

## Original Research Article

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

#### Abstract:

**Background:** 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. **Aim:** To assess the psychological impact of COVID 19 on college students.

**Materials and methods:** A web based cross sectional study was conducted 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 link to fill google form. The survey tool was disseminated in various messenger groups and social media network. The survey tool comprises demographics, COVID 19 stressors, GAD 7, PHQ 9 scales. Chi-square was used to find the association between demographic characters with Anxiety and Depression. **Results:** A total of 443 students were participated in this web-based survey. Among 443 participants (44.25%) are normal, (31.38%) are experiencing mild Anxiety, ( 18.97% )are experiencing moderate Anxiety, (5.42%) are experiencing severe Anxiety. Among 443 participants (37.25%) are normal, (27.09%) are experiencing mild Depression, (22.13%) are experiencing moderate depression, (7.45%) are experiencing moderately severe depression, (6.1%) are experiencing severe depression. Chi square was used to find the association between the demographic characteristics with Anxiety and Depression. All the variables other than gender, place of residence, and steady family income are significantly associated with Anxiety, whereas gender and place of residence variables are not significantly associated with depression.

**Conclusion:** The mental health of college students is 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 in order to provide high-quality, timely crisis oriented psychological services to college students.

**Keywords:** Covid-19, GAD-7, PHQ-9, Anxiety, Depression.

## **Introduction**

Corona virus disease 2019 is caused by severe acute respiratory syndrome corona virus 2. The disease was first emerged in December 2019 from Wuhan, Hubei province, China and has since spread throughout world <sup>(1)</sup>. The world health organization declared a global pandemic on March 11<sup>th</sup> 2020. As of 19<sup>th</sup> February 2021, there were over 110 M confirmed cases of COVID 19 and over 2.44 M deaths reported globally. In India, confirmed cases as of 19<sup>th</sup> February 2021 is nearly 11 M with over 1.5 L deaths <sup>(2)</sup>. 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<sup>3</sup>. Many institutions of higher education rapidly shifted to online education to limit travel and exposure to novel corona virus. During this period the university students may have anxiety and situational stress about their future<sup>4</sup> This pandemic brought not only the risk of death but also psychological pressure on people and remarkably on college students <sup>(5)</sup>. GAD-7 is a seven-item instrument that is used to measure or assess the severity of generalized anxiety disorder<sup>6</sup> 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 with diagnosing depression and monitoring treatment response (8). There have been reports on the psychological impact of COVID 19 pandemic on the general public, children, hospital

staff, older adults but there have been no detailed 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 <sup>(9)</sup>.

## **Methodology**

**Ethical approval:** Study was initiated after approval from 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. No monetary incentive was provided to participants and 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.

**Study design & duration:** A cross sectional, web based online survey was conducted for a period of 6 months from July 2020 to December 2020.

### **Study Criteria:**

**Inclusion criteria:** Students perusing diploma, graduation and post- graduation irrespective of their gender were included in the study.

**Exclusion criteria:** Those are not interested to participate in the study and students diagnosed with the psychiatric disorders prior to pandemic were excluded.

**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 above assumptions, sample size became 384. 15 % non-response rate was added to compensate non response and sample size finally became 443.

### **Study Instruments:**

- Generalized anxiety disorder scale<sup>5</sup> (GAD-7)
- Patient health questionnaire<sup>6,7</sup> (PHQ-9)

**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 patient health questionnaire (PHQ-9). The survey tool was circulated in various messenger groups (WhatsApp, We Chat, IMO), and social media networks (Face book, Twitter, Instagram, and LinkedIn). First page of the form describes 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 into the study. The data was collected through online mode by providing 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.

**Statistical analysis:** Chi square was used to find the association between the demographic characteristics with Anxiety and Depression. P-value  $\leq 0.05$  is considered as significant.

## Results

An online survey was conducted among 443 students of different fields; questionnaire was distributed among college students of different colleges of different courses through social media platforms, among them 235 were female and 208 were male.

**Table 1: Number of students with different anxiety levels**

Anxiety	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	Number	Percentage
Minimal	166	37.47
mild	120	27.088
Moderate	97	21.89
moderately severe	33	7.4492
Severe	27	6.09

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

Questions	Yes (%)	No (%)
worry about economic influences	329(74.3)	114(25.7)
living with parents in lock down period	338(76.3)	105(23.7)
health care professionals as parents	94(21.2)	349(78.8)
having study family income	190(42.9)	253(57.1)
negative economic influences	342(77.2)	101(22.8)
Had negative influence on daily life relatives or acquaintance got infected with COVID-19	355(80.1)	88(19.9)
social support	262(59.1)	181(40.9)
having any physical disease or comorbidities	258(58.2)	185(41.8)
	56(12.6)	387(87.4)

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

Variables	Total	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 neighbours						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)	

\* $P \leq 0.05$  is considered as significant

**Table: 6 Severity of depression using PHQ-9 Scale**

Variables	Total	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)	
Variables	Total	Minimal	Mild	Moderate	Moderately severe	Severe	P-value
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 neighbours							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

## 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<sup>(10)</sup>

The main goal of this study was to assess the psychological condition of college students during pandemic and explore factors influencing their anxiety and depression. This Study findings revealed that students experiencing the symptoms of moderately and severe symptoms of Anxiety were (18.97%, 5.42%), moderately severe and severe symptoms of Depression were (7.45% ,6.1%), due to covid-19 outbreak. Similar findings were observed in a study conducted in Bangladesh by Saroni Biswas 2020 et al.<sup>(11)</sup>

The students' anxiety and depression may have been caused by the gradually increasing distances between people resulting from the quarantine. It is known that anxiety and depression are more likely to occur and worsen in the absence of interpersonal communication.<sup>(12)</sup>

Students at the age group of 15-19, 20-24, were experiencing more anxiety, depression than other age groups. This may be due to Continuous spread of the pandemic, strict isolation measures and delays in starting schools, colleges, and universities across the country is expected to influence the mental health of college students. Similar findings were observed in study conducted in Bangladesh by Md. Akhtarul Islam 2020 et al<sup>(13)</sup>. Students living in

rural areas, not having steady family income, not living with parents were have severe Anxiety than students living in urban, having steady family income, living with parents. Similar findings were observed in a study conducted in china by Wenjun Cao 2020 et al <sup>(10)</sup>. 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 decrease the chances of surviving the virus. Cities also have excellent educational resources, and they have made great efforts to promote knowledge on prevention of the pandemic, which aids to take measures to prevent the pandemic (Tang et al., 2020) <sup>(14)</sup> . Because of the outbreak, some families lost their source of income, and students might feel anxious and depressive about paying their tuition fees <sup>(15)</sup> .

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 anxiety, depression symptoms of college students during the pandemic. Similar findings also observed in study conducted in china by Wenjun Cao 2020 et al<sup>(10)</sup>.

The results of this study indicated college students' anxiety and depression regarding the pandemic was 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 have less anxiety and depression. This can be justified that Social support, particularly from family members , has been identified as a protective factor against COVID-19-related mental health issues . Examples of social support could include giving someone comfort, advice, or a listening ear when they are dealing with life challenges or distress.

However, no significant difference in gender and region was indicated. 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.

## **Conclusion**

Few Students are experiencing symptoms of Anxiety and Depression due to covid19 pandemic. Living with their parents having steady family income were protective factors against Anxiety and Depression during the COVID - 19 outbreak. The COVID-19- related stressors that included economic stressors, effects on daily-life, and academic delays have significance with the level of anxiety and depression symptoms of Indian college students during the epidemic. The mental health of college students is 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 in order to provide high-quality, timely crisis oriented psychological services to college students.

**Limitations:** Firstly, the method of convenience sampling and its descriptive nature through an online survey may not allow the generalization of results especially 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 in a vulnerable population during a rapidly evolving infectious disease outbreak, the use of an online survey serves as a favorable method for quick results.

Secondly, the nature of self-reported data in the survey may lead to response biases where students may provide socially desirable responses and self-reported levels of anxiety,

depression and COVID-19 stressors which may not always be as accurate as being assessed by a mental health professional. However, inspite of these limitations, this study provides important basic information which will inform further research and public health interventions in this area.

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