



Impact of COVID-19 Online Education on Mental Health of College Students

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Authors' contributions

This work was carried out in collaboration among all authors. Author SJ managed the literature searches. Author SP designed the study, performed the statistical analysis, wrote the protocol, and wrote the first draft of the manuscript. Authors GS and LP read and approved the final manuscript.

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ABSTRACT

Background: COVID-19 is an infectious disease that is caused by a newly discovered coronavirus. This virus primarily spreads out through the droplets of saliva and SARS COV-2 virus was named after its unique shape, which has taken the form of a crown with the protrusions surrounding it. With the closure of all educational institutions, there is a need for a rapid transition from physical learning to digital learning. Online education has been observed as the best possible alternative to conventional learning. Lack of interaction and social isolation has really distressed the mental health of the students. The principal aim of this study is to study the impact of the COVID-19 online education on mental health of college students.

Materials & Methods: A questionnaire comprising 14 questions was created using an online Google forms website and was circulated among 131 dental students. This survey was conducted within a week in the months of Feb 2021. The results and observations were recorded in the form of pie charts and bar charts. SPSS software was used for statistical analysis. Chi square test was used for correlation and $p < 0.05$ was considered significant.

Results: Male (48.3%) and female (51.7%) both were equally affected by mental health issues like stress and anxiety. 57% of them answered yes and 42.7% of them answered no, when they were questioned whether students understood the concepts or not with online education. 71.76% of the

students felt stressed and the rest of them were not stressful. Among female students, 41.22% of them preferred offline education and only 12.21% of them preferred online education and males, about 29% of them preferred offline mode of education and only 17.5% of them preferred online mode of education and it was statistically significant ($P < 0.05$).

Conclusion: Around 40% to 60% of the students have shown that they have experienced moderate to severe anxiety and stress levels during the COVID-19 lockdown period.

Keywords: Anxiety; stress; COVID-19; depression; innovative technique; online education; mental health.

1. INTRODUCTION

The emergence of CoronaVirus disease (COVID-19) has led the world to an unprecedented public health crisis. Emergency protocols were implemented in India to control the spread of the virus which resulted in restrictions on all non-essential public movements [1]. The first COVID-19 confirmed case was reported in India was on 30th Jan, 2020; after that it had exponential growth in all parts of India including Chennai, the numbers increased dramatically and pandemic outbreak has occurred, it has spread across the globe exponentially the cure few has a direct impact on people's mental health [2-3]. It also has a negative effect on the working middle class, social life, economic status and students college life all were affected, schools and colleges were closed, lock down imposed on all the parts of India [4]. Students were given long term pandemic holidays and all of them were in their home locked. Work from home and study at home became the daily lifestyle in the lockdown period, everyone has self quarantined themselves [5].

The College is platform for not only learning new things but also it is the place where the students develop friends and create fun memories. Social skills, communication and social interactions are learnt only form the education institution. But the COVID 19 pandemic has led to lack of interaction and social behavior among the students. With the closure of all the educational institutions, there is a need for a rapid transition from physical learning to digital learning [6]. Online learning is a possible alternative for conventional learning [6,7]. Online education on college students has affected them by all means by physically, mentally, financially, academically, and psychologically. Regular online classes on zoom, google meet have been scheduled to conduct online classes daily and the college students have got frustrated then they started to avoid the online classes as reported by the

previous articles [8]. The students' negligence, ignorance, avoidance, anxiety, and depression have touched the whole new levels and they have gone through very tough times during the lockdown. There are so many online learning problems at all the levels of education it affects the students mental health including the post graduate students [9].

With the closure of all the educational institutions, there is a need for a rapid transition from physical learning to digital learning [6]. Online learning is a possible alternative for conventional learning [6,7]. However, according to a meta-analysis on e-learning, it is reported that online learning is better than nothing and it is similar to conventional learning [10]. To improve the e-learning experience, the education institutions are required to comply with the guidelines and recommendations by government agencies [11]. The experience from our previous awareness and other studies [12,13] have led us to focus on this current topic. Our team has extensive knowledge and research experience that has translated into high quality publications [14–16,17–33]. The aim of the present study was to assess the impact created by the COVID-19 online education during COVID-19 pandemic crisis on the mental health of college students in Chennai.

2. MATERIALS AND METHODS

This is a cross - sectional online survey. Random sampling was done to select the participants for this study. The participants were sampled from both private and public colleges, the study period was between february 2021 around 131 participants were involved and the survey was taken with a selective population. The self administered questionnaire was prepared which comprised of series of questions including the demographic characteristics like age and gender of the participants and was validated by experts.

The other questions include depression, stress, feeling exhausted, difficulties to work with teachers, technical issues, motivation, distractions, active participation, academic performance being affected, mental health, concentration, feeling particularly low and satisfaction with this mode of learning. The questionnaire was distributed through online platforms via google forms. Data was collected and the statistical analysis was performed by IBM SPSS V23 software, Pearson's correlation coefficient is used to study the correlation with gender. P value less than 0.05 is considered as significant.

3. RESULTS

The responses of the college students on how frequently they lose their concentration, 48% of the students once in 15-20 min and 29% had answered once in 25-30 min and remaining students chose other options [Fig. 1], the student's mental health status after the online educational classes; 36% of students answered as good; 19.08% of students answered as poor and for excellent it is for only 4.5% students felt this way on their mental health [Fig. 2].

The association between the gender and whether they understand their online lectures or not. More of the female students (40.46%) understood the online classes than male students (12.98%). Chi Square test - p value is 0.512 - ($P > 0.05$) and hence it was not significant [Fig. 3]. The association between the gender and whether they understand their online lectures or not. In females, most of them answered as average and good for 23% and 20.7% respectively and 8.4% of them answered poorly too. In males, 10% of students said poor mental health; 16.9% of them answered average; 15.38% of them answered good mental health and only 3.85% of them answered excellent on their mental health status. Chi Square test - p value is 0.176 - ($P > 0.05$) and hence it was not statistically significant [Fig. 4]. The association between the gender and mode of education they prefer. In female students, 41.22% of them preferred offline education and only 12.21% of them preferred online education. In males, about 29% of them preferred offline mode of education and only 17.5% of them preferred online mode of education. Chi Square test - p value is 0.048 - ($P < 0.05$) and hence it was statistically significant [Fig. 5].

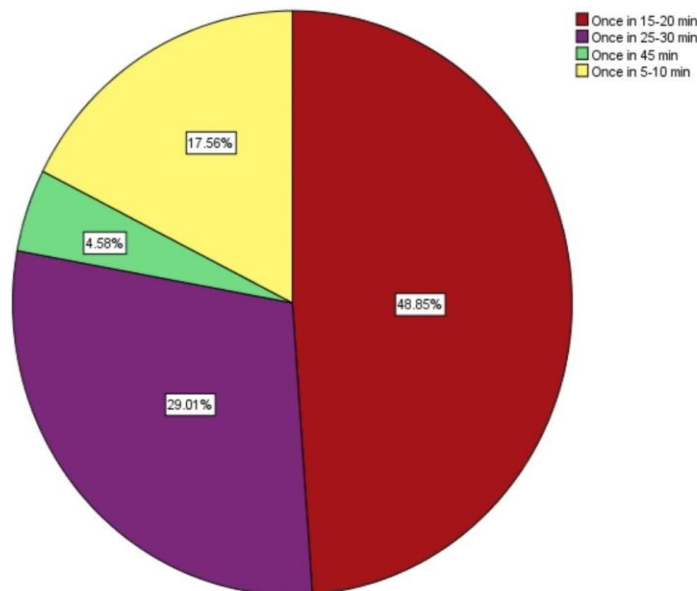


Fig. 1. This pie chart represents the responses of the college students on how frequently they do lose their concentration, Dark red colour denotes once in 15-20 min, violet colour denotes once in 25-30 min, light green denotes 45 min, yellow denotes 5-10 min about losing their concentration during the online classes, Most of the students (48%) had answered once in 15-20 min and 29% had answered once in 25-30 min and remaining students chose other options.

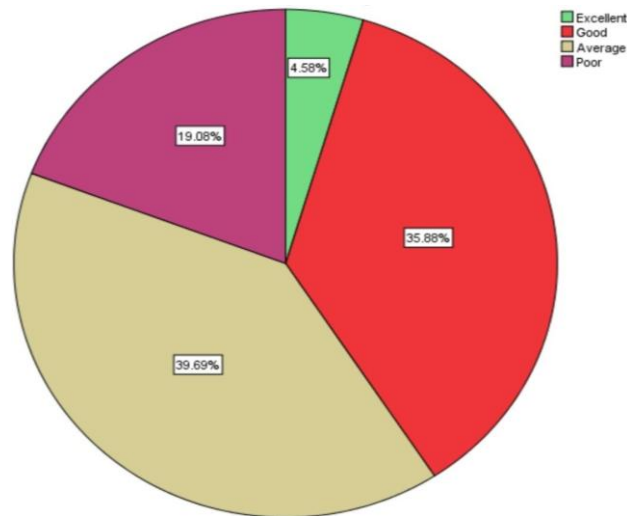


Fig. 2. This pie chart represents the student’s mental health status after the online classes; light green colour denotes excellent, red colour denotes good, sandal colour denotes average, purple colour denotes poor; 36% of students answered as good; 19.08% of them answered poor and 4.5% of them answered excellent

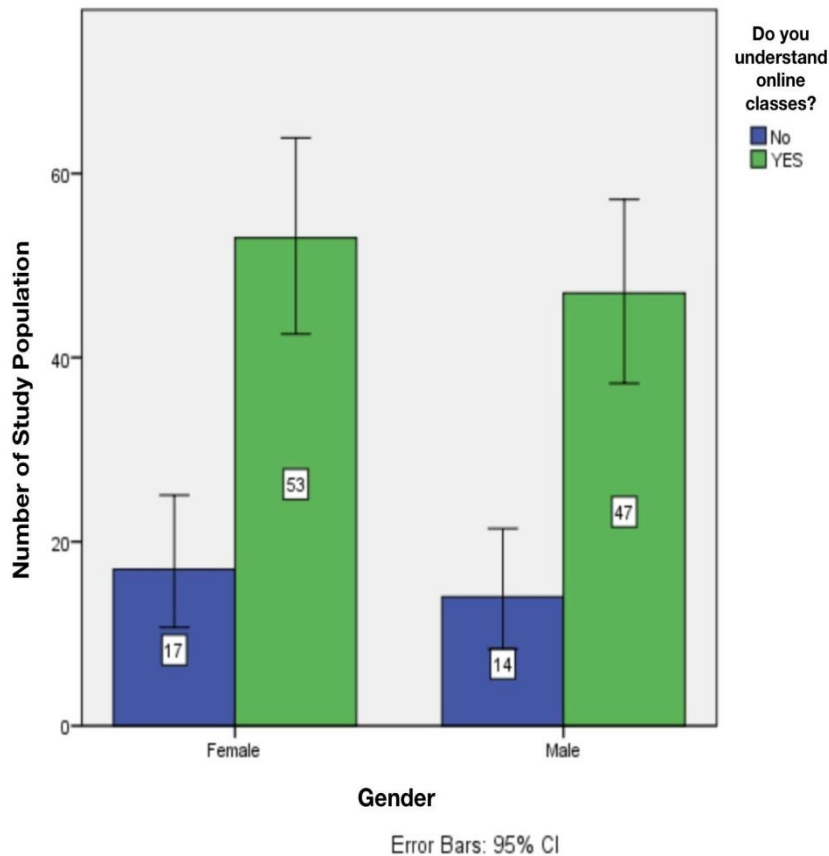


Fig. 3. This bar chart represents the association between the gender and whether they understand their online lectures or not. X axis represents gender and Y axis represents number of responses. Green bar represents yes and the blue bar represents no. More of the female students (53) understood the online classes than male students (47)
 Chi Square test - p value is 0.512 - ($P > 0.05$) and hence it was not significant.

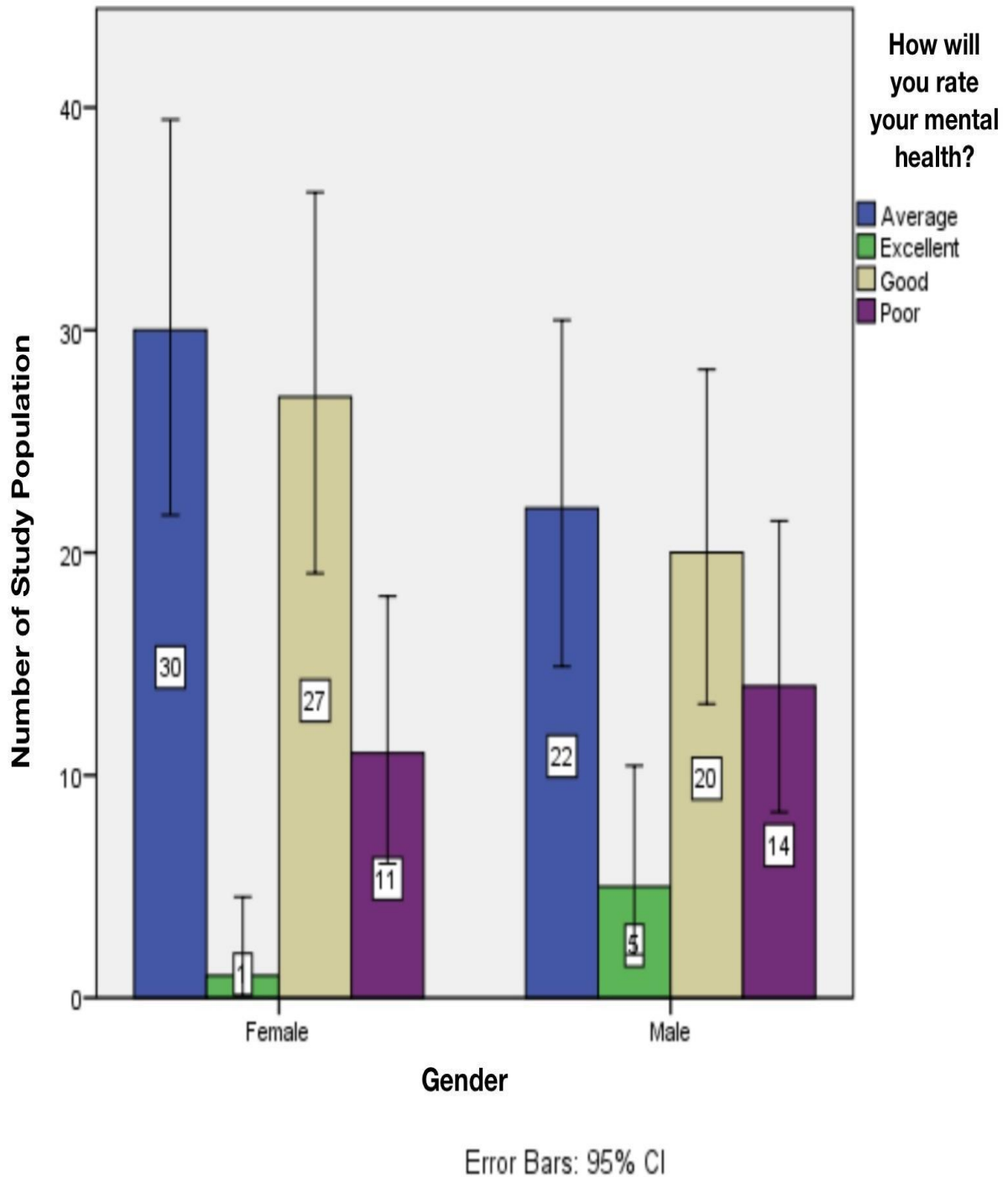


Fig. 4. This bar chart represents the association between the gender and whether they understand their online lectures or not. X axis represents gender and Y axis represents number of responses. light green colour denotes excellent, red colour denotes good, sandal colour denotes average, purple colour denotes poor. This bar chart represents the association between gender and their mental health status. In females, most of them answered as average and good for 23 and 20.7 respectively and 8.4 of them answered poorly too. In males, 10 of students said poor mental health; 16 of them answered average; 15 of them answered good mental health and only 3 of them answered excellent on their mental health status. *Chi Square test - p value is 0.176 - (P>0.05) and hence it was not significant.*

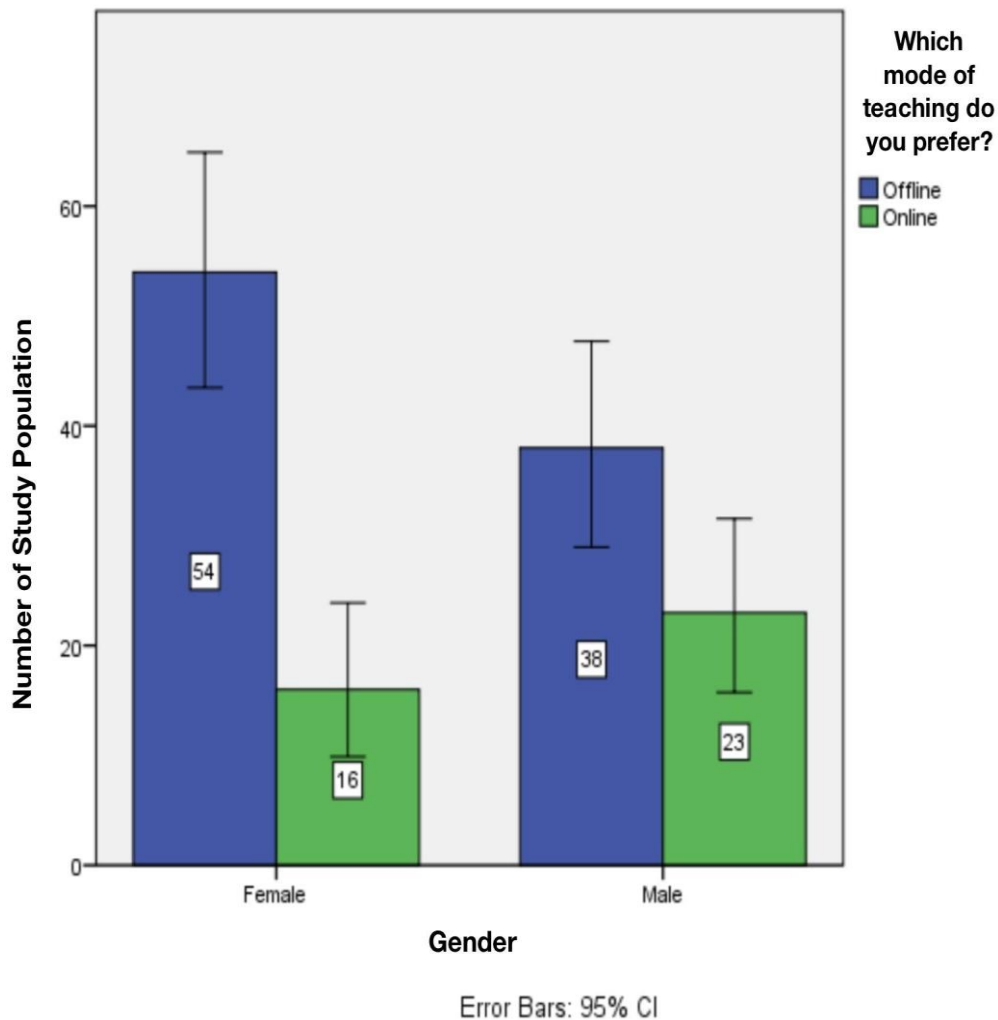


Fig. 5. This bar chart represents the association between the gender and mode of education they prefer. X axis represents gender and Y axis represents number of responses. Orange denotes online mode of education and red denotes offline mode of education; in female students, mostly 54 of them preferred offline education and only 16 of them preferred online education. In males, about 38 of them preferred offline mode of education and only 23 of them preferred online mode of education.

Chi Square test - p value is 0.048 - ($P < 0.05$) and hence it was statistically significant.

4. DISCUSSION

The study has examined the anxiety level among college students in Chennai during the COVID-19 pandemic and the lockdown period between March 2020 to Dec 2020. Based on the findings, 20.4%, 6.6% and 2.8% of the students experienced minimal to moderate, marked to severe, and the most extreme anxiety levels, respectively. The results in this study are similar to this study and every population of students felt the same way on the COVID-19 online education [34]. The stress and anxiety were a little higher among the females as compared to that of the

male students. The present finding is similar to the results compared with the previous study on the impact of COVID-19 online education [35]. Female students have significantly lesser and impractical coping strategies in these tough times of stressful and uncertain situations. In a previous study, the younger 1st-year college students were more anxious compared to the older ones [35]. Though all social media gives easy access to all the information, which can be essential during the lockdown period [36]. But students being online all the time is exhausting and it may even take a big toll on the students mental health. 24/7 media coverage on COVID-

19 cases may also negatively impact the college students [37].

In the previous study, boredom is commonly caused between the people because of the social distancing and the prohibition to leave the house. Stress and anxiety arises and gets even worse because of no personal communication between the people [38]. The online learning that makes the students communicate through the electronic gadgets and this new way creates a new level of pressure among the students. The absence of interactions, restrictions on physical meetings, always makes the students get bored [38,39]. Other research work has shown that boredom displays a low self-control. So someone who is quickly getting bored while studying at home has low self-esteem. This shows that individuals who always tend to be drilled are unable to regulate, arrange, guide, and direct the forms of behavior that can bring it in a very positive direction [40].

The data findings showed that the anxiety in the middle and lower economic families is more significant than the fear in the middle and upper economic families. Research subjects who have come from families who are economically capable, show fewer complaints when compared to families who are financially unable [41]. Students who come from below-average family economic conditions feel anxious because they cannot afford to buy internet quota. The COVID-19 pandemic affects the mental health and the fear of getting infected and the loss of the family members assists more stress and depression among the students and mostly commonly the health of the students were widely affected due to the frustration created by the online education [41,42]. The advantages of this study are selective population, online survey, variations in the response gives the view of unexplored areas of online education and feedback about the impact of online education among the students [43]. Limitations of this study were less number of participants. Future studies with large sample sizes would be conducted for more reliable results and to make the context evident and in case of another long term lockdown we can be ready with some solutions with online education [44,45].

5. CONCLUSION

The study has shown that around 57% of the students have experienced moderate to severe anxiety and stress levels during the COVID-19

online education. Furthermore, the online education over the period of time has led to a stressful situation among the students and it can be overcome by bringing up several activities for cheerfulness among the college students and physical activities can be encouraged and giving frequent intervals and breaks during online classes may also help them to feel relief and overcome the stress.

CONSENT

As per international standard or university standard, respondents' written consent has been collected and preserved by the author(s).

ETHICAL APPROVAL

It is not applicable.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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