

# The Psychological Impact of COVID-19 on Sindh and Baluchistan's Bachelors of Dental Surgery (BDS) Students and Their Stress Management Strategies During the Current Pandemic

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## Abstract

**Objective:** The objective of this study was to evaluate the anxiety among the bachelors of dental surgery (BDS) students of Sindh and Baluchistan during COVID-19 pandemic.

The secondary objective of this study was to evaluate the stress management strategies.

**Methods:** In this web-based cross-sectional study, data of eight hundred and nine bachelors of dental surgery (BDS) students of Sindh and Baluchistan were analyzed using SPSS version 21. A validated e-questionnaire created using Google form was distributed among the dental college students pursuing bachelors of dental surgery (BDS) through social media. A P-value of less than 0.05 was considered significant.

**Results:** The majority of the respondents were females (n=596, 73.7%) and studied in private dental colleges (n= 543, 67.15). Most of the students were dissatisfied with online education, and no significant difference was found among private and public sector dental college (p >0.05). Moderate to severe level of anxiety among both genders was prevalent. Praying and reciting the Holy Book is the most common coping strategy, followed by sleeping and talking to friends and family.

**Conclusion:** We conclude that the BDS students of Sindh and Baluchistan are suffering from anxiety. The majority of the students are not happy with the quality of online education.

**Keywords:** COVID-19, Anxiety, Students, Dentistry, Sindh, Baluchistan

**IRB:** Approved by Ethics Committee of Altamash Institute of Dental Medicine, Ref# AIDM/EC/2020/60.

**Dated:** 17<sup>th</sup> April 2020.

**Citation:** Majeed MM, Anwar M, Bhatia MR, Khan N, Naeem MM, Tabassum U. The Psychological Impact of COVID-19 on Sindh and Baluchistan's Bachelors of Dental Surgery (BDS) Students and Their Stress Management Strategies During the Current Pandemic [Online]. Annals ASH KMDC 2021; 26.

(ASH & KMDC 26(1):263;2021)

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**Date of Submission:** 17<sup>th</sup> November 2020

**Date of Acceptance:** 2<sup>nd</sup> June 2021

## Introduction

The 2019 novel coronavirus (2019-nCoV), or the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) as it is now called, is rapidly spreading from its origin in Wuhan City of Hubei province of China to the rest of the world. Corona viruses, so named due to the outer fringe of envelope proteins resembling crown ('Corona' in Latin), are a family of enveloped RNA viruses<sup>1</sup>. The most commonly observed symptoms include high-grade fever, dry cough, fatigue and malaise. Covid-19 has been reported to affect the lungs significantly. The highly contagious Coronavirus has overcome geographical

barriers and spread remarkably. More than 50 million people have been infected, and around 1.2 million have lost their life due to this deadly virus<sup>2</sup>. In Pakistan first case of COVID-19 was reported on 26<sup>th</sup> February 2020 and the Government of Pakistan implemented a complete lockdown in March. The government shut down industries, transportation, gatherings, school and colleges and other teaching institutes. Moreover, medical and dental colleges, teaching hospitals, and outpatient departments were also closed<sup>3</sup>.

It has been stated that epidemics that produce a widespread influence across the globe have a devastating impact on people's mental health. Previous pandemics like Severe Acute Respiratory Syndrome (SARS) in Asia and Canada in 2003, (H1N1) 2009 virus, Ebola in West Africa in 2014 and Middle East Respiratory Syndrome (MERS) in 2016 were biological disasters that faced the world. The current COVID-19 pandemic has resulted in a disturbing global level of fatalities, where healthcare workers in thousands were infected<sup>4</sup>. The impact of the current pandemic on mental and psychological health has been reported in many studies, yet limited data is available regarding BDS student's mental health status. They are exposed to both the patients and the contaminated environment they work in; due to the aerosol generated by dental procedures, this risk of getting infected is increased many folds<sup>5</sup>.

During the lockdown, most of the institutions across the country started online classes to complete their course. The dental colleges in Pakistan had to suspend their classes and clinical activities, and in some dental colleges, clinical activities were only limited to emergencies with a restricted number of dentists and supporting staff<sup>3,6</sup>. Likewise, dental colleges also facilitated their students with live online lectures or by sending pre-recorded videos. However, dental education is more complicated as it has theoretical as well as clinical component. The students need to perform clinical procedures in which exposure to the patients has become a highlighted issue due to COVID 19 pandemic. The cur-

rent pandemic has devastated students' dreams for their academics, learning and future, and the closure of the institutes and online sessions have resulted in different psychological issues<sup>7</sup>. Studies reported about the anxiety and stress faced by university students because of online classes<sup>8</sup>. Moreover, worse mental health consequences have been linked to COVID-19, resulting in severe, continuous and prolonged stress because of psychosomatic disturbances<sup>9</sup>.

The dentistry profession has been negatively affected by the current pandemic situation, and it has also produced anxiety in dentistry students and professionals about the future of this profession. The dentists are already considered a source of the spread of hepatitis, T.B, HIV and other viral diseases. The current pandemic raised several questions on the dental procedures, which lead to aerosol production as it can be a source of spread for several diseases. This has further stirred anxiety and confusion among BDS students. There is a dire need to identify and address these issues among BDS students and take measures to uplift the future of dentistry.

In the current study, we evaluated BDS students' anxiety in two southern provinces of Pakistan, Sindh and Baluchistan. Moreover, their satisfaction regarding online classes and how they managed their stress due to the current pandemic. This study will help us to overcome the challenges faced by the students due to online teaching. Moreover, this study will also help the respective authorities about the stress and fears that future dentists face because of the current pandemic.

## Subjects and Methods

This online cross-section study was conducted in May 2020 during the period of strict lockdown due to the COVID-19 pandemic. In the current study students, pursuing Bachelors of Dental Surgery (BDS) from private and public sector dental colleges of Sindh and Baluchistan were included. Students opting for different degrees and courses related to dentistry like Dental Care Professional,

Dental Hygiene, Dental Technology etc., were excluded. The questionnaire was designed after a thorough literature search. A pre-tested and content validated survey form, comprising 20 questions, was shared among the senior faculty members of Sindh and Baluchistan's dental colleges to forward among the students of their dental college through the social media platform. The convenience sampling technique method opted for the data collection. The pre-testing of the survey form was executed by testing the questionnaire via a sample of BDS students from different dental colleges of Sindh and Baluchistan.

Google form was used to collect the data. Only one response per person to the questionnaire was permitted. Raosoft was used to calculate the sample size. Assuming 4000, the total number of student, with a response rate of 50%, confidence interval (CI) 99%, and margin of error as 5%, the sample size was recorded 623 considering an additional 10% (n= 62) for any inaccuracy or discrepancies in questionnaire filling, a sample size of at least six hundred and eighty-five were deemed to be significant. Ethical approval was obtained from the Ethical Review Board of Altamash Institute of Dental Medicine. SPSS version 21 was used for statistical analysis. Descriptive tests were applied to find out the frequencies and percentages. For all statistical tests, the level of significance was set at  $P < 0.05$ . An independent sample t-test was applied to check the satisfaction level of online education among the students of public and private institutes and the difference in anxiety among the genders.

## Results

For the current study total of 846 forms were submitted, due to inconsistencies and discrepancies, data of 809 participants were analyzed, and 37 forms were excluded. In the current study, the number of females and males was 596 (73.7%) and 213 (26.3), respectively. No significant difference is observed between different levels of Bachelor of dental surgery (BDS) students ( $P > 0.05$ ). We observed that 226 (27.9%) final year students, 223

(27.6%) first year and 194 (23.98%) and 166 (20.51%) 2nd and 3rd-year students participated in the current study. Our research found a significantly higher number of students from private dental colleges ( $P < 0.001$ ). We found that 543 (67.1%) of the students were from private dental colleges, and 266 (32.9%) were from public sector dental colleges. We further explored that majority of the students were from Karachi and from the Sindh province 801 students participated; on the other hand, only 08 students filled the form from Baluchistan. (Table 1).

We found no significant difference regarding the level of satisfaction of online classes and e-learning among the BDS student of private and public sector institutes ( $p = 0.211$ ). We evaluated that 59.57% (n= 482) of the students were either very dissatisfied or dissatisfied with the quality of e-teaching. Only 13.72% (n= 111) of the students were found to be satisfied or very satisfied with the online classes (Table 2).

Anxiety level among the BDS students is towards the higher side. The majority of the students have moderate to severe anxiety regarding their studies, their future, future of dentistry, and being infected with corona. However, the difference among the gender is not significant ( $p > 0.05$ ). However, the male showed a higher mean anxiety score as compared to females (Table 3).

Prayer and recitation of the Holy book was the most common stress management technique among BDS students. Out of 596 females, 478 (80.20%) females and 146 (68.54%) males manage their stress this way. Sleeping was also preferred by 284 (47.65%) females and 213 (45.07%) males. Watching Television, chat with the family members, talking to friends, use of social media, music and light exercise was mentioned by 314 (39.55%), 369 (45.61%), 340 (42.02%) and 325 (40.17%), 232 (28.67%) and 174 (21.50%) of BDS students respectively. Online gaming is more common among males, and we found that 70 (32.86%) male students and only 50 (8.72%) females manage their stress by online gaming (Figure 1).

## Discussion

The current pandemic can be considered as the most devastating, destructive and disturbing public health problem of the modern era. It has increased the death burden around the world, but people from all walks of life have also suffered from different psychological problems, i.e. stress, anxiety, depression, etc. Closure of the dental colleges and teaching hospital also triggered a sense of ambiguity and uncertainty about the studies, future and career among the BDS students and results in psychological challenges among the BDS students<sup>10</sup>. There is a need to understand and tackle the increasing level of psychological dilemma among dentistry students during the COVID-19 pandemic

In the current study, self-reported anxiety of moderate to severe level is mentioned by 92.9 % of BDS students. A recent study conducted in Bangladesh has also observed that around 88% of the students are suffering from anxiety<sup>8</sup>. An earlier study performed in Pakistan reported 53.9% of females and 46.1% of males were suffering from depression and anxiety<sup>11</sup>. As mentioned earlier, dentistry education is theoretical and has a significant portion of practical and clinical exposure. Due to the lockdown, educational institutes and teaching hospitals were also closed; thus, students suffered a lot, and due to this, students were unable to perform clinical procedures, which is a very important and distinctive feature of dental education. Similar findings were observed and explained in another study that E-learning is an acceptable method in gaining knowledge, but not equally that E-learning was satisfactory in attaining knowledge, though not effective in acquiring clinical and technical skills<sup>12</sup>.

In the current study, we have noticed that anxiety among the BDS student is prevalent. But this study found no significant differences between male and female students in relation to depression or anxiety, thus complement previous studies<sup>13,14</sup>. There is no gender discrepancy in anxiety levels, and both genders are equally disturbed by the abrupt changes produced by the current pandemic.

We further evaluated that majority of the students are not satisfied with the quality of online classes. It is also reported in a previous study that it is impossible to conduct practicals, lab work, and pre-clinical procedures in e-learning methods<sup>6</sup>. Moreover, it is also evident that online sessions cannot duplicate the up-close practice with patients. In accordance with the current study findings, in another study, students reported higher mental anxiety levels because of e-learning and online classes during the current pandemic<sup>3</sup>. Likewise, in some rural areas of Pakistan, access to high-speed internet is complex, and other technical issues may also cause stress and anxiety.

**Table 1.** Demographics of the study participants

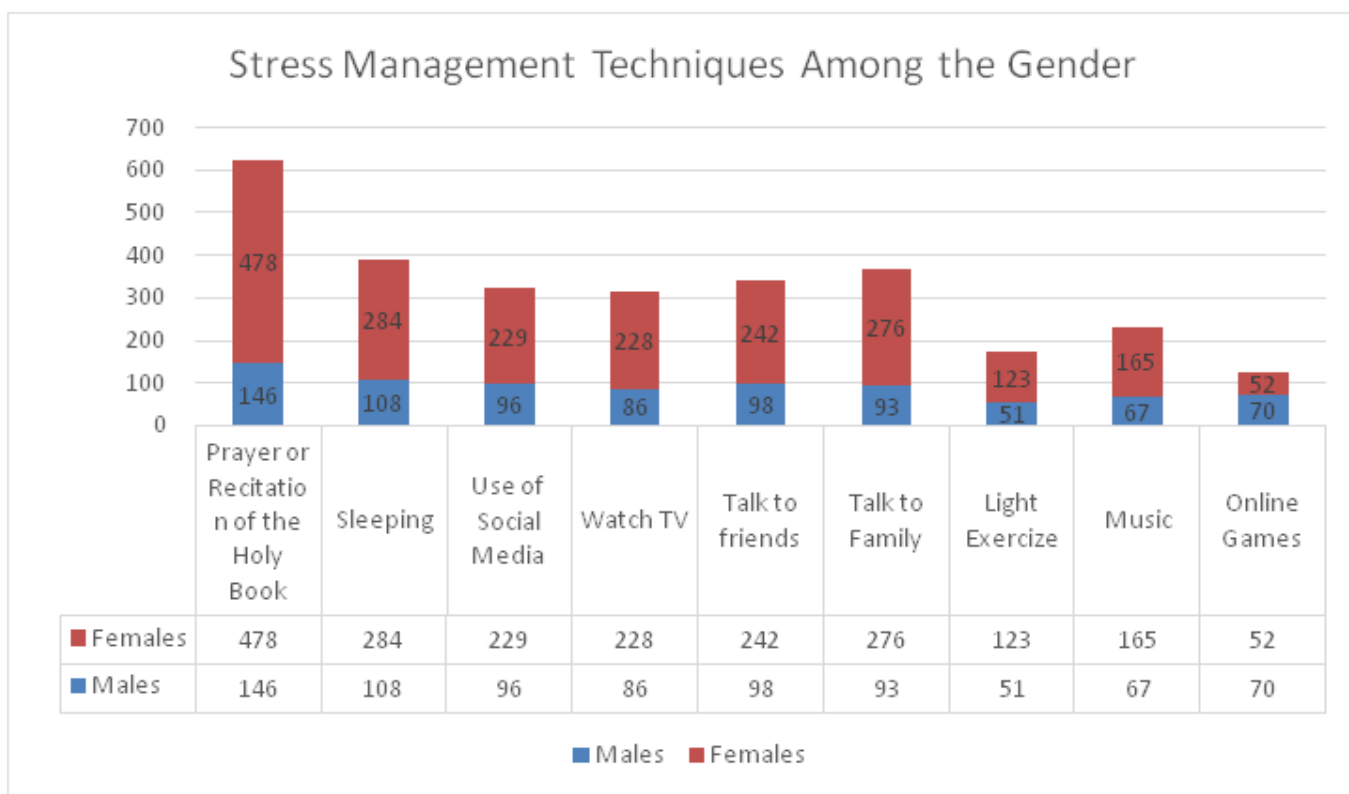
Variable	Frequency (%)
Gender	
Male	213 (26.3)
Female	596 (73.7)
Total	809 (100)
Year of Study	
1st Year	223 (27.6)
2nd Year	194 (24.0)
3rd Year	166 (20.5)
4th Year	226 (27.9)
University	
Private	543 (67.1)
Public	266 (32.9)
City	
Karachi	549 (67.9)
Hyderabad	159 (19.65)
Jamshoro	60 (7.41)
Mirpur khas	26 (3.21)
Larkana	07 (0.86)
Quetta	08 (0.98)

**Table 2.** Students level of satisfaction regarding online classes and e-learning among private and public sector dental colleges

Institute	Very dissatisfied	Dissatisfied	Neutral	Satisfied	Very satisfied	P-Value
Private	189	126	153	47	28	0.211
Public	85	82	63	22	14	
Total	274	208	216	69	42	

**Table 3.** Anxiety levels of the BDS students during the pandemic

Questions	Gender	No Anxiety	Mild Anxiety	Moderate Anxiety	High Anxiety	Severe Anxiety	Mean	STD Dev	P-Value
Do you have anxiety about your studies?	Female	16	28	133	186	233	3.99	0.983	0.934
	Male	4	9	42	65	93	4.10	1.022	
Do you have Anxiety about your future?	Female	24	20	94	153	305	4.17	1.100	0.534
	Male	8	11	39	52	103	4.08	1.068	
Are you anxious about the future of dentistry?	Female	34	39	123	174	226	3.87	1.202	0.133
	Male	14	20	54	57	68	3.68	1.160	
Do you have Anxiety to be infected with Coronavirus?	Female	70	94	184	111	137	3.25	1.212	0.451
	Male	14	29	63	49	58	3.51	1.293	
Your level of Anxiety that your Family Members will be infected with Coronavirus?	Female	56	64	117	201	158	3.57	1.181	0.252
	Male	10	23	44	58	78	3.80	1.247	
Overall Anxiety due to COVID-19?	Female	59	62	111	191	173	3.60	1.306	0.424
	Male	20	20	48	48	77	3.67	1.275	



**Figure 1:** Stress management techniques during the COVID-19 pandemic.

Additionally, most of the teachers are not familiar with this mode of teaching. With the advent of technology, simulation techniques widely used in different parts of the world can be used to enhance the students' teaching experience. In cases of distant learning, these techniques can significantly replicate the practical demonstrations conducted in laboratories.

Students were reported to be anxious about their future as well as the future of dentistry. In the current study, we found that more than 50% of students showed a severe anxiety level regarding their future. Due to the lockdown, dental clinics suspended their activities, and due to the current condition, it is difficult to start a new private dental set-up. Previously, it is also reported that the dentist will bear financial dents in the future, and the current financial crisis, patients will spend far less on their dental problems<sup>15</sup>. Moreover, in a recent study, it is also reported that due to the COVID-19 pandemic, a significant number of dental patients will not visit dentists for regular and routine dental procedures<sup>16</sup>. Many dental clinics have reduced their staff, and students near entering the practical life are worried due to the lack of opportunities. An earlier study has explained that unemployment is also linked with mental and somatic disorders and may disturb the person's mental well-being<sup>17</sup>. Similar findings have been stated in a study conducted in Pakistan. That study reported that fear due to Coronavirus is prevalent among the dentists as it has dramatically affected their financial state and made them reluctant when dealing with the patients<sup>18</sup>. A higher score of anxiety among males than females could be due to these facts, as in our society, males are the bread earner.

Healthcare workers are the frontline soldiers and are more prone to be infected. Multiple studies have reported higher anxiety among them<sup>18,19</sup>. The dental community is massively affected, as recent studies have confirmed the presence of viral strain in patients' saliva and which can spread through aerosols<sup>20</sup>. In the current study, we found that around 90% of the BDS students were afraid of get-

ting infected with COVID-19. More than 90% of them have anxiety regarding their family members being infected as these students can be the vector and may spread infection. This contagious nature and spread of disease of the virus has stirred a wave of fear and apprehension among BDS students. These findings are similar to the previous studies conducted in different parts of the world on healthcare professionals<sup>21,22</sup>. The necessary steps for the protection of our frontline workers must be taken. The BDS students should be trained and equipped to cope up with future challenges.

We have noticed that most BDS students manage their anxiety and stress with prayer and recitation of the Holy Book. Studies have endorsed this method as well. A study performed in Malaysia on healthcare professionals showed that prayer is the key method to reduce stress<sup>23</sup>. Other studies have also reported that people tend to turn to prayers, religious services or increased worship time in times of stress. It has been reported that this technique reduces stress and anxiety and helps to cope with depression<sup>24</sup>. These findings increase the relevance of religious teachings in times of stress and depression.

In this study, we observed that students also preferred sleeping as a stress management activity. It has been reported that sleeping over problems is another strategy that helps to reduce anxiety or help in the running away from the issues. Many people develop the habit of oversleeping during the depressive phase of life as it helps them forget the problems they are going through.

In this study, it was observed that females tend to share their problems or talk to family members more often as compared to males. Similar findings were reported in an American study performed on college students<sup>25</sup>. Females more readily discuss their problems and issues with family as compared to males who try to handle their issues themselves without the involvement of family members.

The use of social media and watching T.V also helped in reducing the stress levels among the students. It has been observed that since pandemic forced people to their homes, social networking sites served as positive means for maintaining social contacts between peers and friends. It helped them stay connected and alleviate a sense of loneliness. However, it has also been reported that the misconceptions spread by social media may contribute to increasing the anxiety levels in some cases<sup>26</sup>.

The pandemic saw a sudden surge in online gaming for many people. Students were found to be engrossed in many online games. A study performed in India particularly reported that gaming behaviour had increased during the pandemic, and students believe that online gaming helps in stress management<sup>27</sup>.

The pandemic has pointed out several flaws in our system. The WHO has predicted that in the future, the world will see more pandemics that could be catastrophic for nations. One of the primary reasons the online education system failed in Pakistan was the lack of internet facilities in remote areas and the lack of platforms for conducting such lectures. The students and teachers were not trained for the use of technology to overcome the barrier<sup>6</sup>. The government should strive to develop internet facilities in remote areas and improve internet services in urban areas. The educational institutions should provide workshops and training facilities for teachers and students to equip them with educational system changes.

The dental education in this aspect suffered majorly as they had no means to simulate dentistry's practical elements. There was a collapse in dental procedures and education not only in Pakistan but throughout the world. There is a need to develop such methods and platforms that can provide an alternative to the hands-on technique. Until such platforms are designed, teaching hospitals must devise some guidelines to be followed during pandemic situations that should not affect dental professionals' training.

Furthermore, there is a need to develop protective devices for preventing aerosol dispersion during dental procedures. Such developments will enhance the faith of future graduates in dentistry and help prevent the spread of many diseases to and from the dentists.

An inadequate number of participants from Baluchistan is one of the major limitations of the current study. More students from private colleges responded as the number of private colleges is significantly greater than the number of public sectors medical and dental colleges. The number of female students was also higher as more female students are enrolled in medical and dental colleges as compared to male students. Another limitation was the lack of students from other fields. A comparison between BDS students and students of other fields would have provided a view of how different students react to the situation.

In this challenging time, teachers, parents, and the government should work closely to encourage and support future dentists' mental health. Counselling sessions should be organized. Additionally, teaching faculty should upgrade themselves. There is a need for improvement in E-learning methods, and more blended learning among healthcare students is recommended. For any unforeseen circumstance ahead, it is essential not only for teachers but also for the authorities to initiate training programs and improve their faculty.

## **Conclusion**

Despite a few limitations, this study has reported that many BDS students of Sindh and Baluchistan are worried about COVID-19, their studies, future and are also suffering from anxiety. Getting infected, lack of interest in online classes, ambiguity, financial uncertainties etc., are some of the major factors of anxiety among the BDS students.

## **Acknowledgement**

We would like to thank all the individuals who helped us during this project. Especially Dr. Fazal

Rehman Babar and Dr. Fahad Khan from Balochistan and Dr Shoaib Durrani, Dr. Bilal Bashir Dr. Huma Sarwar, Dr. M.Uzair, Dr. Uzair Jamal, Dr. Basim Munir, Dr. Rafia Burhan, Dr. Afreen Bilgiram, Dr. Adil Iftikhar, Dr Naseer Ahmed, Dr. Saima Butt, Dr. Zohra Saleem, Dr. Asad , Dr. Abul Faraz, Dr. Zahid Iqbal, Dr.Sunil Kumar, Dr.Umar Khayam, Dr. Zareen Afshan, Dr. Aqeel, Dr. Sarah, Dr. Sadaf Mashood, Dr. Mansoor Dar, Dr. Sadia Hassan from the Sindh. We highly acknowledged the efforts of BDS students; without them, this study was not possible.

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