, its transmission, treatment and prevention rather than the effect it is bearing on the health of the individual especially the mental status. Studies done among health care workers working during COVID have shown that they suffer with Post Traumatic Stress Disorder, depression, anxiety, and burnout while managing[9]. Studies have shown that COVID-19 pandemic resulted in an increased amount of depression, anxiety and stress in the general population in India and other countries[10,11,12]. According to centre for disease control and prevention, various people respond differently to COVID related stress. The financial status, family support, loss of near ones to COVID, substance abuse plays a role in reaction to the COVID-19 pandemic[13].

A systematic review and meta-analysis of 19 studies on prevalence of depression, anxiety and stress in china during COVID-19 pandemic has shown that stress was the most prevalent (48.1%) mental health consequence of COVID-19 pandemic, followed by depression (26.9%) and anxiety (21.8%)[14]. A similar review done on general population showed a prevalence of stress to be 29.6%, anxiety 31.9% and depression 33.7%[15]. Another systematic review done on general population including 68 studies from 19 countries showed the prevalence of anxiety to be 33% and depression to be 30%[16]. A systematic review and meta-analysis on health care workers of 93 studies reported an overall prevalence of stress to be 43%, anxiety to be 37% and Depression to be 35%[17].

Health pandemics mobilize all resources of local and national health care systems in an effort to manage those infected and prevent the spread of the disease. Few health care systems acknowledge the significance of mental health intervention as a key pillar in effective disease management[14]. At present there is dearth in studies based on psychological impact of COVID-19 in developing countries like India. There is a need to undertake studies on this context so that understanding the disease in terms of mental/psychological impact will further open the door to varied aspects of the disease that might have to be brought to the forefront. Hence this study was conducted to evaluate the mental/psychological status of adults during COVID-19 pandemic and also to assess their relationship with the socio-demographic factors and COVID-19 status.

Material and Methods:

Study design and Participants

A cross sectional study design was adapted to study the psychological impact of COVID-19 on the general population. The data collection period was three months period April and June 2021. Adults equal to above the age of 18 years were included in the study. Subjects who provided informed consent, who could read and write English, who could use technology like Whatsapp or emails were included in the study. Subjects who did not respond even after 3 reminders in 45 days were excluded from the study.

Sample size estimation:

To calculate a known prevalence of anxiety among general population of 28.8%[10] at 99% confidence levels with 5% precision, 544 adults have to be studied. Considering a non-response rate of 10%, a final sample size of 598 was arrived. However we received responses from 647 participants who were included for analysis.

Sampling procedure:

An online survey questionnaire was prepared using Google forms. Questionnaire was validated for its content and understanding. This was pilot tested and suitable corrections were made. Criteria validation of the questionnaire was done by pilot testing of the questionnaire. Chronbach,s alpha was calculated for individual questions, the ones with value >0.77 was used in the final questionnaire.

Snowball sampling technique was employed to collect the required sample. The survey was posted online to friends, relatives, students, colleagues via social

media platforms (Face book and Whatsapp) and through Email and requested participants to share further to facilitate snowball sampling. Participants were informed of the purpose, risks, and benefits of the survey, were told they could withdraw from the survey at any time, for any reason, and provided electronic informed consent.

Measures:

A Pre-designed, pre tested and semi structured questionnaire included two sections, namely demographic aspects (7 questions) psychological impact assessment scales PHQ-9 (9 questions) and GAD-7 (7 questions).

PHQ-9 Depression severity is calculated by assigning scores of 0, 1, 2, and 3, to the response categories of "not at all", "several days", "more than half the days" and "nearly every day" respectively. PHQ-9 total score for the nine items ranges from 0 to 27. Scores of 5, 10, 15, and 20 represent cut points for mild, moderate, moderately severe and severe depression, respectively[15]. Vijaya K Gothwalet al study validates the use of PHQ-9 scoring in South India[16].

GAD-7 Anxiety severity is calculated by assigning scores of 0, 1, 2, and 3, to the response categories of "not at all", "several days", "more than half the days" and "nearly every day" respectively. GAD-7 total score for the seven items ranges from 0 to 21. Scores of 5, 10, and 15 represent cut points for mild, moderate, and severe anxiety, respectively[17]. Bernd Lowe et al study depicts that GAD-7 scoring is valid in general population.

Ethical consideration

Permission from the Institutional Ethical Committee was obtained. Online informed consent was obtained from the participants. Only the ones who consented were taken further in answering the questions.

(Ehical clearance letter no.532/L/11/12/Ethics/ESICMC & PGIMSR/Estt.Vol.IV dated 2/12/2020)

Statistical analysis

Data was analysed in Epi info-08 software. Descriptive statistics were conducted for the socio demographic variables, psychological impact assessment scales PHQ-9 and GAD-7. Difference between two proportions was calculated using two tailed chi square test with a significant level of $p<0.01$.

Results:

Table 1: Socio demographic characteristics of participants

Characteristics		N(%)
Age (years)	18-24	418 (64.60)
	25-44	159 (24.57)
	45-59	62 (9.58)
	≥ 60	8 (1.23)
Gender	Male	290 (44.82)
	Female	357 (55.18)
Highest education attained	High school	15 (2.31)
	PU and Diploma	328 (50.7)
	Graduate	172 (26.58)
	Professional	132 (20.40)
Occupation	Administrative	19 (2.93)
	Clerical	52 (8.03)
	Engineer	45 (6.95)
	Doctor	59 (9.11)
	Teacher	45 (6.95)
	Business	27 (4.17)
	Not working	400 (61.82)
Marital status	Married	181 (27.97)
	Separated	3 (0.46)
	Unmarried	463 (71.56)
Religion	Hindu	563 (87.01)
	Muslim	40 (6.18)
	Christian	23 (3.55)
	Others	21 (3.24)

Table 1 shows the Sociodemographic characters of the study population. In the present study, 418 (64.60%) belonged to age group 18-24 years. A total of 357 (55.18%) participants were females. 304 (46.98) study subjects fell into the category of Professional and Graduates. A larger number of 400 (61.82%) subjects were not working/unemployed/students which comply with the majority of unmarried participants (71.56%). There were 118 (18.2%) primary contacts of COVID-19. 175 (27%) members were tested for COVID-19 out of which 33 (5.1%) tested positive.

Table 2: Distribution of participants based on PHQ-9 scores

Depression score	N (%)
Minimum Depression (0-4)	239 (36.93)
Mild Depression (5-9)	214 (33.07)
Moderate Depression (10-14)	107 (16.53)
Moderately Severe Depression (15-19)	62 (9.58)
Severe Depression (20-27)	25 (3.86)

Table 3: Distribution of study subjects based on GAD-7 scores

Anxiety score	N (%)
Minimum Anxiety (0-4)	309 (47.75)
Mild Anxiety (5-9)	195 (30.13)
Moderate Anxiety (10-14)	100 (15.45)
Severe Anxiety (15-21)	43 (6.64)

Table 2 and 3 shows distribution of participants based on PHQ-9 and GAD-7 scores respectively. Mean scores of PHQ-9 was 7.42±6.01 and GAD-7 was 5.78±5.23. There was a significant positive correlation between PHQ-9 and GAD-7 scores. Out of 647 study subjects, 239 (36.93%) were found to have minimum depression whereas 13.44% showed severe depression. In the study, 309 (47.75%) participants and 43 (6.64%) participants showed minimum anxiety and severe anxiety respectively.

Table 4: Association of select socio demographic factors with depression and anxiety

Characteristics		Depression present N (%)	Anxiety present N (%)
Age	**<25 years**	120 (28.70)	81 (19.37)*
	≥ 25 years	74 (32.31)	62 (27.07)
Gender	**Male**	80 (27.58)	66 (22.75)
	Female	114 (31.93)	77 (21.56)
Education	**Less than graduate**	**123 (35.86)***	**90 (26.23)***
	Graduate	71 (23.35)	53 (17.43)
Occupation	**Not working**	68 (27.53)	51 (20.64)
	Working	126 (31.5)	92 (23)
Marital status	**Married**	61 (33.70)	49 (27.07)
	Unmarried	133 (28.54)	94 (20.17)
Primary contact	**No**	158 (29.86)	113 (21.36)
	Yes	36 (30.50)	30 (25.42)
COVID Test performed	**No**	145 (30.72)	100 (21.18)
	Yes	49 (28)	43 (24.57)
COVID Test results	**Negative**	39 (27.46)	33 (23.24)
	Positive	10 (30.30)	10 (39.3)

*(statistically significant p <0.01)

Table 4 shows Association of select socio demographic factors with moderate to severe depression and anxiety. Prevalence of severe anxiety was significantly higher among people aged 25 years and above (27.07%) as compared to people aged below 25 years (19.37%). Study participants with educational level less than graduate had significantly high levels of severe depression (35.86% Vs 23.35%) and severe anxiety (26.23% Vs 17.43%) compared to those with education less than that of a graduate.

Discussion:

COVID-19 pandemic has led to uncertain developments in people's lives. It has not only harmed the physical health, but also the mental health of the vast majority of the population. As this pandemic continues to increase psychological issues such as fear, stress, anxiety, and so on among the people have become ubiquitous. Higher prevalence of depression and anxiety in our study has upheld the psychological impact on COVID on general public.

In our study moderate to severe depression symptoms were reported among 29.9% and moderate to severe anxiety symptoms among 22.0%. A study conducted in China during COVID-19 pandemic reports 16.5% reported moderate to severe depressive symptoms which is lesser compared to our study; 28.8% reported moderate to severe anxiety symptoms which is slightly higher than that of our study[10]. Another study conducted in the USA, reported that the depression symptom prevalence was more than 3-fold higher during the COVID-19 pandemic than before[18]. A study done in Denmark reports psychological well-being of the general Danish population being affected negatively by the COVID-19 pandemic - and females impacted more compared to males[19]. A study by Roy et al[20] evaluates the similar psychological impact of COVID-19 by online questionnaire in various regions of India and reported increased depression and anxiety levels which are in coherence with our results.

In a study conducted in New Delhi by Varshney M et al[11] reported that one third of the participants had significant psychological impact and also inferred that the higher the age group, the lesser the mental impact of COVID-19. Similarly, our study also found that severe depression was found in the majority in the age group <25 years and as age increased depression symptoms were less reported. A study in Cyprus[21] shows that education was positively associated with depression and anxiety which is in line with our study.

Naser et al conducted a study[22] on university students and health care professionals depicted that there is a lower tendency to develop depression and mental health issues among married individuals. Similarly in our study severe mental health issues (depression and anxiety) were found among unmarried individuals. Around 20% and 29% of the unmarried and married reported anxiety and depression issues respectively in our study. A study by IouliaSolomou and FofiConstantinidou[23] showed women have higher anxiety and depressive trends compared to men.

This is in accordance with our study which depicts that depression and anxiety levels are seen more in women than in men. Another study conducted in Saudi Arabia[24], shows a similar connection between anxiety levels and female sex.

The pandemic is expected to prevail for a longer duration than expected. The lockdowns, quarantine, isolation delay the harmony in society. There is lack of social support during this pandemic, especially when all members of family are affected unlike other diseases. Overlapping of psychological problems have become common with the pandemic and delivery of psychological intervention has become extremely difficult warranting better policy for capacity building[25]. The various innovative modes of emotional support and social security need to be implemented by Health institutions.

It is not just the quarantine and self-isolation which has a negative impact on one's mental health. Various social factors like separation from loved ones, loss of freedom, boredom and uncertainty can also lead to deterioration in an individual's mental health status[26]. Added to this disease burden, financial debts and loss of near ones to the Pandemic may have lead to increase in anxiety and depression among population.

Limitations: The study focussed on the sample data of 647 who fit the criteria of being able to read and write. The results may vary among the illiterate population category. The study used online platforms to collect data. Therefore, the study results cannot be generalised and we recommend an offline study to assess the psychological impact on other groups.

Conclusion: The study emphasizes the evident high levels of depression and anxiety levels in the participants. It is only logical to focus on simple and efficient methods to battle these problems. Initiating community-based strategies to support resilience of general population and psychologically vulnerable individuals during the COVID-19 crisis is fundamental managing psychological impact in community. Tele-consultation should be prioritized for the treatment of psychological ailments. Principally, the pandemic demands a holistic approach towards its management. Hence, preparedness helps in better management and lesser disease burden. The only key to face this challenge is to create better awareness among the people. Some simple steps like better call centre services for the rising mental health support, timely psychological intervention is utmost valuable in the present scenario.

Conclusively, this cross-sectional study provides a direct correlation between COVID-19 and increased demand for psychiatric support. Training the faculty to provide mental support to them is needed. The emphasis should be provided to people suffering from COVID-19 and their families to cope up with the situation. Behavioural change communication, special attention to the emotional wellbeing of the individual, can bring a positive impact to maintain the mental health of the general population. COVID-19 pandemic has caused setbacks in people's lives. The psychological impact of COVID-19 on general population should be recognized as a public health priority by health care providers and policy makers who should urgently adopt strategies through holistic approach to reduce the burden of mental health consequences of this pandemic.

References

1. *Who. WHO Coronavirus (COVID-19) Dashboard. (Online). Available from https://COVID19.who.int/ (Accessed on May 20 2021).*
2. *COVID19 INDIA. Available from: https://www.COVID19india.org/. (Accessed on May 20, 2021).*
3. *Davies NG, Abbott S, Barnard RC, et al. Estimated transmissibility and impact of SARS-CoV-2 lineage B.1.1.7 in England. Science. 2021;372(6538):eabg3055.*
4. *KanitkarT,.The COVID-19 lockdown in India: Impacts on the economy and the power sector. Global Transitions 2 2020:150-156.*
5. *Swar B, Hameed T, Reychav I, Information overload, psychological ill-being, and behavioral intention to continue online healthcare information search. Computers in Human Behavior. 2017; 70 (C):416-425.*
6. *Duan L, Zhu G. Psychological interventions for people affected by the COVID-19 epidemic. Lancet Psychiatry 2020; 7: 300-2.*
7. *Thakur V, Jain A. COVID 2019-suicides: A global psychological pandemic. Brain Behav Immun. 2020;88:952-953.*
8. *Rubin GJ, Wessely S. The psychological effects of quarantining a city. BMJ. 2020;368:m313.*
9. *Lai AL, Millet JK, Daniel S, Freed JH, Whittaker GR. Psychological impact of 2015 MERS. Lancet. 2020;395(April):1315.*
10. *Wang C, Pan R, Wan X, et al. Immediate Psychological Responses and Associated Factors during the Initial Stage of the 2019 Coronavirus Disease (COVID-19) Epidemic among the General Population in China. Int J Environ Res Public Health. 2020;17(5):1729.*
11. *Varshney M, Parel JT, Raizada N, Sarin SK. Initial psychological impact of COVID-19 and its correlates in Indian Community: An online (FEEL-COVID) survey. PLoS One. 2020;15(5):1-10.*
12. *Rajkumar RP. COVID-19 and mental health: A review of the existing literature. Asian J Psychiatr. 2020;52:102066.*
13. *CDC. Coronavirus Disease. (Online). Available from: https://www.cdc.gov/coronavirus/2019-ncov/daily-life-coping/managing-stress-anxiety.html (Accessed 20 May 2021).*
14. *Bareeqa SB, Ahmed SI, Samar SS, Yasin W, Zehra S, Monese GM, Gouthro RV. Prevalence of depression, anxiety and stress in china during COVID-19 pandemic: A systematic review with meta-analysis. Int J Psychiatry Med. 2021 Jul;56(4):210-227. doi: 10.1177/0091217420978005. Epub 2020 Nov 27. PMID: 33243029.*
15. *Salari N, Hosseinian-Far A, Jalali R, Vaisi-Raygani A, Rasoulpoor S, Mohammadi M, Rasoulpoor S, Khaledi-Paveh B. Prevalence of stress, anxiety, depression among the general population during the COVID-19 pandemic: a systematic review and meta-analysis. Global Health. 2020 Jul 6;16(1):57. doi: 10.1186/s12992-020-00589-w. PMID: 32631403; PMCID: PMC7338126.*
16. *Wang Y, Kala MP, Jafar TH. Factors associated with psychological distress during the coronavirus disease 2019 (COVID-19) pandemic on the predominantly general population: A systematic review and meta-analysis. PLoS One. 2020 Dec 28;15(12):e0244630. doi: 10.1371/journal.pone.0244630. PMID: 33370404; PMCID: PMC7769562.*

17. *Al Maqbali M, Al Sinani M, Al-Lenjawi B. Prevalence of stress, depression, anxiety and sleep disturbance among nurses during the COVID-19 pandemic: A systematic review and meta-analysis. J Psychosom Res. 2021 Feb;141:110343. doi: 10.1016/j.jpsychores.2020.110343. Epub 2020 Dec 17. PMID: 33360329; PMCID: PMC7831768.*
18. *Zhang J, Wu W, Zhao X, Zhang W. Recommended psychological crisis intervention response to the 2019 novel coronavirus pneumonia outbreak in China: a model of West China Hospital. Precis Clin Med. 2020;3(1):3-8.*
19. *Kroenke K. Instructions for Patient Health Questionnaire. PHQ GAD-7 Instr Man (Internet). 1978;1-9. Available from:https://www.phqscreeners.com/images/sites/g/files/g10016261/f/201412/instructions.pdf.*
20. *Gothwal VK, Bagga DK, Sumalini R. Rasch validation of the PHQ-9 in people with visual impairment in South India. J Affect Disord. 2014;167:171-7.*
21. *Löwe B, Decker O, Müller S, Brähler E, Schellberg D, Herzog W, et al. Validation and standardization of the Generalized Anxiety Disorder Screener (GAD-7) in the general population. Med Care. 2008;46(3):266-74.*
22. *Ettman CK, Abdalla SM, Cohen GH, Sampson L, Vivier PM, Galea S. Prevalence of Depression Symptoms in US Adults Before and During the COVID-19 Pandemic. JAMA Netw open. 2020;3(9):e2019686.*
23. *Sønderskov KM, Dinesen PT, Santini ZI, Østergaard SD. The depressive state of Denmark during the COVID-19 pandemic. Acta Neuropsychiatr. 2020;32(4):226-228.*
24. *Roy D, Tripathy S, Kar SK, Sharma N, Verma SK, Kaushal V. Study of knowledge, attitude, anxiety & perceived mental healthcare need in Indian population during COVID-19 pandemic. Asian Journal of Psychiatry. 2020;51:102083.*
25. *Çakıcı M, Gökçe Ö, Babayiğit A, Çakıcı E, Eş A. Depression: point-prevalence and risk factors in a North Cyprus household adult cross-sectional study. BMC Psychiatry.2017;17(1).*
26. *Naser AY, Dahmash EZ, Al-Rousan R, Alwafi H, Alrawashdeh HM, Ghoul I, et al. Mental health status of the general population, healthcare professionals, and university students during 2019 coronavirus disease outbreak in Jordan: A cross-sectional study. Brain Behav. 2020;10(8):1-13.*
27. *Solomou I, Constantinidou F. Prevalence and predictors of anxiety and depression symptoms during the COVID-19 pandemic and compliance with precautionary measures: Age and sex matter. Int J Environ Res Public Health. 2020;17(14):1-19.*
28. *AlAteeq DA, Aljhani S, Althiyabi I, Majzoub S. Mental health among healthcare providers during coronavirus disease (COVID-19) outbreak in Saudi Arabia. J Infect Public Health. 2020;13(10):1432-7.*
29. *Manjunatha N, Kumar C, Bada Math S. Mental Health in the times of COVID-19 Pandemic Guidelines for General Medical and Specialised Mental Health Care Settings. 2020.Available from https://nimhans.ac.in/wp- content/uploads /2020/04/MentalHealthIssuesCOVID-19 NIMHANS.pdf.*
30. *Yao H, Chen J-H, Xu Y-F. Patients with mental health disorders in the COVID-19 epidemic. Lancet Psychiatry. 2020;7(4):e21 10.1016/S2215-0366(20)30090-0.*

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