

# The Effects of COVID-19 Pandemic on Anxiety in Secondary School Students

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## ABSTRACT

*Introduction: COVID-19 pandemic and lockdown period may have serious negative effects on education in secondary schools. The aim of the present study was to investigate the effects of COVID-19 pandemic on anxiety levels in Nigerian secondary school students.*

*Materials and Method: One hundred thirty-five senior and 152 junior secondary school students were included in the study. Data was collected by using a survey. The GAD-7 was used to assess the anxiety level of the students against the Covid-19 pandemic. The examination anxiety was measured by using STAI.*

*Results: Female students had more examination anxiety compared to male students. The examination anxiety was lower in isolated group than in non-isolated group. Whether they have relative with COVID-19 or not has no effect on anxiety. Most of both senior (79%) and junior (74%) students had sleep problems. They had higher anxiety than students without sleep changes in senior secondary school students. Most of both senior (71%) and junior (61%) students had different feeding changes. They had higher COVID-19 and examination anxieties than in students without feeding changes in junior secondary school students. Also, there were positive correlations between COVID-19 and examination anxieties in both senior and junior secondary school students.*

*Conclusion: Gender is important factor for COVID-19 and examination anxieties. Isolation poses has partial effect in increase examination anxiety. Also, sleep and feeding changes or problems can increase anxiety and fear in secondary school students. These factors should be taken into consideration for new strategies in education and examination systems.*

**Key words:** Anxiety, Isolation, Sleeping, Feeding, Education, COVID-19

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## INTRODUCTION

COVID-19 pandemic and lockdown period may have serious negative effects on education. It can be stated that this pandemic and its outcomes will cause new and permanent changes in education methods and strategies around world. For instance, it can be open the doors of distance learning to the last in the university or secondary school education.

Anxiety is a normal psychological reaction to certain challenges. But severe anxiety can be a serious problem for learning in students. There is a positive feedback between anxiety and academic performance. That is to say, the anxiety decreases academic performance, and low academic performance causes anxiety in students. If a student's academic performance for a certain academic task decreases, his/her anxiety level increases [1]. Most students have social anxiety and/or academic anxiety. Social anxiety can also affect a student's academic performance. If a student has social anxiety, the student might not be able to complete group tasks or might not feel comfortable asking for help in

class. Social anxiety can go along with or even lead to academic anxiety. Therefore, increased self-regulation ability in students can reduce anxiety and increase academic performance [2].

In previous studies, it has been found that the anxiety scores [3] were increased in especially non-medicine university students and depression scores [4] were higher in especially non-academic university staff during the COVID-19 lockdown period. It can be stated that there is an invert relationship between knowledge and anxiety and/or depression. They [3,4] suggested that the knowledge levels related to COVID-19 should be increased and the anxiety levels should be decreased to overcome this disease via online systems.

Pandemics of infectious disease, such as COVID-19, are associated with psychological and mental problems [5]. In a previous study, it has been reported that having relatives infected with COVID-19, its economic effects, and effects on daily life, as well as delays in academic activities, increases anxiety levels in college students [6]. Also, in a previous COVID 19 study of Nigerian university students, 24% of the university students were experiencing severe anxiety, 22% moderate anxiety, and 30% mild anxiety [3].

Furthermore, some changes in food consumption preferences and their causes due to COVID-19 pandemic were reported in a recent study. Before the outbreak, the first and second preferences for food consumption were meat and bakery foods, but after the outbreak, the first and second preferences were fruits and vegetables. Before the outbreak, the first and second causes for preference were cost and health, but after the outbreak, the first and second causes for preferences were quality and medical concerns [7]. Also, in a second study, there was a significant decrease in family incomes and a significant increase in family expenditures during COVID-19 pandemic outbreak. Although there were substantial increases in nutrition, cleaning, communication, water-electric-gas expenses, there were outstanding decreases in cultural and transportation expenses [8].

The aim of the present study was to investigate the effects of COVID-19 pandemic on COVID-19 and examination anxieties in Nigerian senior and junior secondary school students.

## MATERIALS AND METHOD

### Participants

Subjects were students of Nigerian Tulip International College. One hundred thirty-five students from senior secondary school and 152 students from junior secondary school volunteered to participate. Data was collected by using a survey.

In Nigeria, secondary schools have two parts: junior and senior secondary schools [9]. Both consist of 3 years of education, making it totally 6 years. To be able to graduate from junior secondary school and proceed with senior one, students must pass a Basic Education Certificate Examination organized by National Examination Council [10]. In the same manner, to graduate from secondary school completely senior secondary school students must write Senior Secondary Certificate Examination organized by National Examination Council and West African Senior Secondary Certificate Examination organized by West African Examination Council [11]. These examinations are conducted at the end of each junior and senior levels.

The experimental protocol was by following international ethical standards. The study was performed per under the Helsinki Declaration (1975, revised in 1996-2013) [12]. It was a descriptive cross-sectional study. The aims and objectives of the study were explicitly explained to the participants before the commencement of the study. All participants voluntarily gave written informed consent to participate in the study.

The survey consisted of 5 different part. The survey paper was given to students and 20 minutes time was given to them to fill it. The survey was administered to students during free time after exam preparation classes. The survey was conducted after 1 week of students' resumption for the external exams.

Part 1. Demographic and pandemic behavior info. In this part the demographic information (class, gender, CGPA class) was asked alongside with information about behavior during pandemic. Students were asked if their family continued isolation after lockdown relief and if they have any close relative who was diagnosed with

Covid-19 disease. Also, they were asked their sleeping and feeding changes during pandemic lockdown.

Part 2. COVID-19 anxiety level. The GAD-7 (Generalized Anxiety Disorder 7 item) [13] was adopted to check the anxiety level of the students against the Covid-19 pandemic. The questionnaire consists of 7 question with options: not at all (0 point), only sometimes (1 point), frequently (2 points) and almost all time (3 points). So, the anxiety level increases with each point.

Part 3. Examination anxiety. In this section of the survey the examination anxiety of the students was measured by using STAI (State Trait Anxiety Inventory) test [14]. Originally, the test consists of 20 questions, but it was revised and shortened to 6 items (STAI-Short) [15]. The questionnaire consists of 6 questions with options: not at all (0 point), somewhat (1 point), moderately so (2 points) and very much so (3 points). In general, the STAI was adopted to measure the exam anxiety level of the students.

Cronbach's alphas for the subsections GAD-7 ( $\alpha=0.803$ ) and STAI-Short ( $\alpha=0.794$ ) were calculated and all found to have good internal consistency.

#### Statistical analyses

Measured values are given as a mean +/- standard deviation (Std.dev.). Statistical analysis was performed using the software SPSS for Windows, version 26. The Student's (unpaired) t test and Pearson correlation analysis were used.

### RESULTS

There was gender related statistically significant differences in examination anxiety in both senior ( $t=4.001$ ,  $p=0.00$ ) (Table 1) and junior ( $t=2.896$ ,  $p=0.00$ ) (Table 2) secondary school students. Female students had more examination anxiety levels compared to male students in both levels. COVID 19 anxiety had higher in female students than in male ones in senior secondary school ( $t=4.621$ ,  $p=0.00$ ), but there was no significant difference in junior level ( $t=1.591$ ,  $p=0.114$ ).

Some families have continued to isolate themselves after lockdown relief ("Yes" group) and some not ("No" group). Isolation had no

statistically significant effects on COVID-19 anxiety in both senior (Table 1) and junior (Table 2) secondary school students and on examination anxiety in senior ones. But the examination anxiety was statistically significant lower in isolated group than in non-isolated group ( $t=2.382$ ,  $p=0.021$ ).

Some families had relative or familiar people with COVID-19 in their area during pandemic and lockdown ("Yes" group) and others not ("No" group). Whether they have relative or familiar people with COVID-19 or not has no statistically significant effect on both COVID-19 and examination anxieties in both senior and junior secondary school students (Tables 1 and 2).

The pandemic period changed sleeping durations and times in some students ("Yes" group) and not in others ("No" group). Students with sleep changes had statistically significant higher COVID-19 ( $t=3.067$ ,  $p=0.003$ ) and examination ( $t=2.268$ ,  $p=0.025$ ) anxieties than in students without sleep changes in senior secondary school students, but there were no statistically significant effects in junior ones (Tables 1 and 2).

The pandemic period changed feeding habits and times in some students ("Yes" group) and not in others ("No" group). Students having feeding changes had statistically significant higher COVID-19 ( $t=2.166$ ,  $p=0.032$ ) and examination ( $t=3.038$ ,  $p=0.003$ ) anxieties than in students without feeding changes in junior secondary school students, but there were no statistically significant effects in senior ones (Tables 1 and 2).

There were positive Pearson correlations between COVID-19 and examination anxieties in both senior ( $r=0.191$ ,  $p=0.027$ ) and junior ( $r=0.391$ ,  $p=0.00$ ) secondary school students. There were level (junior-senior)-related differences in the correlations between COVID-19 and examination anxieties. There were no correlations between these two anxiety types in both male and female senior students. But there were statistically significant positive Pearson correlations between COVID-19 and examination anxieties in male ( $r=0.268$ ,  $p=0.018$ ) and female ( $r=0.443$ ,  $p=0.00$ ) junior students.

**Table 1: COVID-19 and examination anxieties in senior secondary school students by various factors such as gender, isolation status, infection in relatives or familiar people, sleeping and feeding changes.**

Factors	Groups	COVID-19 anxiety	t and p values	Examination anxiety	t and p values
Gender	Male (N=74)	3.608 ± 3.629	t=4.621	7.568 ± 4.336	t=4.001
	Female (N=61)	6.902 ± 4.65	p=0.00	10.59 ± 4.402	p=0.00
Isolation	Yes (N=103)	5.194 ± 4.625	t=0.46	8.942 ± 4.44	t=0.038
	No (N=32)	4.781 ± 3.748	p=0.646	8.906 ± 5.17	p=0.97
Infection	Yes (N=33)	5.697 ± 4.579	t=0.897	8.879 ± 4.682	t=0.078
	No (N=102)	4.902 ± 4.377	p=0.371	8.951 ± 4.602	p=0.938
Sleeping	Yes (N=106)	5.689 ± 4.572	t=3.067	9.396 ± 4.478	t=2.268
	No (N=29)	2.931 ± 3.011	p=0.003	7.241 ± 4.741	p=0.025
Feeding	Yes (N=96)	5.427 ± 4.636	t=1.368	9.239 ± 4.676	t=1.215
	No (N=39)	4.282 ± 3.783	p=0.174	8.179 ± 4.388	p=0.025

**Table 2: COVID-19 and examination anxieties in junior secondary school students by various factors such as gender, isolation status, infection in relatives or familiar people, sleeping and feeding changes.**

Factors	Groups	COVID-19 anxiety	t and p values	Examination anxiety	t and p values
Gender	Male (N=77)	4.156 ± 3.368	t=1.591	6.403 ± 3.746	t=2.896
	Female (N=75)	5.12 ± 4.077	p=0.114	8.453 ± 4.919	p=0.004
Isolation	Yes (N=108)	4.732 ± 3.579	t=0.513	6.989 ± 4.013	t=2.382
	No (N=44)	4.386 ± 4.183	p=0.609	8.596 ± 5.083	p=0.021
Infection	Yes (N=27)	4.815 ± 3.223	t=0.279	8.259 ± 4.528	t=1.084
	No (N=125)	4.592 ± 3.869	p=0.781	7.232 ± 4.454	p=0.280
Sleeping	Yes (N=112)	4.848 ± 3.999	t=1.192	7.669 ± 4.667	t=1.179
	No (N=40)	4.025 ± 2.922	p=0.235	6.7 ± 3.824	p=0.24
Feeding	Yes (N=93)	5.151 ± 3.842	t=2.166	8.269 ± 4.805	t=3.038
	No (N=59)	3.814 ± 3.486	p=0.032	6.068 ± 3.518	p=0.003

## DISCUSSION

COVID-19 pandemic and lockdown results in psychological stress problems such as fear, anxiety, and depression. Fear and anxiety related to worldwide viral pandemic can result in powerful emotions in students. The strict or hard lockdown strategies and public health precautions, such as social distancing, can cause desolation and loneliness and psychological stress, anxiety, and depression.

The risk of COVID-19 can cause different psychological problems [16, 17]. The new investigations have showed that the perception of risk has important results with health conditions, distress, and life satisfaction [18], sleep disturbances, anxiety, and stress [19], worry and disruption of daily life [20].

In the present study, female students had more examination anxiety compared to male students in both levels and COVID 19 anxiety in senior secondary school. This gender difference supports the previous studies in which depression [21,22] and alexithymia [23] scores were high in women compared to men.

Isolation had no effects on COVID-19 anxiety in both senior and junior secondary school

students and on examination anxiety in senior ones. But the examination anxiety was lower in isolated group than in non-isolated group. It can be stated that isolation has partial effect on anxiety. Whether they have relative or familiar people with COVID-19 or not has no effect on both COVID-19 and examination anxieties in both senior and junior secondary school students.

In the present study, most of both senior (79%) and junior (74%) secondary school students had different sleep changes or problems. Students with sleep changes had higher COVID-19 and examination anxieties than in students without sleep changes in senior secondary school students, but there were no effects in junior ones. These results are consistent with the previous studies [19].

In the present study, most of both senior (71%) and junior (61%) secondary school students had different feeding changes or problems. Students having feeding changes had higher COVID-19 and examination anxieties than in students without feeding changes in junior secondary school students, but there were no effects in senior ones. It can be stated that feeding changes in especially junior students increases the anxiety.

Also, there were positive correlations between COVID-19 and examination anxieties in both



senior and junior secondary school students. It can be stated that COVID-19 pandemic can increase anxiety and fear in secondary school students and reduce their success.

Psychological stress during COVID-19 outbreak can cause the fear and worry about your own health and the health of your loved ones, your financial situation or job, or loss of support services you rely on. It can also cause changes in sleep or eating patterns, difficulty sleeping or concentrating, worsening of chronic health problems, worsening of mental health conditions, increased use of tobacco, and/or alcohol and other substances.

### CONCLUSION

Gender is important factor for COVID-19 and examination anxieties. Isolation proses has partial effect in increase examination anxiety. Also, sleep and feeding changes or problems can increase anxiety and fear in secondary school students. These factors should be taken into consideration for new strategies in education and examination systems.

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