



Psychological Impact of the COVID 19 Pandemic among College Students: A Web-Based Cross-Sectional Survey

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

Article Information

DOI: 10.9734/JPRI/2022/v34i2A35356

Open Peer Review History:

This journal follows the Advanced Open Peer Review policy. Identity of the Reviewers, Editor(s) and additional Reviewers, peer review comments, different versions of the manuscript, comments of the editors, etc are available here: <https://www.sdiarticle5.com/review-history/80975>

Original Research Article

Received 06 November 2021

Accepted 10 January 2022

Published 14 January 2022

ABSTRACT

The novel coronavirus (COVID-2019) has spread very rapidly all over the globe, causing an outbreak of acute infectious pneumonia. This pandemic brought not only the risk of death but also psychological pressure on people and remarkably on college students. To assess the psychological impact of COVID-19 on college students. A web-based cross-sectional study was conducted on college students studying diploma, graduation, and post-graduation irrespective of their gender was included in the study. The data was collected through online mode by providing links to fill google form. The survey tool was disseminated in various messenger groups and social media networks. The survey tool comprises demographics, COVID-19 stressors, generalized anxiety disorder scale (GAD 7), and patient health questionnaire (PHQ 9) scale. Chi-square was used to find the association between demographic characters with anxiety and depression. 443 students participated in this web-based survey. Among all participants, 44.25% were normal range, 31.38%

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are mild anxiety, 18.97% were moderate anxiety, and 5.42% were severe anxiety. Results also indicated that there were 37.25% participants were in normal range, about 27% were mild depression, 22.13% moderate depression, 7.45% moderately severe depression and 6.1% severe depression. All the variables other than gender, place of residence, and steady family income were significantly associated with anxiety, whereas gender and place of residence variables were not significantly associated with depression. To conclude, the mental health of college students was significantly affected by the pandemic. More help and support from society, families and colleges would be supportive to them. It is suggested that the government and colleges should collaborate to resolve this problem by providing high-quality, timely crisis oriented psychological services to college students.

Keywords: COVID-19; GAD-7; PHQ-9; anxiety; depression.

1. INTRODUCTION

Coronavirus 19 is caused by severe acute respiratory syndrome coronavirus 2. The disease was first emerged in December 2019 from Wuhan, Hubei province, China and spread throughout the world [1]. The world health organization declared a global pandemic on March 11th, 2020. As of 19th February 2021, there were over 110 million confirmed cases of COVID 19 and over 2.44 million deaths reported globally. In India, confirmed cases as of 19th February 2021 is nearly 11 million with over 1.5 Lakh deaths [2]. Continuous spread of epidemic, strict isolation measures, delay in starting schools, colleges, and universities across the country is expected to influence the mental health of college students [3]. Many institutions of higher education rapidly shifted to online mode to limit the exposure to coronavirus. During this period the university students may have anxiety and situational stress about their future [4]. This pandemic brought not only the risk of death but also psychological pressure on people and remarkably on college students [5]. GAD-7 is a seven-item instrument that is used to measure or assess the severity of generalized anxiety disorder [6]. The PHQ 9 is the nine-item depression scale of the patient health questionnaire [7]. It is one of the most validated tools in mental health and can be a powerful tool to assist clinicians to diagnose depression and to monitor treatment response [8]. There have been reports on the psychological impact of the COVID-19 pandemic on the public, children, hospital staff, older adults [9]. However, but-there were few studies on the mental health of college students during the pandemic. Therefore, we investigated and analysed the psychological impact of COVID-19 among college students to fill the research gap in this area.

2. METHODOLOGY

2.1 Study Design and Duration

A cross-sectional, web-based online survey was conducted for a period of 6 months from July 2020 to December 2020.

2.2 Target Population

Students perusing diploma, graduation, and post-graduation programs irrespective of their gender were included in the study. Students not interested in the study and students diagnosed with the psychiatric disorders prior to pandemic were excluded.

2.3 Sample Size

Required sample size was calculated using Epi-info software by considering expected frequency 50%, confidence interval 95 %, margin of error 5%, design effect 1. By considering the above assumptions, the sample size became 384. 15 % non-response rate was added to compensate non-response and sample size finally became 443.

2.4 Study Instruments

- Generalized anxiety disorder scale [10] (GAD-7)
- Patient health questionnaire [11,12] (PHQ-9)

2.5 Study Procedure

An online survey tool was prepared by using Google form, comprising with the demographic characters of the participants, generalized anxiety disorder scale (GAD-7), and a patient health questionnaire (PHQ-9). The survey tool was circulated in various messenger groups

(WhatsApp, We Chat, IMO), and social media networks (Facebook, Twitter, Instagram, and LinkedIn). The first page of the form describes the background, core objectives, and expected outcomes of the survey. The respondent needs to opt “yes” for the first question (are you willing to join in this online survey) to enter the study. The data was collected through online mode by providing a link to fill Google Forms questionnaire/survey tool comprising demographics, perceived health status, and COVID-19 experience, GAD-7 for Anxiety & PHQ-9 for Depression.

2.6 Statistical Analysis

Chi-square was used to find the association between the demographic characteristics with Anxiety and Depression. P-value ≤ 0.05 is considered significant.

3. RESULTS

An online survey was conducted among 443 students from different fields; questionnaire was

distributed among college students from different courses through social media platforms. Among all respondents, 235 were female and 208 were male.

4. DISCUSSION

Studies have suggested that public health emergencies can have many psychological effects on college students, which can be expressed as anxiety, fear, and worry, among others [13]. The main goal of this study was to assess the psychological wellbeing of college students during a pandemic and explore factors affecting their anxiety and depression.

The findings revealed that there were 18.9 % and 5.42% of students moderate and severe level of anxiety respectively. There were 7.45% and 6.1% students having moderate and severe levels depression during the spread of COVID-19. Similar findings were observed in a study conducted in Bangladesh by Saroni Biswas 2021 et al [14].

Table 1. Number of students with different anxiety levels

Anxiety Levels	Number	Percentage (%)
mild	139	31.3769
Moderate	84	18.9616
Normal	196	44.2437
Severe	24	5.4176

Table 2. Number of students with different levels of depression

Depression Levels	Number	Percentage
Minimal	166	37.47
Mild	120	27.088
Moderate	97	21.89
Moderately severe	33	7.45
Severe	27	6.09

Table 3. Responses of the college students toward the COVID 19 related stressors

Questions	Yes (%)	No (%)
1. Worry about economic influences	329 (74.3)	114 (25.7)
2. Living with parents in lock down period	338 (76.3)	105 (23.7)
3. Health care professionals as parents	94 (21.2)	349 (78.8)
4. Having study family income	190 (42.9)	253 (57.1)
5. Negative economic influences	342 (77.2)	101 (22.8)
6. Had negative influence on daily life	355 (80.1)	88 (19.9)
7. Relatives or acquaintance got infected with COVID-19	262 (59.1)	181 (40.9)
8. Social support	258 (58.2)	185 (41.8)
9. Having any physical disease or comorbidities	56 (12.6)	387 (87.4)

Table 4. Severity of Anxiety in college students using GAD-7 Scale

Variables	Total no. (%)	Minimal (%)	Mild (%)	Moderate (%)	Severe (%)	P-value
Steady family income						0.012178*
Yes	190(42.88)	100(52.63)	52(27.36)	32(16.84)	6(3.15)	
No	253(57.1)	96(37.95)	87(34.38)	52(20.55)	18(7.11)	
Live with parents						0.003785*
Yes	338(76.3)	154(45.56)	106(31.06)	67(19.82)	11(3.25)	
No	105(23.7)	42(40)	33(31.42)	17(16.19)	13(12.38)	
Worry about academic delays						0.000035*
Yes	329(74.26)	124(37.68)	114(34.65)	69(20.97)	22(6.68)	
No	114(25.74)	72(21.88)	25(7.59)	159(4.55)	2(0.60)	
Any of your parents are health professional						0.003055*
Yes	94(21.21)	27(28.72)	33(35.10)	26(27.65)	8(8.51)	
No	349(78.78)	169(48.42)	106(30.37)	58(16.61)	16(4.58)	
Worry about economic influences						0.00001*
Yes	342(77.2)	128(37.42)	120(34.08)	72(21.05)	22(6.43)	
No	101(22.79)	68(67.32)	19(18.81)	12(11.88)	2(1.98)	
Whether COVID 19 had created any negative influence on daily life						0.007644*
Yes	355(80.13)	143(40.28)	117(32.95)	74(20.84)	21(3.09)	
No	88(19.86)	53(60.22)	22(25)	10(11.36)	3(3.40)	
Any social support from relatives and neighbors						0.001083*
Yes	258(58.23)	131(50.77)	75(29.06)	45(17.44)	7(2.71)	
No	185(41.76)	65(35.13)	64(34.59)	39(21.08)	17(9.18)	
Presence of any comorbidities or any physical disease						0.00001*
Yes	56(12.64)	10(17.85)	19(33.92)	19(33.92)	8(14.28)	
No	387(87.35)	186(48.06)	120(31)	65(16.79)	16(4.13)	

*P ≤ 0.05 is considered as significant

Table 5. Severity of depression using PHQ-9 Scale

Variables	Total no. (%)	Minimal (%)	Mild (%)	Moderate (%)	Moderately severe (%)	Severe (%)	P-value
Steady family income							0.003375*
Yes	190 (?)	88 (46.32)	51 (26.84)	28 (14.74)	14 (7.37)	9 (4.74)	
No	253 (?)	78 (30.83)	69 (27.27)	69 (27.27)	19 (7.5)	18 (7.12)	
Live with parents							0.002971*
Yes	338	136 (40.24)	87 (25.47)	76 (22.48)	26 (7.69)	13 (3.85)	
No	105	30 (28.57)	33 (31.43)	21 (20)	7 (6.66)	14 (13.33)	
Worry about academic delays							0.00001*
Yes	329	99(30.09)	92(27.96)	84(25.53)	28(8.51)	28(8.51)	
No	114	67(58.77)	28(24.56)	13(11.40)	5(4.38)	1(0.87)	
Any of your parents are health professional							0.005248*
Yes	94	23(24.46)	23(24.46)	28(29.78)	10(10.63)	10(10.63)	
No	349	143(40.97)	97(27.79)	69(19.77)	23(6.59)	17(4.87)	
Worry about economic influences							0.000034*
Yes	342	107(31.28)	100(29.23)	81(23.68)	29(8.47)	25(7.09)	
No	101	59(58.41)	20(19.8)	16(15.84)	4(3.96)	2(1.98)	
Whether COVID 19 had created any negative influence on daily life							0.000059*
Yes	355	113(31.83)	104(29.29)	85(23.94)	30(8.45)	23(6.47)	
No	88	53(60.22)	16(18.18)	12(13.63)	3(3.4)	4(4.54)	
Any social support from relatives and neighbors							0.007663*
Yes	258	112(43.41)	70(27.13)	46(17.82)	19(7.36)	11(4.26)	
No	185	54(29.18)	50(27.02)	51(27.56)	14(7.56)	16(8.64)	
Presence of any comorbidities or any physical disease							0.00001*
Yes	56	8(14.28)	13(23.21)	15(26.78)	9(16.07)	11(19.64)	
No	387	158(40.82)	158(40.82)	82(21.18)	24(6.2)	16(4.13)	

* $P \leq 0.05$ is considered as significant

The students' anxiety and depression might be probably caused by the gradual increasing distancing between people due to quarantine policy. Previous research indicated that anxiety and depression were more likely to occur and became worsen in the absence of interpersonal communication [15].

Students at the age group of 15 to 19 years old and 20 to 24 years old were experiencing more anxiety, depression than other age groups. This may be due to the continuous spread of the pandemic, strict isolation measures and suspension of schools, colleges, and universities across the country. All this might have negative impact on the mental health of college students. Similar findings were observed in study conducted in Bangladesh by Md. Akhtarul Islam 2020 et al [16]. Students living in rural areas, having neither steady family income, nor living with parents had more severe anxiety level than those living in urban areas with parents and having steady family income. Similar findings were observed in a study conducted in China by Cao and his associates 2020 et al [17]. This might be explained by the imbalance of economic, cultural, and educational resources between urban and rural areas. Similarly, the sanitary conditions in cities are better than in towns and villages, which decreases the chances of surviving the virus. Cities might have more educational resources, and to be able to have greater efforts to promote knowledge on prevention of the pandemic. This might be an effective measure to prevent the pandemic (Tang et al., 2020). Because of the pandemic outbreak, some families lost their sources of income, and hence students might feel anxious and depressive about paying their tuition fees [18].

Consistent with our hypothesis, the COVID-19-related stressors, which include economic stressors, effects on daily-life, any one of their parents were health care professionals' academic delays, social support and comorbidities were significantly associated with symptoms of anxiety and depression levels among college students during the pandemic. Similar findings also observed in study conducted in China by Tang and his associates (2020) [19].

The results of the present study indicated that college students' anxiety and depression levels induced by the pandemic were associated with their source of parental income, whether living with parents, and whether a relative or an acquaintance was infected with COVID-19.

Students living with parents and having social support would have less anxiety and depression levels. This can be justified that social support, particularly from family members, has been identified as a protective factor against mental health risks induced by COVID-19. Some effective social support measures might include giving someone comfort, advice, or lending an ear to those with life challenges or distress. However, no significant difference in gender and region was identified. This can be justified that both male and females whether they are living in rural and urban areas were experiencing similar symptoms of anxiety and depression during the pandemic.

5. CONCLUSION

Few participants experiencing symptoms of anxiety and depression due to the COVID-19 pandemic. Living with their parents having steady family income were protective factors against anxiety and depression during the COVID-19. The COVID-19 related stressors that included economic stressors, effects on daily life, and academic delays have significant relationship with the level of anxiety and depression symptoms of Indian college students during the epidemic. The mental health of college students was significantly affected when faced with public emergencies, and they require attention, help and support of the society, families, and colleges. It is suggested that the government and colleges should collaborate to resolve this problem to provide high-quality, timely crisis oriented psychological services to college students.

6. LIMITATIONS

First, the method of convenience sampling and its descriptive nature through an online survey may not allow the generalization of results. Students' anxiety may be due to many other factors other than COVID-19, which may not be captured through this method. However, considering the need for a rapid method to assess depression and anxiety levels among a vulnerable population in times of the rapid spread of the infectious disease, the use of an online survey serves as a favorable method to collect data and to generate quicker results. Secondly, the nature of self-reported data in the survey may lead to response biases. Students may provide socially desirable responses to those COVID-19 stressors. Hence, it might not be accurately assessed as that being assessed by a mental health professional. In spite of these limitations,

the present study provides some important information which deserves further research, and it lends evidence to support that public health interventions in this area are necessary.

CONSENT AND ETHICAL APPROVAL

The study was initiated after approval from the ethics committee, Institutional Review Board (IRB), RIPER, Anantapur with approval No: RIPER/IRB/PP/2020/008. The study protocol, survey tool, and informed consent process was approved by IRB, RIPER, Anantapur. Anonymity was maintained to ensure confidentiality and reliability of the data. The study was conducted online in compliance with the provisions of the Declaration of Helsinki regarding research on human subjects.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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Peer-review history:
The peer review history for this paper can be accessed here:
<https://www.sdiarticle5.com/review-history/80975>