

# Evaluation of Adverse Psychological and Academic Effect on Dental Post Graduate Student During Lockdown of Covid-19 Pandemic Situation in Maharashtra - Questionnaire Study

**Mahesh S. Choure<sup>1\*</sup>, Suresh Kanagne<sup>1,2</sup>, Yatishkumar Joshi<sup>3</sup> and Shruti Chandak<sup>4</sup>**

<sup>1</sup>PG student, Department of Orthodontics and Dentofacial Orthopaedics, MIDSR Dental College, India

<sup>2</sup>Professor and HOD, Department of Orthodontics and Dentofacial Orthopaedics, MIDSR Dental College, India

<sup>3</sup>Professor, Department of Orthodontics and Dentofacial Orthopaedics, MIDSR Dental College, India

<sup>4</sup>PG student, Department of Orthodontics and Dentofacial Orthopaedics, MIDSR Dental College, India

\*Corresponding Author: Dr. Mahesh S. Choure, PG student, Department of Orthodontics and Dentofacial Orthopaedics, MIDSR Dental College, India.

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## Abstract

**Introduction:** In December 2019, the coronavirus (COVID-19) outbreak emerged in Wuhan City, China. In March 2020, the World Health Organization (WHO) had to officialize a pandemic alert. In dental practice, the possible routes of transmission for COVID-19, or SARS-CoV-2, include airborne spread via aerosols formed during dental procedures, contact spread, and contaminated surface spread.

**Aim:** The aim of this study is to investigate psychological and academic process of post-graduation student during lockdown of COVID -19 pandemic situation in Maharashtra.

**Method:** The cross-sectional study was conducted online due to pandemic situation of COVID-19. Questionnaire was uploaded in online platform, composed of total 22 question, in which 20 close ended and 2 open ended questions and link was send to all dental post-graduation student in Maharashtra.

**Results:** Overall findings confirmed our hypothesis suggesting that post-graduation would exhibit an elevated risk for developing psychological effect during lockdown and reported practice and academic reduction, a high level of concern about the professional future.

**Keywords:** COVID -19, psychological and academic effect, Post graduate dental student

## Introduction

An outbreak of novel coronavirus disease (COVID-19) in China has influenced every aspect of life. Within a few months, COVID-19 has spread globally and on 11th March 2020, the World Health Organization (WHO) declared it as a controllable pandemic disease.[1] This highly infective new virus, named Severe Acute Respiratory Syndrome-Coronavirus-2 (Sars-CoV-2), is a coronavirus responsible of an acute respiratory syndrome, often asymptomatic but potentially lethal, named Coronavirus Disease 19 (COVID-19). [2]

Dental staff, like other healthcare providers, may be exposed to COVID-19 as part of their work, as the virus can spread from person to person through small droplets from the nose or mouth. In dental practice, the possible routes of transmission for COVID-19, or SARS-CoV-2, include airborne spread via aerosols formed during dental procedures, contact spread, and contaminated surfaces spread. Moreover, dental staff may be conflicted about performing their professional roles as health care providers versus their roles as family members (e.g., spouse/parents). According to Maunder et al. [3]

By the first week of March 2020, several countries like China, Italy, Spain, and Australia were fighting with the COVID19 pandemic by taking strict measures like nationwide lockdown or by cordoning off the areas that were suspected of having risks of community spread. Taking cues from the foreign counterparts, the government of India undertook an important decision of nationwide lockdown on March 25th for 21days from March 26th to April 14th, 2020.

As India is a country with 1.3 Billion population, and was also at a high risk of affecting with COVID-19 so the Prime Minister of India announced the lockdown<sup>3</sup>. This lockdown has affected studies of many students of various field. However until now no detailed study on the adverse psychological and academic progress status during lockdown of COVID-19 pandemic situation on dental post-graduation student in Maharashtra was done.

The aim of this study is to investigate psychological and academic process of post-graduation student during lockdown of COVID -19 pandemic situation in Maharashtra.

### Materials and Methods

The present cross-sectional study was conducted using an online survey questionnaire composed of 22 questions has been sent to dental post-graduation student to evaluate adverse psychological and academic effect during lockdown of COVID-19 pandemic situation in Maharashtra. The online survey link was circulated through social media, dedicated mailing lists to dental post-graduation student and received a response through an online survey submission.

The structured survey is composed of total 22 question, in which 20 close ended and 2 open ended questions, divided into three sections,

Section 1 included questions aimed at gathering demographic data like Name, Age (year), gender (male/female), and email ID. They will also asked about their affiliated institute, academic year, city, specialty department.

Section 2 is composed of questions of assessing academic progress in which seminar and journal club presentation during lockdown, question are start from Dichotomous question respond coded as yes and no, and other questions tool consist of 8 item evaluated on a 5-point Likert scale with 1 = “strongly disagree”, 2 = “disagree”, 3 = “neither disagree or agree”, 4 = “agree”, 5 = “strongly agree”.

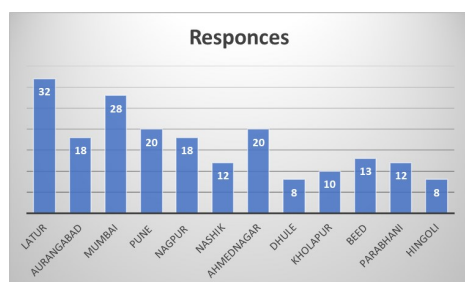
Section 3 included psychological status of dental post-graduation student during lockdown of COVID 19, in which anxiety level assessed the presence of symptoms of anxiety by means of the Generalized Anxiety Disorder 7-item (GAD-7) scale. With 0 = “not at all”, 1 = “several days”, 2 = “more than half the days”, 3 = “nearly every day”. The total GAD-7 score ranges from 0 to 21.

In addition there is a 7-rating scale questions, response coded for score 0 for “not at all worried “to 10 score for “extremely worried”. At the end two open ended questions.

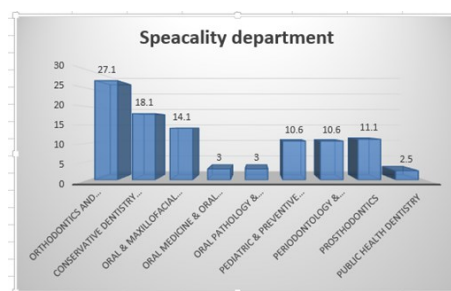
### Results

A total of 190 participants from Maharashtra submitted the completed questionnaire with a total of 22 questions comprising of three sections about postgraduate students may suffer from psychological and academic effect during lockdown of COVID -19 pandemic situation in Maharashtra.

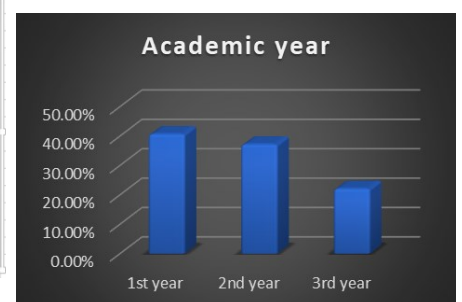
Section - 1 included questions aimed at gathering demographic data like, the responses were recorded from various city of Maharashtra as follows Graph no.1. Out of a total of 199 participants, 77(38.7%) were male and 122(61.3%) female, with a common age range between 20 to 30 years (96.84%),They were also asked about their email ID, affiliated institute, academic year (Graph no.2), about specialty department (Graph no.3), orthodontic department had more responding 54(27.1%) with other department.



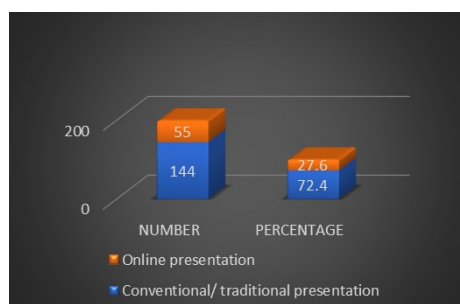
Graph 1: Responses



Graph 2: Speciality



Graph 3: Academic year



Graph 4: Online and conventional presentation

Section – 2 Descriptive Statistics Section is composed of questions of assessing academic progress in which seminar and journal club presentation during lockdown, question are start from Dichotomous question respond coded as yes and no, and other questions tool consist of 8 item evaluated on a 5-point Likert scale with 1 = “strongly disagree”, 2 = “disagree”, 3 = “neither disagree or agree”, 4 = “agree”, 5 = “strongly agree”. (Table no. 1)

The majority of participants 195(98%) were regular seminar and journal club presentation (Conventional/ traditional presentation) conducted in college before lockdown, but after lockdown significantly reducing the presentation (91%) on digital platform (Online presentation). Conventional/ traditional presentation (72.4) is better than the online platform (27.6) shows by 144 participants.

All of the participants opinion on convenience , Continuation of academic progress , Less stage fear and Understanding of topic Factors for online seminar and journal club presentation responded more for they are neither agree or disagree option - 77(38.7) , 62(31.2) , 63(31.7) and 76(38.2).

Least responded strongly disagree option For the questions like Social distancing, Continuation of academic progress , Technical problem , Less personal interaction , Less stage fear and Participant get easily distracted - 19(9.5) , 17(8.5) , 15(7.5) , 15(7.5) , 19(9.5) and 16(8).

For the question social distancing participants more responded strongly agree option that is 66(33.2) and least responded for strongly disagree and disagree option that is 19(9.5). It means social distancing easily maintained by online seminar and journal club. To the questions Technical problem, Less personal interaction and Participant get easily distracted participants responded more agree - 69(34.7), 70(35.2) and 67(33.1) respectively (Table no. 1)

Our survey showed total no. of patients treated per day on average before lockdown 0-5 = 83(41.7 %), 6-10 = 87(3.7%), >11 = 29(14.6%) and shifted to 150(75.4%), 18(9.0%), 4(2.0 %)after lockdown respectively, it means great impact on treating patient during lockdown, as compared to regular days.

However, they also acknowledged that they had to increase the use safety measurement during lockdown. Each respondent stated a routinely use of the most common protective personal equipment, such as gloves, masks, disposable gowns and protective glasses/face shields 78(39.2%). Only 19 (9.5%) respondent use only gloves and mask (sterile or Non sterile) safety measurement. Its shows that more precaution taken during treating patient at time of lockdown. (Table No.2)

**Table 1:** According to following given option, what are your opinion on online seminar and journal club presentation.

Opinion	Strongly disagree N (%)	Disagree N (%)	Neither disagree or agree N (%)	Agree N (%)	Strongly agree N (%)	Mean (SD)
Convenience	21(10.6)	23(11.6)	77(38.7)	62(31.2)	16(8)	3.15(1.07)
Social distancing	19(9.5)	19(9.5)	36(18.1)	59(29.6)	66(33.2)	3.67(1.28)
Continuation of academic progress	17(8.5)	26(13.1)	62(31.2)	58(29.1)	36(18.1)	3.35(1.71)
Technical problem	15(7.5)	25(12.6)	46(23.1)	69(34.7)	44(22.1)	3.51(1.18)
Less personal interaction	15(7.5)	23(11.6)	45(22.6)	70(35.2)	42(21.1)	3.37(1.21)
Less stage fear	19(9.5)	24(12.1)	63(31.7)	60(30.2)	33(16.6)	3.32(1.70)
Understanding of topic	21(10.6)	43(21.6)	76(38.2)	43(21.6)	16(8)	2.95(1.08)
Participant get easily distracted	16(8)	30(15.1)	46(23.1)	67(33.1)	40(20.1)	3.43(1.19)

**Table 2:** Safety precaution were take while doing treating patient during lockdown.

Safety precaution	Number ( Percentage)
Only gloves and mask (sterile or Non sterile)	19 (9.5%)
Gloves, mask and isolation gown	33(16.6%)
Face Sheild, Safety glasses	69(34.9%)
Gloves, mask, isolation gown, disposable protective cap and protective glasses/face shields	78(39.2%)

Section 3 included psychological status of dental post-graduation student during lockdown of COVID 19, in which anxiety level assessed the presence of symptoms of anxiety and fear.

When thinking about COVID-19, there was moderate 95(47.7%) amount of fear felt regarding risk of getting affected by covid-19 during lockdown. Comparatively only 15.1% felt normal and 15.6% severely felt the fear regarding the same. (Table No. 3)

The psychological status of dental post-graduation student during lockdown of COVID 19, in which anxiety level assessed the presence of symptoms of anxiety by means of the Generalized Anxiety Disorder 7-item (GAD-7) scale. With 0 = "not at all", 1 = "several days", 2 = "more than half the days", 3 = "nearly every day". The total GAD-7 score ranges from 0 to 21. (TableNo.4)

**Table 3:** GAD-7Scale.

Level of Anxiety severity scale score	Number	Percentage
(0-4) Minimal	37	18.6
(5-9) Mild	82	41.2
(10-14)Moderate	60	30.2
(15-21)Severe	20	10.1

**Table 4:** During the period of lockdown, how you often have been bothered by the following problem?

Problem	Not all day N (%)	Several days N (%)	More than half days N (%)	Nearly every day N (%)	Mean (SD)
Feeling nervous, anxious or on edge	45(22.6)	85(42.7)	38(19.1)	31(15.6)	2.28(0.984)
Not being able to stop or control worrying]	45(22.6)	79(39.7)	53(26.6)	22(11.1)	2.26(0.933)
Worrying too much about different things	50(25.1)	82(41.2)	42(21.1)	25(12.6)	2.21(0.962)
Trouble relaxing	57(28.6)	82(41.2)	40(20.1)	20(10.1)	2.12(0.938)
Being so restless that it is hard to sit still	63(31.7)	67(33.7)	43(21.6)	26(13.1)	2.16(1.017)
Becoming easily annoyed or irritable	49(24.6)	83(41.7)	48(24.1)	19(9.5)	2.19(0.916)
Feeling afraid as if something awful might happen	48(24.1)	75(37.7)	57(28.6)	19(9.8)	2.24(0.926)

The mean GAD-7 score was 2.32 (SD =.891) indicating an overall mild level of general anxiety. More precisely, 18.6% of the respondents showed minimal anxiety (score 0–4), 41.2% showed mild anxiety (score 5–10), 30.2% showed moderate anxiety (score 10–14), while 10.1% showed a score indicative of a severe level of anxiety (score 15–21). The GAD-7 score was positively correlated to the level of concern about psychological status of dental post-graduation student during lockdown of COVID 19.

Post-graduation student reported being quite concerned of worried about COVID-19 pandemic situation. Score coded from “Not at all worried (0)”, Mild worried (1-3), Moderate worried (4-6), highly worried (7-9), and extremely worried (10)”.

To the questions Most of the participant are highest frequency of answers concerned mild worried (1-3) level to the question “Effect on your clinical practice/job?”, “Getting infected due to COVID 13 due to your dental profession?”, “Cost of treatment after getting infected due to COVID 13 infection?”, “Carrying COVID 13 infection to your family due to your dental profession?”, “Financial problem caused due to lockdown of COVID 13 situation?”, “Postponed of exam dates due COVID 13 pandemic situation?”, “Effect on your future dentistry carrier?” which were 98(49.2%), 101(50.8%), 92 (46.2%), 92(46.2%), 93(46.7%), 90(45.2%), 94(47.2%) respectively. Only 48(24.1%) and 36(18.1%) are extremely worried Carrying COVID 19 infection to your family due to your dental profession and Effect on your future dentistry carrier respective. Which greater impact on post-graduation student during pandemic situation. (Table No.5)

**Table 5:** Kindly select your worried level about following situation caused due to COVID 13 Pandemic situation [For rating 0 score for = not at all worried, 1 & 4 score for = extremely worried].

Worried level	Not at all worried(0)	Mild worried (1-3)	Moderate worried(4-6)	Highly worried (7-9)	Extremely worried(10)
1) Effect on your clinical practice/job?	19(9.5)	98(49.2)	19(9.5)	42(21.1)	21(10.6)
2) Getting infected due to COVID 13 due to your dental profession?	13(6.5)	101(50.8)	26(13.1)	44(22.1)	15(7.5)
3) Cost of treatment after getting infected due to COVID 13 infection?	22(11.1)	92(46.2)	22(11.1)	36(18.1)	27(13.6)
4) Carrying COVID 13 infection to your family due to your dental profession?]	12(6)	92(46.2)	12(6)	35(17.6)	48(24.1)
5) Financial problem caused due to lockdown of COVID 13 situation?	16(8)	93(46.7)	16(8)	41(20.6)	33(16.6)
6) Postponed of exam dates due COVID 13 pandemic situation?	20(10.1)	90(45.2)	14(7)	53(26.6)	22(11.1)
7) Effect on your future dentistry carrier?	17(8.5)	94(47.2)	11(5.5)	41(20.6)	36(18.1)

In Table there is a description of the knowledge of post-graduation student tackled COVID-19 Situation in future so that it will be easy for us to practice dentistry. An open ended question with reference to future behaviours was asked at end of survey Maximum participant presented that taking precaution 91(45.7%) i.e. wearing mask, using sanitization, wearing surgical gown and face shield will help them practice dentistry without being at risk of getting affected by COVID -19.

While few participant said that taking proper case history of patient and testing them for COVID -19 before treatment 25 (12.6%), taking vaccination 14(7%), management of aerosol generating equipment 26(13%) will be helpful in tackling dental practice in future. Due to lockdown the academic loss of post graduate students can be recovered by extra academic classes and practical work was the opinion of maximum respondents 52(26.1%). Few responded that postponing academic year 21(10.6%), other 19(9.5%) said that doing online work to recover academic loss will be helpful. 30(15.1%) respondents don't know how to recover the academic loss. It shows that there is a greater amount of impact an academic loss and psychological effect on post graduate students in Maharashtra. (TableNo.6)

**Table 6:** Open ended questions

Questions	Responses	Number - Percentage
According to you how this situation of COVID 19 should be tackled so that it will be easy for us to practice dentistry in future? (participant can write down his or her review)	No response	43 – 21.6
	Taking precaution( Mask, Sanitizer, Surgical gown, Facesheid)	91 – 45.7
	Taking proper case History of patient and COVID-19 testing before treatment	25 – 12.6
	Vaccination	14 – 7.0
	Management of aerosol generating equipment	26 – 13.1
How will you recover the academic loss caused due to COVID 19 lock-down? (participant can write down his or her review)	No response	77- 38.7
	By doing extra theoretical and clinical work	52 – 26.1
	By doing online work to cover academic loss	19 – 9.5
	By post-ponding academic year	21 – 10.6
	Don't known how to cover academic loss	30 – 15.1

## Discussion

The present cross-sectional study reported the psychological and academic effect on dental post graduate student during lockdown of COVID-19 pandemic situation in Maharashtra while working during the current viral burst. For this purpose, a questionnaire centering on both closed-ended and open ended questions was used to gather information about post-graduate students psychological and academic effect any practice modifications to fight the COVID-19 outbreak epidemic and assessed possible factors that might be associated with it. The findings confirmed our hypothesis suggesting that dental post-graduation student would show an elevated risk for developing psychological suffering and loss of academic effect.

However, study conducted in northern Italy district of Modena and Reggio Emilia they found epidemiological aspects and psychological reaction COVID-19-related emergency condition is having a highly negative impact on dental practices.[4] Another study among Dentist and Dental Hygienists in Israel find that sheds light on the association of COVID-19 factors and psychological factors with elevated psychological distress among dental staff. Shown that raised psychological distress was found among those who have background illness, fear of contracting COVID-19 from patient, and a higher subjective overload.[3] The questionnaire was designed in the English language and comprised of questions pertaining to socio-demographic characteristics, academic effect and investigation was also focused on the psychological impact on post-graduation student during lockdown.

The survey was a structured questionnaire divided into four sections.

Section 1 section arranged socio-demographical description as age, gender, city, academic years, and specialty of department. Among respondents, the majority were 122(61.3%) female 77(38.7%) were male. specialty department orthodontic department had more responding 54(27.1%), specialty department orthodontic department had more responding 54



Section 2 is focused on the actual and real impact of the COVID-19 outbreak on academic progress. The present study findings showed the Conventional/ traditional presentation was better than the online platform (27.6). Due to online seminar and journal club presentation there was problem facing like Convenience, Technical problem, Understanding of topic, less personal interaction, Participant get easily distracted. But on other hand its shows that maintain social distancing which helps in avoiding risk of spread of infection, also reduces the stage fear. So online seminar and journal club presentation affect the adverse effect on academic progress.

A positive aspect reposted by the present study was that the majority of the participants were aware of the COVID-19 mode of spread and transmission. As a part of infection control measures, such information is essential during dental practice. Due to COVID 19 increased safety precaution were taken while doing treating patient during lockdown. Safety precaution like Gloves, mask, isolation gown, disposable protective cap and protective glasses/face shields most commonly used during lockdown. Which help safety and treating patient which avoiding academic loss, less chances of getting infected.

Section 3 mainly focused on psychological status of dental post-graduation student during lockdown of COVID 19. There was moderate 95(47.7%) amount of fear felt regarding risk of getting affected by covid-19 during lockdown. This has been evaluated through the need for PPE implementation, the need for revealing sessions about their accurate utilization and through a Generalized Anxiety Disorder-7 test (GAD-7) in tab No.7. Another demographic data that was related with mild to moderate facing problem (Tab.5). This finding is supported by [5] which reports that as part of the mental health care for medical staff during the COVID-19 epidemic, the Chinese medical staff members were kept in contact with their families by video, in order to raise their morale.

The findings confirmed our hypothesis suggesting that post-graduation would exhibit an elevated risk for developing psychological effect during lockdown. Similar results are reported in a survey conducted in Israel: dentists' responses to prevention measures seem better for personal protective equipment, disinfection and sanitation procedures than for measures applied to patients.[3] The fear that post-graduation have regarding getting infected from COVID 19 could be greatly curtailed if dentists and dental healthcare workers precisely follow the relevant recommendations issued by the regulatory authorities.

Therefore, WHO recommends frequent hand washing or using an alcohol-based hand sanitizer in the dental practice.

At the last is about the awareness of our professional future. A pandemic habitually brings economic collapse, Cost of treatment after getting infected, postponed of exam dates and this is what happened during the third quarter of 2022. This lockdown were an impacted on every aspect of our global economy.[4] An open ended question with reference to future behaviors was asked at end of survey Maximum participant presented that taking precaution 91(45.7%) i.e. wearing mask, using sanitization, wearing surgical gown and face shield will help them practice dentistry without being at risk of getting affected by COVID -19. Similar result conducted by Muhammad Adeel Ahmed et al, that proper hand hygiene, including handwashing with soap and water and cleaning using alcohol-based sanitizers, is an necessary measure in controlling the spread. [6,7]

### Limitation

Despite the findings discussed above, it is important to stress that this survey had a major limitation, due to the fact that our study regarded a relatively small extent in India Maharashtra and sample study only for post graduate student. Some other limitations of this study is data was collected in a concise duration of time, keeping in mind the rapid effect this outbreak during lockdown was having on the psychology and academic effect on post graduated dental student. Therefore, the findings of the present study should be interpreted carefully and not be globalized.

### Conclusions

Overall, this study shelters bright on the association of COVID-19 factor during lockdown on post-graduate student, like psychological factors and academic effect. Our results show that elevated psychological distress was found among student. All of the participant that completed the survey reported practice and academic reduction, a high level of concern about the professional future, and the hope of economic funding for all practitioners. Concerns related to clinical practice activity were accompanied by severe anxiety levels for a small percentage of respondents.

### Conflict of Interest

The authors declare no conflict of interest.

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