

## 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. The aim of the present study is to ~~Aim: To~~ assess the psychological impact of **COVID-19** on college students. ~~Materials and methods:~~ 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 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 (full name)**, and **PHQ-9 (full name)** scales. Statistical analysis using Chi-square was adopted ~~used to study find~~ the association between demographic variables ~~characters~~ with the levels of Anxiety and Depression. Results indicated that there were ~~÷~~ A total of 443 students ~~were participated~~ in this web-based survey. Among all, ~~443~~ participants, ~~(44.25%)~~ 44.25% were in normal range, ~~(31.38%)~~ 31.38% were ~~experiencing~~ mild aAnxiety, ~~(18.97%)~~ 18.97% were ~~experiencing~~ moderate aAnxiety, and ~~(5.42%)~~ 5.42% were ~~experiencing~~ severe aAnxiety. Results also indicated that there were ~~Among 443~~ participants ~~(37.25% participants were in )~~ are normal range, ~~(27.09%)~~ about 27% were ~~are~~ ~~experiencing~~ mild dDepression, ~~(22.13%)~~ 22.13% ~~were are~~ ~~experiencing~~ moderate depression, ~~(7.45%)~~ 7.45% ~~were are~~ ~~experiencing~~ moderately severe depression and 6.1% were, ~~(6.1%)~~ are ~~experiencing~~ severe depression. Chi square was used to ~~find he~~ association

between the demographic characteristics with Anxiety and Depression. All the variables other than gender, place of residence, and steady family income were ~~are~~ significantly associated with aAnxiety, whereas gender and place of residence variables were ~~are~~ not significantly associated with depression. **To conclude, tConclusion:** The mental health of college students was is significantly affected by the pandemic. ~~when faced with public emergencies, More and they require attention,~~ help and support from of the society, families and colleges would be supportive to them. It is suggested that the government and colleges should collaborate to resolve this problem ~~in order to~~ by providing high-quality, timely crisis oriented psychological services to college students. (Don't copy from the work of Cao and associates, 2020, doi:10.1016/j.psychres.2020.112934)

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

## Introduction

Coronavirus 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 the world <sup>(1)</sup> (reference) in APA format. 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 (million ?) confirmed cases of COVID 19 and over 2.44 M (million?) deaths reported globally. In India, confirmed cases as of 19<sup>th</sup> February 2021 is nearly 11 M (?) with over 1.5 L (what does L stand for?) deaths <sup>(2)</sup>-(reference) in APA format. Continuous spread of epidemic, strict isolation measures, delay in starting schools, colleges, and universities across the country was ~~is~~ expected to influence the mental health of college students<sup>3</sup>(reference) in APA format. Many institutions of higher education rapidly shifted to online mode ~~education~~ to limit ~~travel and~~ the exposure to ~~new~~ coronavirus. During this

period, the university students may have anxiety and situational stress about their future<sup>4</sup>(reference) in APA format. This pandemic brought not only the risk of death but also psychological pressure on people and remarkably on college students<sup>(5)</sup> (reference) in APA format. GAD-7 is a seven-item instrument that is used to measure or assess the severity of generalized anxiety disorder<sup>6</sup> (reference) in APA format. The PHQ 9 is the nine-item depression scale of the patient health questionnaire (7) (reference) in APA format. It is one of the most validated tools in mental health and can be a powerful tool to assist clinicians to with diagnose ing depression and to monitoring treatment response (8) (reference) in APA format.. There have been reports on the psychological impact of COVID 19 pandemic on the general public, children, hospital staff, and older adults. However, but there were few 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> (reference) in APA format so as to fill the research gap in this area.

## 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.

**Target population Study Criteria:**

~~**Inclusion criteria:**~~ Students perusing diploma, graduation and post- graduation programs irrespective of their gender were included in the study. Exclusions included students not

~~**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:** The 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, 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) (altogether how many items in the survey tool ?) . 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 Google Forms. The questionnaire/survey tool comprising questions related to demographics, perceived health status, and COVID-19 experience, GAD-7 for Anxiety & PHQ-9 for Depression. (altogether how many items in the survey tool ?)

**Statistical analysis:** Chi square was used to find he 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 from of different fields; questionnaire was were distributed among college students of different colleges of from different courses through social media platforms. Among all respondents, among them 235 were female and 208 were male.

**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 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 ≤ 0.05 is considered as significant

**Table: 6 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*
		136					
Yes	338	(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)	
<b>Variables</b>	<b>Total</b>	<b>Minimal</b>	<b>Mild</b>	<b>Moderate</b>	<b>Moderately severe</b>	<b>Severe</b>	<b>P-value</b>
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 ≤ 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>

**(reference) in APA format** The main goal of this study was to assess the psychological well-being ~~condition~~ of college students during pandemic and to explore factors affecting ~~influencing~~ their levels of anxiety and depression. The findings revealed that there were 18.9% and 5.42% of students experiencing ~~the symptoms of~~ moderately and severe level ~~symptoms~~ of aAnxiety respectively (18.97%, 5.42%). There were 7.45% and 6.1% students having ~~moderately severe and severe levels symptoms of d~~Depression ~~were~~ (7.45%, 6.1%) during the spread of ~~, due to Covid-19 outbreak~~. Similar findings were observed in a study conducted in Bangladesh by Saroni Biswas 2020 et al. **(reference) in APA format**<sup>(11)</sup>

The students' anxiety and depression might be probably ~~may have been~~ caused by the gradually-increasing **social** distancing ~~es~~ between people due to ~~resulting from the~~ quarantine policy. Previous research indicated that ~~It is known that~~ anxiety and depression were ~~are~~ more likely to occur and became worsen in the absence of interpersonal communication. <sup>(12)</sup>

**(reference) in APA format**

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. **(any research literature to support this?)** This may be due to the cContinuous spread of the pandemic, strict isolation measures and (school suspension??) delays in starting schools, colleges, and universities across the country. **All this might have negative impact on the** ~~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> **(reference) in APA format**. Students living in rural areas, having neither steady family income, nor living with parents had more ~~were have~~ severe aAnxiety level than those ~~students~~ living in urban areas with parents and having steady family income. Similar findings were observed in a study conducted in **China** by ~~Wenjun~~ Cao and his

associates 2020 et al <sup>(10)</sup> (reference) in APA form . This might be explained by the imbalance of economic, cultural, and educational resources between urban and rural areas. Similarly, the sanitary conditions, which decrease the chances of surviving the virus, in cities are better than those in towns and villages. Cities might also have more excellent educational resources, and to be able to they have made greater efforts to promote knowledge on prevention of the pandemic. This might be an effective help , which aids to take measures 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 <sup>(15)</sup> . (reference) in APA form

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 symptoms of among college students during the pandemic. Similar findings also observed in study conducted in China by Wenjun-Cao and his associates (2020) et al <sup>(10)</sup> : (reference) in APA form

The results of the present is 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 had 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 including giving someone comfort, advice, or lending an ear to those with when they are dealing with life challenges or distress .

However, no significant difference in gender and region was identified ~~indicated~~. This can be justified that both ~~m~~Male and females whether they are living in rural and urban areas were experiencing similar symptoms of ~~a~~Anxiety and ~~d~~Depression during the pandemic.

## Conclusion

Few Students (Don't understand the meaning ??) are experiencing symptoms of ~~a~~Anxiety and ~~d~~Depression due to covid19 pandemic. Living with their parents having steady family income were protective factors against Anxiety and Depression during the outbreak of COVID - 19 ~~outbreak~~. The COVID-19- related stressors that included economic stressors, effects on daily-life, and academic delays have significant-~~ee~~ relationship with the level of anxiety and depression symptoms of Indian college students during the epidemic. The mental health of college students was-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. (suspected plagiarism from doi:10.1016/j.psychres.2020.112934)

**Limitations:** Firstly, the method of convenience sampling and its descriptive nature through an online survey may not allow the generalization of results. Students' ~~especialy~~ 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 ~~in~~ a vulnerable population in times of the rapid spread of the ~~evolving~~ infectious disease ~~outbreak~~, 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 ~~and self-reported levels of anxiety, depression and~~ COVID-19 stressors. Hence, it might ~~which may not always be as~~ be accurately assessed as that being assessed by a mental health professional. In spite of these limitations, the present ~~this~~ study provides some important ~~basic~~ information which deserves ~~will inform~~ further research and it lends evidence to support that public health interventions in this area is necessary.

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