

# Assessing the Impact of COVID-19 on the Psychology of Saudi Technical College Students: Lessons and Tips

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## Abstract

During COVID-19 pandemic, many countries around the world considered a health control measures in order to face the significant spread of infection. But these considerations were accompanied by a disruption in the daily routines of many higher education students. Our research aimed to study the impact of the Corona epidemic on the psychological state of the behavior of vocational and technical training students in Saudi Arabia. The professional training program differs from the university program by its direct link with the laboratories. Indeed, the majority of the modules have a practical aspect and it is difficult with current software to be studied remotely. Results showed a psychological impact of the pandemic in different proportions. This work notices a 27.6 of depression percentage, a percentage of anxiety of 23.7% and 15.1% of stress percentage. Compared to other countries, these values are relatively low. This led us to a second test to look for reasons that mitigated the crisis effects. The study found several positive factors like: 80% of the trainees had laptops, 88% of them had family stability and family support, 81% have a quiet study place at home, 75% are dedicated to studying and have not extra-time jobs and finally 91% of courses are available and recorded. Previous findings may be useful in the future by the international community so that necessary precautions will be taken in the event of a new similar pandemic wave.

## Keywords

COVID-19, Anxiety, Depression, Stress, Technical Colleges Students

## 1. Introduction

The majority of literature studies have shown that adults are the most vulnerable category to psychological disturbances such as stress, anxiety and suicidal (Kessler et al., 2007; Kovess-Masfety et al., 2016; Verger et al., 2009; Verger et al., 2010; Arsandaux et al., 2020). Symptoms begin in adolescence. The same studies show also that students are particularly exposed to psychiatric problems.

The COVID-19 pandemic has strongly influenced the ordinary pace of citizens' life around the world. It has had a major effect on the health of human beings; several thousand people have died from this infectious disease. The effects of this pandemic have gone beyond physical damage to affect mental and emotional health status. Indeed, during the pandemic period, several health control measures were considered. Moreover, the human beings spent several days in total confinement, which produced several signs of mental disorders. Students represent a fragile category in a situation of pollution, in addition to the pressure of studies and exams, they found themselves in an educational and health challenge, they had to follow their studies under the conditions required by the COVID-19 pandemic. Saudi Arabia, like many countries around the world, has established very serious control measures in order to minimize the pandemic effects. These precautionary measures have directly influenced Saudi's mental health, including students. Our survey has been conducted to find out the level and signs of psychological distress.

The purpose of this study is to investigate and evaluate how the COVID-19 pandemic affects the prevalence of mental health issues such as depression, anxiety, and stress among Saudi technical university students, and to consider factors that exacerbate and mitigate the condition. This study can help raise awareness of this problem in order to develop effective prevention strategies and appropriate responses.

## 2. Related Works

Many studies related to the psychological state of adolescent students have been cited in the literature (Zhai & Du, 2020; Oza et al., 2022; Pellino et al., 2021; Rafeek et al., 2021). These studies have highlighted many causes and factors that affected the psychological state of students and their repercussions on their academic results. These studies provided solutions to avoid psychological conditions.

Most studies also show that the poor psychological conditions of teenage students increased during the Corona pandemic that affected the whole world.

The corona virus pandemic has been characterized by flu-like symptoms. The Chinese city of Wuhan has been identified as the epicenter of the outbreak. The number of affected countries and territories exceeds 200 (Mallhi et al., 2022). Almost all of the affected countries have issued "lockdown" orders, requiring their citizens to stay at home until the situation improves. Prolonged detention under a movement control order has been criticized for its effects on the students' mental health.

In bibliography, many researchers studied the terms of education and psychological disorder (Andreucci, 2020; Shah et al., 2021). Authors in (Kamal & Othman, 2020), estimated the prevalence of mental health disorders among the adult population in the Kurdistan region of Iraq during the COVID-19 pandemic. Authors used an online survey with DASS-21 test to measure depression, anxiety, and stress levels. The number of participants was 548 adults. The study shows that high levels of mental health disorders have been observed during the pandemic. In the study of (Roux et al., 2021), the researchers evaluated the impact of the COVID-19 health crisis until November 2020 in France on the mental health of students through various indicators: psychological distress, social support, loneliness, symptoms of depression and anxiety. Their study was based on data collected through a longitudinal survey called COVER, which looked more broadly at risk factors and the behavior of students in Rennes (France) in the face of the COVID-19 epidemic. As part of this survey, 4261 Rennes students were invited in December 2020 to answer an online self-questionnaire aimed, in part, at assessing their mental health. The results have been restated to be representative of the distribution by the gender of the students. Signs of psychological distress were found in 60.3 percent of the students questioned. The study also shows that women were more likely to be at risk for psychological distress and anxiety symptoms than men. The study also shows that students, who presented with financial difficulties, who had low social support, who self-reported poor health or who, experienced feelings of loneliness, were more at risk of showing up. In the work of (Chen et al., 2021), two surveys were released to study and examine psychological depression and anxiety due to COVID-19 among Chinese adolescents. The two surveys were conducted between February and April 2020, respectively. The total number of participating was 9554, 3886 adolescents participated in the first and second surveys. Results show a prevalence of depression of 36.6 percent and an anxiety prevalence of 19 percent. In (Deng et al., 2021), the authors studied during the COVID-19 pandemic the prevalence of anxiety, depressive symptoms, and sleep disturbances among higher education students. To achieve their goal, the authors used a modified New-castle-Ottawa scale. The authors demonstrated an important relationship between the COVID-19 pandemic and the increase of the psychological symptoms in higher education students.

The authors in (Arsандаux et al., 2020) study the confinement effect during the COVID-19 pandemic on the adult's mental state in France. Several models have been used to determine signs of stress, symptoms of depression, and even suicidal thoughts. The study of (Mazza et al., 2020) is focused on survivors of the COVID-19 epidemic in Italy (Milan), they considered a sample of 402 adults. Research focuses on signs of stress, depression and post-traumatic stress, anxiety, and insomnia after going through COVID-19 illness. Results show that between 20 and 40 percent of the considered people show negative psychological signs, others have bad memories of this experience. The paper (Choi et al., 2020)

deals with the effect of COVID-19 pandemic in Hong Kong and simply considered 500 respondents. Research aimed to evaluate the depression and anxiety of people in this country. Results show a percentage between 14 and 25 of psychological disorder. The online survey in the study of (Al Omari et al., 2020) included participants from twelve Arabic countries. The goal is to purchase the COVID-19 pandemic psychology effect. Prevalence of depression, anxiety, and stress shows differences between the twelve countries.

In the Kingdom of Saudi Arabia, there are several important studies dealing with the psychological characteristics of several groups of society (Ali et al., 2021; Algahtani et al., 2021; Alkhamees et al., 2020). These studies differed in terms of the evaluation methods and used scales. Recent studies that dealt with the impact of the Corona pandemic on the mental health of the individual were not many and were limited to specific groups directly related to the epidemic, such as the medical and paramedical framework. Some studies were conducted on university students, but they did not include technical students who may be more likely to be affected by the Corona epidemic, given that their curricula rely heavily on practice and direct applications. For example, in (Joseph et al., 2021), the authors affirm that COVID-19 has raised some concerns about the mental health of Saudi students. Concerns about one's family, one's mental health, one's finances, and one's relationships all add more pressure to an already stressful life. Many Saudi students are showing signs of post-traumatic stress disorder due to the intense stress brought on by the illness and the subsequent isolation. As a direct result of the calamity, 93% of countries have seen a significant decline in the mental health of their population. Some studies such as (Alamri et al., 2020) and (Alfaifi et al., 2022) paved the way for investigations into the mental health of students in Saudi university institutions, as they confirmed that university students in Saudi Arabia suffer from a rise in mental health problems as a result of the COVID-19 pandemic. In the work of (Mulla, 2022), the author raises the reluctance of some young people to participate in cultural activities and summarizes the negative consequences of that, such as high levels of stress. The author asserts that when a person's mental health is poor, this makes negative feelings present such as suicidal or irrational thoughts.

According to our bibliographical research, the subject dealing with the effect of the COVID-19 pandemic on the psychological state of citizens in general and students in particular in Saudi Arabia is not well treated and the number of articles published in this frame is not great. In the world, no article that deals with the effect of the pandemic on the psychology of vocational and technical students. However, most of the studies were limited to a certain social environment, and the solutions presented cannot, in our opinion, be generalized to all students in the world, given the difference in cultures, customs, teaching techniques, etc. The findings of this study can serve as a guide for future studies and a starting point for a more in-depth examination of the stress experienced by vocational and training students in the world.

Students' environment is still full of challenges and obstacles despite the tech-

nological and scientific progress and the vast improvement in the lifestyle of human beings in general. Some researchers have studied the impact of the pandemic COVID-19 on student psychology states. Our research aimed to make a strategy for enhancing the vocational and technical student behavior in probably future pandemic and built a comprehensive perception of the situation so leads can optimize choices and correct decisions on the educational or professional future. Vocational and training students are distinguished from their academic colleagues by their direct relationship to practice and laboratory studies. In the location of our study, 75% of courses are related to practice and directly to college attendance. Studying online practice sessions requires very sophisticated tools that were not present during the pandemic. Our study aims to investigate and assess the effect of the pandemic on the psychological stability of vocational training students and trainees in Saudi Arabia. To our knowledge, this is the first study to target this type of student in the world.

### 3. Methodology and Tests

This work aimed to involve students in *CTI* (College of Telecommunication and Information Riyadh) and they were 152 male (no female student in CTI college). Also, 24.4 percent was from the first year, 35.5 percent was from the second, and then 40.1 percent from the third year. In this work, we applied two different tests, the first one is the Arabic version of the standard DASS-21. The translating version is verified and approved in the literature. The second one is MFT (Main Factor Test) test inspired from the work of (Feres et al., 2020) and (Kessler et al., 2007). The study consists of asking students about family and friend's situation, monthly income, courses availability, exams, psychological history, etc.

#### 3.1. Ethical Approval

Ethical approval was obtained from the study sites prior to data collection, and consent was assumed as completing the survey questions. Participants were informed that their participation was voluntary and that they could withdraw from the study at any point or choose not to answer any question. Participants' confidentiality was maintained as no identifying information was collected and findings will be disseminated only in aggregate.

#### 3.2. Study Variables and Measurements

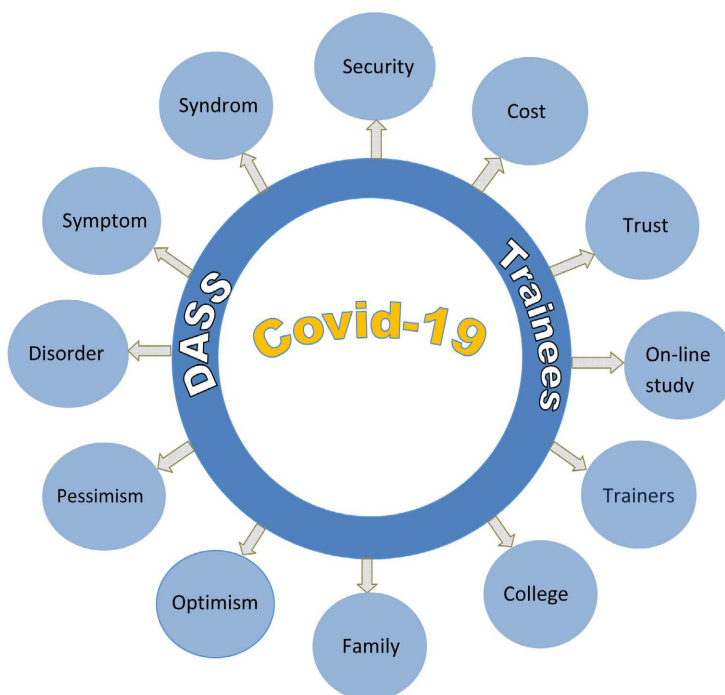
A structured questionnaire was used to collect socio-demographic information about participants, including age; sex; level and type of studies; presence of family members, friends, or colleagues with COVID-19; previous history of depression or anxiety; history of medication for depressive syndrome; frequency of watching news about COVID-19; and internet use; depression; anxiety; and stress. Several scales are available to measure depression symptoms, including the depression scale and Beck depression inventory-II; however, the researchers made a deliberate decision to use the Depression, Anxiety, and Stress Scale (DASS) because it is available in the public domain, the Arabic version has been vali-

dated, and it measures depression, anxiety, and stress in the same survey. The short form of DASS is a 21-item, 4-point Likert scale where 0 = does not apply to me at all; 1 = applies to me to some degree, or some of the time; 2 = applies to me to a considerable degree, or a good part of my life; and 3 = applies to me very much, or most of the time.

Based on our bibliographic research, **Figure 1** shows the various parameters influencing student life during COVID-19 pandemic. According to (Feres et al., 2020) finance budget and housing are the most influential factors on the student psychological stability.

### 3.3. Statistics

In this work, we related on some appropriate statistical methods like averages and Standard Deviations SD and Pearson correlation coefficient. In total, the study covers 152 responses in the survey. All participants are trainees. The average age of the students was 21 years old with a minimum age of 18 and a maximum age of 27. Only boys participated in the study (see **Table 1**).



**Figure 1.** Factors affecting mental health.

**Table 1.** Socio-demographic factors among participants.

Characteristics	Number	Percentage
Age group (Mean $\pm$ Std Deviation )		52.8%
18 - 20	18	12%
20 - 23	80	52.8%
>23	54	35.2%

## 4. Results and Discussion

### 4.1. Population

**Table 1** provided participating students classified regarding their age. Mean age in the student sample was about 21 years with a minimum age of 18 and the maximum age of 27 years. First the standard DAS-21 test translated in Arabic language and validated by (Al Omari et al., 2020) is applied to evaluate the Depression, Anxiety and Stress level. Second the MFT test is applied to determine the main factors that affect the mental health of the trainee's students.

### 4.2. Prevalence of Depression, Anxiety, and Stress: DASS Test

Using SPSS V29, results and scores are grouped in **Table 2**. The table shows mean score of the three subscales for depression, anxiety, and stress. Depression scores were slightly higher than anxiety and stress (Mean 1.56, SD 6.2 vs. Mean 1.5, SD 6.8 and Mean 1.29, SD).

#### 4.2.1. Prevalence of Depression

Using the same statistics software mentioned before, **Table 3** shows a percentage of an abnormal depression equal to 27.6% (8.6% for mild, 11.2% for moderate, 5.9% for severe and 2% for extremely severe). The percentages of depression are relatively high and close to international results.

**Table 2.** DASS prevalence and scores.

	Depression level	Anxiety level	Stress level
Valid	152	152	152
Missing	0	0	0
Mean	1.5658	1.5066	1.2829
Variance	1.068	1.126	0.535
Minimum	1.00	1.00	1.00
Maximum	5.00	5.00	5.00

**Table 3.** Prevalence of depression.

	Depression Level			
	Frequency	Percent	Valid Percent	Cumulative Percent
Normal	110	72.4	72.4	72.4
Mild	13	8.6	8.6	80.9
Moderate	17	11.2	11.2	92.1
Severe	9	5.9	5.9	98.0
Extremely severe	3	2.0	2.0	100.0
Total	152	100.0	100.0	

#### 4.2.2. Prevalence of Anxiety

**Table 4** shows a percentage of anxiety equal to 23.6% (9.2% for mild, 5.9% for moderate, 4.6% for severe and 3.9% for extremely severe). Anxiety percentages are also relatively height but less than depression percentage. Comparing to litterature, anxiety percentage in this study is relatively low.

#### 4.2.3. Prevalence of Stress

The following is **Table 5**, it shows a percentage of stress equal to 25.1% (4.6% for mild, 8.6% for moderate, 1.3% for severe and 0.7% for extremely severe). Stress percentages are relatively height but also less than depression percentage. Comparing to litterature, stress percentage in this study is relatively low.

Even percentage values of depression, anxiety and stress are considered low compared to university students, in France for example (35% for depression). However, this ratio raises concerns and questions, because a quarter of students suffered from depression, whether moderate or severe. Does the nature of applied and practical studies for this type of student have an impact on the mental health of the trainee during the Corona period? We will try to get answer with the rest of our research.

**Table 4.** Prevalence of anxiety.

	Anxiety Level			
	Frequency	Percent	Valid Percent	Cumulative Percent
Normal	116	76.3	76.3	76.3
Mild	14	9.2	9.2	85.5
Moderate	9	5.9	5.9	91.4
Severe	7	4.6	4.6	96.1
Extremely Severe	6	3.9	3.9	100.0
Total	152	100.0	100.0	

**Table 5.** Prevalence of stress.

	Stress Level			
	Frequency	Percent	Valid Percent	Cumulative Percent
Normal	129	84.9	84.9	84.9
Mild	7	4.6	4.6	89.5
Moderate	13	8.6	8.6	98.0
Severe	2	1.3	1.3	99.3
Extremely Severe	1	0.7	0.7	100.0
Total	152	100.0	100.0	



### 4.3. MFT Test

The second test is inspired from the work of (Kessler et al., 2007) and (Feres et al., 2020). The purpose of this test is to determine the causes and effects that have contributed to mitigating the negative effects of the COVID-19 epidemic. Students were asked about their family, housing, tutoring and income. Results indicate that 88% of students live with their family ( $R = 0.047$ ,  $SD = 0.61$ ), 81% of them have a quiet study place at home ( $SD = 0.39$ ) and 82% of trainees have kept the same accommodation. Concerning the exams and courses, the study found that 46.7% of courses are online the rest (53.3%) are in the college and finally 91% of courses are available and recorded ( $SD = 0.26$ ). The study shows also a percentage of 70% of students have high quality internet ( $SD = 0.45$ ). Students were also asked about extra time jobs, results show that 75% are dedicated to studying and have not extra-time jobs ( $SD = 0.74$ ). Contrary the French students (Feres et al., 2020), there is no strong relationship between student scholarship and depression, anxiety and stress sensitive. We think that because the majority of students benefit from a scholarship (75.6% total scholarship, 10.6 partial scholarship and 13.8% without scholarship).

### 5. Conclusion and Future Works

In this work, we addressed a gap in the literature regarding the effects of COVID-19 on the mental state of vocational students. In the world and according to our bibliographic researches, there is no study involving this type of student before. Our study has the particularity of being conducted at the time of confinement and at the end of the epidemic. The study provided an insight into the psychological effects related to the spread of the epidemic, depression, anxiety and stress as well as the reasons that mitigated the impact of the epidemic among university vocational and trainees' students in Saudi Arabia. Results are close to other studies carried out in the bibliography. Compared to other countries, Saudi trainees showed a less level of depression, anxiety and stress. The current research is probably the first in Saudi universities to investigate common mental health problems with Saudi trainees sector during the pandemic. Findings can be used to establish emergency plans for trainees needs in the future. Factors that contributed to mitigating the impact of the epidemic could be reinforced and studied in detail. However, we do not know the levels of anxiety, stress, and depression before the pandemic therefore we don't know whether there was an increase from prior levels or not. There is a need to add other parameters and to enlarge of number of participants to this type of studies. Results should be interpreted in the context of the current situation where people have been confined during the pandemic. We do not know exactly the levels of anxiety, stress and depression before the pandemic since we do not have supporting documents for this type of participants. We therefore do not know the exact degree of increase in these levels compared to previous levels. This requires further research and deeper collaborations to see how these results might change over time. It is also

necessary to know precisely whether the pandemic has a short or long-term impact on the psychological health of students.

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## Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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