



## A STUDY TO ASSESS THE LEVEL OF ANXIETY ASSOCIATED WITH COVID-19 AMONG HIGH SCHOOL STUDENTS

Janula RAJU<sup>1\*</sup>, Raju ASIRVATHAM<sup>2</sup>

<sup>1</sup>College of Applied Medical Science, King Khalid University, Saudi Arabia

<sup>2</sup>St. Joseph's College of Pharmacy, Cherthala, Kerala, India

**Abstract:** The COVID-19 pandemic has had a major impact on school children especially in their academic performance which may affect their mental health. The study aimed to assess the anxiety level of high school students. A cross sectional electronic study conducted among high school students in Tamil Nadu, the southernmost state of India. A total of 302 high school students participated in the study. A two sectioned self-structured questionnaire was used for data collection. The collected data were analyzed by using SPSS 16.0 version software. A chi-square test was used to investigate the level of anxiety among students and ANOVA test used to find the mean difference between groups, with significance set to  $P < 0.05$ . Among 302 participants, 41.7% ( $n=126$ ) were male, 58.3% ( $n=176$ ) were aged 13-17 years. The study indicated that majority 132 (43.7%) of study participants reported that they had Mild anxiety which was followed by 77 (25.5%) no anxiety and 62 (20.5%) moderate anxiety. Factors such as age, gender, family members tested positive or being quarantined were having association with anxiety level. The researcher concluded that the high school children are experiencing a considerable level of anxiety during lock down of COVID-19 pandemic period. There was a strong association of anxiety level of students, if any family members are tested positive for corona virus or any one is being quarantined for the symptoms of corona virus.

**Keywords:** Anxiety, High school students, COVID-19, Corona Virus

\*Corresponding author: College of Applied Medical Science, King Khalid University, Saudi Arabia

E mail: janular@mail.com (J. RAJU)

Janula RAJU



<https://orcid.org/0000-0002-2903-1818>

Raju ASIRVATHAM



<https://orcid.org/0000-0002-7939-4975>

Received: July 06, 2020

Accepted: September 01, 2020

Published: January 01, 2021

Cite as: Raju J, Asirvatham R. 2021. A study to assess the level of anxiety associated with COVID-19 among high school students. BSH Health Sci, 4(1): 1-5.

### 1. Introduction

The COVID-19 pandemic, also known as the coronavirus pandemic, is an ongoing global pandemic of corona virus disease 2019 (COVID-19), caused by severe acute respiratory syndrome corona virus 2 (SARS-CoV-2) (WHO, 2020). The outbreak was first identified in December, 2019, a series of pneumonia cases of unknown cause emerged in Wuhan, Hubei, China, with clinical presentations greatly resembling viral pneumonia (WHO, 2020).

A novel coronavirus was identified as the cause by Chinese authorities on 7 January 2020 and was temporarily named "2019-nCoV". On 11 March 2020, the rapid increase in the number of cases outside China led WHO Director-General Dr. Tedros Adhanom Ghebreyesus to announce that the outbreak could be characterized as a pandemic (WHO, 2020). As of 6 July 2020, more than 11.4 million cases of COVID-19 have been reported in more than 188 countries and territories, resulting in more than 534000 deaths; more than 6.16 million people have recovered.4 The announcement of Public Health Emergency of International Concern (PHEIC) by WHO on January 30, 2020 had stipulated the severity of the disease (Mahase, 2020).

In India, the disease was first detected on 30 January

2020 in Kerala in a student who returned from Wuhan (Ghosh et al., 2020). The cumulative number of confirmed infected people is 700724 till now across India as of 06 July 2020. A 76-year-old man who tested positive for SARS-CoV-2 was the first death from Covid-19 in India, reported from Kalaburagi, Karnataka, who was returned from Saudi Arabia (The Economic Times, 2020). On 24th March 2020, the Government of India Prime Minister Mr. Narendra Modi ordered a nationwide lockdown first time for 21 days, on order to limit the movement of the entire 1.3 billion population of India as a preventive measure against the COVID-19 pandemic in India (Gittleman and Schultz, 2020). The nation's capital New Delhi announced the primary schools remain closed from March 6<sup>th</sup>, to prevent the spread of corona virus to among children. The announcement comes after a new case of coronavirus was reported in Ghaziabad, taking the total number in the country was about 30 cases (ETO, 2020).

The southernmost state of Tamilnadu government announced for the closure of schools from March 17th, 2020. In a statement to the press, the Chief Minister said that while all schools will remain shut, only the board exams and practical exams for class X and XII and entrance exams will take place as scheduled (Bureau, 2020). So far as on July 06 2020 Tamil Nadu has reported



more than 1.1 lakhs of corona virus positive cases among Chennai the Capital city of TamilNadu has 68254 positive cases (Banerjea, 2020). The government also cancelled board exams for 11th standard, while making it clear that it will conduct exams for 12th standard students who could not attend the exams on March 24 and 26 at a later date (Sivapriyan, 2020).

Schools throughout the country have been closed and the students are facing unprecedented change and they stressed about their examination, results and the promotions. Majority private Schools in the state started to have virtual and online classes to refresh the knowledge of students. The sudden shift of class room education to virtual mode comes with several challenges. This may also affect the psychological state of school children. In addition to that if any of the family members is home-quarantined for suspected corona virus infection and it may affect the entire family members including children. So the researcher would like to explore the level of anxiety among school children associated with Covid-19.

## 2. Material and Methods

This study used a non-experimental, cross-sectional survey design to assess the level of anxiety among High school students in Tamil Nadu, South India. Potential participants received a link of Google form through social media such as Whatsapp and Facebook in late May and June 2020. The questionnaire contains two sections. The Google form included a brief description of the study and approximate time required to complete the survey. Electronic informed consent was shown on the initial page of the survey. Three hundred and two (302) high school students were consented to participate and filled out the questionnaire. All the participants were informed of the purpose of the study and were assured of confidentiality and anonymity before they start the questionnaire. The students were asked to not indicate their name anywhere in the survey form.

### 2.1. Data Collection Tool

A questionnaire with two sections was specifically designed for the study. The first section contained questions on the demographic variables, consisted of seven questions on socio demographic factors, such as age, gender, educational status, parents education, occupation, any family members quarantined?, any family members tested positive? The second part contains three point Likert scale of self-structured anxiety assessment scale used to measure the agreement. It contains 10 statements and each statement with three options like Not at all, sometimes and always. The total score ranges from 0-20. Total scores were classified as follows: 0-5 No anxiety, Mild anxiety 6-10, Moderate anxiety 11-15, and Severe anxiety 16-20. The higher score indicating higher anxiety level. Reliability of self-structured questionnaire was verified using Reliability statistics Cronbach's Alpha. The reliability was 0.88 and the questionnaire was found to be reliable.

### 2.2. Statistical Method for Analysis

For data analysis, the statistical software SPSS (Statistical Package for Social Sciences) version 16.0 was used, facilitating the process of organizing data into tables for the sake of better visualization of the results and their interpretation. Chi square  $\chi^2$  test was used to test the association between demographic variables and anxiety score. One way ANOVA tests and independent t test was used to compare the mean score between groups. Descriptive statistics were used to describe frequencies of variables. A significant P value was set at 0.05 at 95% confidence interval.

### 2.1. Ethical Consideration

The study was carried out with the permission of Local Research Ethics Committee (Protocol number: REC/2020/135-N) dated 03.05.2020.

## 3. Results

Among 302 high school students majority 176 (58.3%) of study participants were females and 126 (41.7%) were males. The mean age of study participant was  $14.84 \pm 1.45$ . The students from class 8<sup>th</sup> to class 12<sup>th</sup> were participated. Demographic status of the level of anxiety among high school students was given in Table 1. Association of demographic variables with anxiety score was tested by using  $\chi^2$  test, which was presented in Table 1. The  $\chi^2$  test stated that age, ( $\chi^2=4.941$ ,  $P=0.038<0.05$ ) gender, ( $\chi^2=1.362$ ,  $P=0.000<0.05$ ) family members tested positive ( $\chi^2=1.506$ ,  $P=0.000<0.05$ ) and family members quarantined ( $\chi^2=1.216$ ,  $P=0.001<0.05$ ) were having strong association with anxiety score. On the other hand educational level of students ( $\chi^2=5.065$ ,  $P=0.000>0.061$ ), education of parents ( $\chi^2=2.71$ ,  $P=0.000>0.289$ ) and occupation of parents ( $\chi^2=2.437$ ,  $P=0.000>0.251$ ) were not having association with anxiety score.

Independent t test was used to compare the means of anxiety score with the gender. As presented in Table 2 the mean difference between two groups were statistically significant ( $P<0.05$ ). This indicates that the females may have more anxiety than the males.

Figure 1 indicated that majority 132 (43.7%) of study participants reported that they had Mild anxiety which was followed by 77 (25.5%) no anxiety and 62 (20.5%) moderate anxiety. There were very limited number of participants 30 (9.9%) who experienced severe anxiety.

Overall anxiety score was given in Figure 2. One way ANOVA test was used to compare the mean differences of other variables. This test indicated that a significant difference between the mean score of students having different age. ( $F=18.48$ ,  $P=0.000<0.05$ ) Moreover the same test was used to analyze the mean differences of other variables which also confirmed that education ( $F=15.947$ ,  $P=0.000<0.05$ ), family members tested positive ( $F=11.333$ ,  $P=0.000<0.05$ ) and family members quarantined ( $F=16.748$ ,  $P=0.000<0.05$ ) were having significant difference between groups.

**4. Discussion**

Anxiety is an emotional state arising in situations of impending danger and manifested in expectation of unfavorable events (Nag et al, 2019). A survey report explained that during school closure increasing numbers

of students say they feel overwhelmed, and not just about the health of their family and friends due to the coronavirus. Their parents might be newly unemployed, they can't see their friends, or they might be trapped at home for a long period of time (Jones, 2020).

**Table 1.** Frequency and percentage distribution of demographic variables and its association with the level of anxiety among high school students

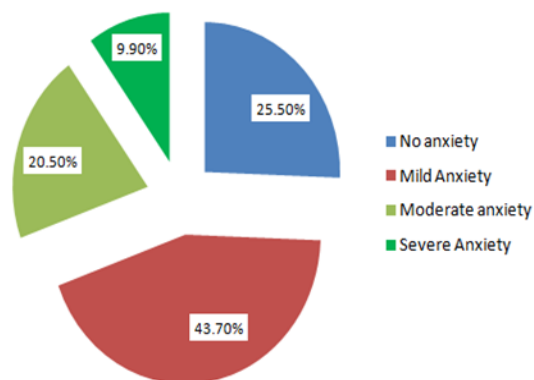
Sl. No	Variables	Frequency (n=302)	Percentage (%)	$\chi^2$ Value	P value
1	Age				
	13 years	74	24.5	4.941	0.038
	14 years	58	19.2		
	15 years	79	26.2		
	16 years	25	8.3		
	17 years and above	66	21.9		
2	Gender			1.362	0.000
	Male	126	41.7		
	Female	176	58.3		
3	Education			5.065	0.061
	8th std	85	28.1		
	9th std	47	15.6		
	10th std	76	25.2		
	11th std	24	7.9		
	12th std	70	23.2		
4	Education of parent			2.71	0.289
	School education	77	25.5		
	Undergraduate	127	42.1		
	Postgraduate and above	98	32.5		
5	Occupation of parent			2.437	0.251
	Govt employee	7	2.3		
	Private employee	121	40.1		
	Own bussiness	141	46.7		
	Others	33	10.9		
6	Any family members quarantined?			1.216	0.001
	Yes	62	20.5		
	No	240	79.5		
7	Any family members tested Corona Virus positive?			1.506	0.000
	Yes	7	2.3		
	No	295	97.7		

**Table 2.** Mean difference of Anxiety score between boys and girls.

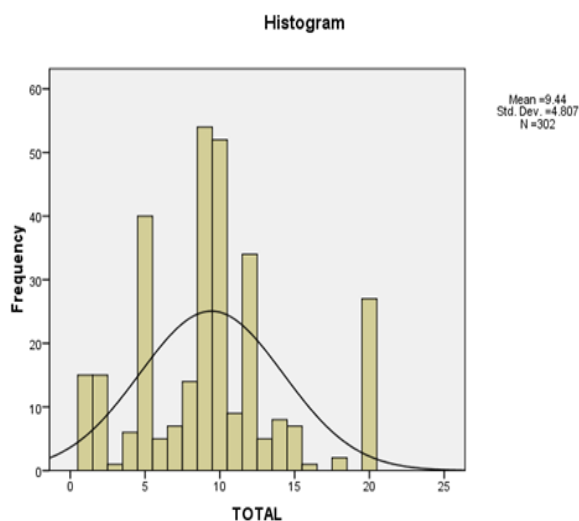
Gender	Male	Female
Frequency	126	176
Mean	8.19	11.8
SD	3.71	5.53
Independent t value	5.60	
P value	0.000	

Anxiety among students is a common issue that students cannot ignore if they want to achieve academic success in school. If academic anxiety is not properly addressed, it can have many serious, severe and long lasting consequences (Mahato and Jangir, 2012). The study findings revealed that majority of students were reported some extend of anxiety during corona pandemic. This was confirmed by a study, stated that the majority of the students displayed anxiety during the entire period of lockdown (Baloran, 2020). This is confirmed the research

of Roy et al., (2020) reported that people were having sleep difficulties, paranoia about acquiring COVID-19 infection and distress related social media. Besides advised parents to create a schedule for their children to reduce anxiety induced by uncertainty (Lee, 2020).



**Figure 1.** The overall anxiety level of high school students.



**Figure 2.** Revealed the histogram of anxiety score.

When comparing the mean differences of anxiety score among girls and boys it was identified there is a significant difference between groups. This was confirmed by a study done by Banga, (2014) and Nag et al., (2019) revealed that female students had severe anxiety than male students, and also stated that the anxiety level depends on the age group of students. Most of the study participants of current study said that they were getting anxiety when they have such symptoms of corona virus. During pandemic it is common there was increased anxiety felt by students regarding getting the COVID-19 infection (Baloran, 2020).

The study revealed that if any of the family members have tested corona positive the school students prone to get anxiety and stress. This is an anxiety-provoking and stressful time for everyone. While anxiety is a normal and expected reaction to the pandemic period (CMHA, 2020). The school students reported high level of anxiety if any

of their family members are being quarantined due to COVID-19 symptoms. A review conducted by Brooks et al., (2020) Stated that Quarantine is often an unpleasant experience for those who undergo it and for their family members. During quarantine period the parents may get financial loss and they may be interrupted with their daily activities with no advanced planning. These factors may adversely affect their children also. It appears that in India, the present lockdown affects people differently with regards to their sex, profession, socioeconomic status or their residing place (Rehman et al., 2020). Kumar and Nayar, (2020) have suggested that issues of mental health should be considered and also addressed as anxiety, stress, fear, trauma, helplessness and other psychological issues are experienced during a pandemic. Students of this study were reported that they were missing their friends and feeling lonely at home. The review report by Tian et al., (2020) stated that school closures are unprecedented globally. It is unclear how long countries can maintain tight suppression measures to prevent the spread of this disease. 24 So it may be additional stress for the students to be in home for a long period of time without meeting their friends.

## 5. Recommendations

The COVID-19 pandemic can be a stressful time for families, especially those with school going children who may be worried about a global health crisis. The study recommends that special attention to be given for the school students. Parents should speak in a moderate way to calm a child's anxiety. They can practice good hygiene, review safety steps about hand washing, and keeping the house clean. Parents and teachers should talk about how all school subjects are important in finding a solution to Covid-19. It is important to keep the children being touch with their school friends. Once the number of COVID-19 cases begin to fall, the Schools have begun to reopen and it will be essential for studies to monitor the effect of the reopening of schools. Policy makers and researchers should also look to other school social distancing interventions to maintain the control of this pandemic.

## 6. Limitations

To sum up, this research was done with certain limitations that should not be left unmentioned. These were like limited sample number and it was not a randomized samples. Since participation was voluntary, the data was completed by the students through electronic survey. Therefore, the measures were self-reported. This means that the accuracy of the responses could be compromised and the researchers are unable to verify the validity. There was a lack of time to extend the study as it is needed to be.

## 7. Conclusion

After the detailed analysis, the study leads to following conclusions: The researcher concluded that the high

school children are experiencing a considerable level of anxiety during lock down of COVID-19 pandemic period. There was a strong association of anxiety level of students, if any family members are tested positive for corona virus or any one is being quarantined for the symptoms of corona virus. So it is recommended to the parents to be kind with the students throughout the pandemic period.

### Author Contributions

All the authors declare that they have all participated in the design, execution, and analysis of the paper, and that they have approved the final version.

### Conflict of Interest

The authors declare that there is no conflict of interest.

### Acknowledgements

We are grateful to all the participants for their active participation and the friends who helped for data collection throughout this study. Financial support and sponsorship: Nil.

### References

- Baloran ET. 2020. Knowledge, attitudes, anxiety, and coping strategies of students during COVID-19 pandemic. *J Loss Trauma*, DOI: 10.1080/15325024.2020.1769300.
- Banerjee A. 2020. Tamil Nadu: With 4,150 new Covid-19 cases, state's tally crosses 1.1 lakh-mark. *Live mint*. URL: <https://www.livemint.com/news/india/coronavirus-tamil-nadu-with-4-150-new-covid-19-cases-state-s-tally-crosses-1-1-lakh-mark-11593956107624.html> (access date: 05.07.2020).
- Banga CL. 2014. Academic anxiety among high school students in relation to gender and type of family. *Shodh Sanchayan*, 5:1-7.
- Brooks SK, Webster RK, Smith LE, Woodland L, Wessely S, Greenberg N, Rubin GJ. 2020. The psychological impact of quarantine and how to reduce it: rapid review of the evidence. *Lancet*, 395: 912-920.
- Bureau ET. 2020. Tamil Nadu closes schools, colleges, malls till March 31 due to coronavirus. *Economic Times*. URL: [https://economictimes.indiatimes.com/news/politics-and-nation/tamil-nadu-govt-closes-public-places-till-march-31-due-to-coronavirus/articleshow/74657934.cms?utm\\_source=contentofinterest&utm\\_medium=text&utm\\_campaign=cppst](https://economictimes.indiatimes.com/news/politics-and-nation/tamil-nadu-govt-closes-public-places-till-march-31-due-to-coronavirus/articleshow/74657934.cms?utm_source=contentofinterest&utm_medium=text&utm_campaign=cppst) (access date: 06.07.2020).
- CMHA. 2020. (Canadian Mental Health Association) COVID-19 and anxiety. *Mental health*. URL: <https://www.heretohelp.bc.ca/infosheet/covid-19-and-anxiety> (access date: 06.07.2020).
- ETO. 2020. (Economic Times Online) Delhi schools closed: All primary schools shut as coronavirus spreads. URL: <https://economictimes.indiatimes.com/news/politics-and-nation/coronavirus-in-india-all-primary-schools-in-delhi-to-be-shut-till-march-31/articleshow/74493367.cms> (access date: 06.07.2020).
- Gettleman J, Schultz K. 2020. "Modi Orders 3-Week Total Lockdown for All 1.3 Billion Indians". *The New York Times*. URL: <https://www.nytimes.com/2020/03/24/world/asia/india-coronavirus-lockdown.html> (access date: 24.04.2020).
- Ghosh P, Ghosh R, Chakraborty B. 2020. COVID-19 in India: State-wise analysis and prediction, *medRxiv*, DOI: 10.1101/2020.04.24.20077792.
- Jones C. 2020. Student anxiety, depression increasing during school closures, survey finds. *Ed source*. URL: <https://edsources.org/2020/student-anxiety-depression-increasing-during-school-closures-survey-finds/631224> (access date: 05.07.2020).
- Kumar A, Nayar KR. 2020. COVID 19 and its mental health consequences. *J Mental Health*. DOI: 10.1080/09638237.2020.1757052.
- Lee J. 2020. Mental health effects of school closures during COVID-19. *The Lancet*, 4(6): 421. DOI: 10.1016/S2352-4642(20)30109-7.
- Mahase E. 2020. China coronavirus: WHO declares international emergency as death toll exceeds 200. *BMJ*, 368, DOI: 10.1056/NEJMoa2001017.
- Mahato B, Jangir S. 2012. A Study on academic anxiety among adolescents of Minicoy Island. *Int J Sci and Res*, 1(3): 12-16.
- Nag K, Ghosh B, Datta A, Karmakar N, Bhattacharjee P. 2019. A cross-sectional study on the prevalence of anxiety among school students in Teliamura municipality area of Tripura. *Indian J Psychiatry*, 61(5): 491-495. DOI: 10.4103/psychiatry.IndianJPsychiatry\_415\_18.
- Rehman U, Shahnawaz MG, Khan NH, Kharshiing KD, Khursheed M, Gupta K, Kashyap D, Uniyal R. 2020. Depression, anxiety and stress among Indians in times of Covid-19 lockdown. *Comm Ment Health J*, 23: 1-7. DOI: 10.1007/s10597-020-00664-x.
- Roy D, Tripathy S, Kar S, Sharma N, Verma S, Kaushal V. 2020. Study of knowledge, attitude, anxiety and perceived mental healthcare need in Indian population during COVID-19 Pandemic *Asian J Psychiatry*, 51: 102083-102087. DOI: 10.1016/j.ajp.2020.102083.
- Sivapriyan ETB. 2020. Coronavirus: Tamil Nadu cancels class 10 exams; promotes all 9 lakh students, *Deccan Herald*. Chennai, 14:16 URL: <https://www.deccanherald.com/national/south/coronavirus-tamil-nadu-cancels-class-10-exams-promotes-all-9-lakh-students-847450.html> (access date: 09.07.2020).
- The Economic Times. 2020. India's first coronavirus death confirmed in Karnataka, *Economic times*. URL: <https://economictimes.indiatimes.com/news/politics-and-nation/man-suspected-of-coronavirus-dies-after-returning-from-saudi-arabia/articleshow/74574771.cms?from=mdr> (access date: 06.07.2020).
- Tian H, Liu Y, Li Y, et al. 2020. The impact of transmission control measures during the first 50 days of the COVID-19 epidemic in China. *medRxiv*, DOI: 10.1101/2020.01.30.20019844.
- WHO. 2020. World health organization. Coronavirus disease (COVID-19) pandemic. URL: <https://www.euro.who.int/en/health-topics/health-emergencies/coronavirus-covid-19/novel-coronavirus-2019-ncov> (access date: 06.07.2020).