

IMPACT OF COVID-19 LOCKDOWN ON ROTATIONAL POSTINGS OF DENTAL HOUSE SURGEONS IN TELANGANA STATE - A CROSS-SECTIONAL STUDY

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ABSTRACT

BACKGROUND: The lockdown resulted in cancellation of dental house surgeon's clinical rotations and posed a unique challenge to education. The aim of this study was to explore the impact of Covid-19 lockdown on rotational postings of dental house surgeons. **METHODS:** A validated questionnaire with five domains was prepared using Google forms was shared as online link among the dental house surgeons of seven dental colleges of Telangana who were posted during first phase of Covid-19 pandemic. Descriptive statistical analysis, Chi square test and Kruskal wallis test were done to draw the frequencies and to know the impact due to lockdown. **RESULTS:** A total of 384 participants responded to the questionnaire of which 70.8% were females. Nearly 56.7% of the dental house surgeons felt that the Covid-19 lockdown had negatively impacted their clinical training and academics. Atleast 58.5% of the respondents felt that online classes and webinars were useful during the lockdown period. **CONCLUSION:** The Covid-19 outbreak compromised the clinical training affecting hands-on experience and causing a significant disruption of dental house surgeons training and curriculum.

KEYWORDS- Covid-19, lockdown, house surgeons, dental curriculum, rotational posting

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INTRODUCTION

Pandemics have affected several countries in the past and have been tackled with appropriate research. In late December of 2019 outbreak of pneumonia of unknown origin which was found to cause severe acute respiratory syndrome was reported in Wuhan, China. Scientists isolated a new Corona virus (SARS-CoV-2), after a month of outbreak by inoculation of bronchoalveolar lavage fluid obtained from patients with pneumonia. The disease rapidly circled the globe and has eventually affected every continent. World Health

Organization declared Covid-19 as an international emergency on January 30, 2020 and pandemic on March 11, 2020.¹

To slow down the spread of virus, Nation declared lockdown from 23rd March till 31st May 2020 and took measures like closure of educational and public institutions, business, banning of public events, self-isolation for symptomatic individuals, stay at home orders, travel ban and social distancing which dramatically impacted the globe

both socially and economically². Global pandemic by Corona virus has caused unprecedented changes to almost every aspect of the society including area of education of which Dental education has been significantly and uniquely impacted due to lockdown.³

Dental healthcare professionals should be very careful in protecting against the spread of disease, as close contact between human beings is required for almost all learning process, most of the lectures were switched to online mode to keep with the learning progress of dental students.

In India, according to the undergraduate dental curriculum, education is composed of three parts, the first is a Lectures Based Learning which was easy to switch to online mode and was not difficult to keep the social distance for this. The second part is a Simulation laboratory course in which after a demonstration by the teacher, student will practice on the simulation models, which needs a close contact between the teacher and student for evaluation. In the current pandemic environment, this may be done using modern digital or virtual reality techniques. The third part is clinical skill training in terms of Internship in which dental house surgeons are divided into small groups, to complete rotations in various clinical departments. At the end of their rotations, they usually get trained with the clinical abilities, which is the most important infrastructure of dental curriculum⁴. As there will be close contact between the house surgeons and the patient as well as the teacher, this was the most difficult part of dental education to deal during the pandemic.

In a study conducted by Isiekwe et al on dental residents in Nigeria 69.2% felt that Covid-19 affected their training residency programme⁵ and by Hattar et al in U.S. 87% of dental students felt Covid-19 negatively affected their clinical training⁶. Due to Covid-19 lockdown majority of dental house surgeons did not have the opportunity to complete their compulsory rotational one-year internship in compliance with regulations by Government of India. Therefore, this study was

conducted to further explore the effect of Covid-19 lockdown on dental house surgeons social/emotional wellbeing, clinical training, career planning, self-initiative measures taken and practice readiness.

MATERIALS AND METHODS

A cross-sectional e-based study was conducted among dental house surgeons of Telangana state, India from November 1st to December 15th 2020.

A 26-items self-structured questionnaire consisting of demographic data and questions related to the impact of Covid-19 lockdown on dental house surgeon with 5 domains i.e, effect on emotional/social wellbeing, self-initiative measures, effect on clinical training and academic curriculum, practice readiness and effect on future was prepared.

Prepared questionnaire was subjected to face and content validity by giving it to faculty members of SSCDS and were invited to give their comments and opinions on the readability, feasibility, general formatting, and presentation of 26-items in questionnaire to evaluate face validity. The content validation was established on a 4-point Likert scale (strongly disagree-1, disagree-2, agree-3, strongly agree-4). The level of agreement of respondents was calculated using Item-level content validity index (I-CVI) and Scale-level content validity (S-CVI) values. I-CVI score calculated for individual items, ranged from 0.78 to 1.00. S-CVI was calculated for over all 23 items and was found to be 0.92. The analysed result shows the level of agreement was high.

Ethical clearance was obtained from Institution Review Board of Sri Sai College of Dental Surgery, Vikarabad and permissions were obtained from 7 dental colleges in Telangana.

Pilot study was conducted on 30 dental house surgeons to check the feasibility of conducting the study and to note any difficulties encountered during the data collection. Responses were reported on a five-point Likert scale (strongly agree, agree,

neutral, disagree and strongly disagree). The internal consistency was established based on pilot study and was found to be good (Cronbach's alpha= 0.81).

Based on the pilot study with a prevalence of 50%, 95% level of confidence ($Z=1.96$) and precision error of 5% using formula Z^2pq/d^2 , final sample obtained was 384.

The link of the questionnaire (<https://forms.gle/mcENRCgzU4wVZPhP6>) was shared with the administration of dental colleges and requested to share with the dental house surgeons who were posted during first phase of Covid-19 pandemic. Introduction of the questionnaire defined the purpose and objectives of the study. To maintain anonymity no personal identifiers were used in the questionnaire. Participation was completely voluntary and consent was implied by responding to the questionnaire. Limit to one response and response mandatory for every item was activated. Reminders were sent to administrative staff until the desired sample was obtained.

STATISTICAL ANALYSIS

Statistical analysis was performed using IBM SPSS 28.0. Descriptive statistics were generated. Cut-off score was calculated by calculating the inter-quartile range for means of all domains. Kolmogorov–Smirnov test was used to check normal distribution of data. Data were not normally distributed. Chi-square was done to find the association between gender and categories of rotational postings attended and Kruskal-wallis test was used to find the impact of Covid-19 lockdown on rotational postings attended. The significance level was set as $P<0.05$.

RESULTS

A total of 384 participants responded, of which 70.8% were females and 29.2% were males. The mean age of the participants was 23.7 ± 0.99 years.

Out of 384 participants, 85.6% felt they missed social interactions and 68.1% felt that pandemic affected crucial period of training. However, 58.7% had actively managed to widen their theoretical knowledge by attending webinars/online classes with 69.8% spending time productively to prepare for competitive exams. More than 70% felt they had missed opportunity to learn clinical activities and have a qualitative impact on educational experience, with 44.1% reporting fear of being unprepared for future clinical activity. (Table-1)

13.5% participants strongly agreed that they would take forward the knowledge they gained in starting an independent clinic. 49.6% thought that the pandemic affected their choice of specialty in masters. (Table-1)

Based on the cut-off scores 25.3% study participants felt that lockdown due to Covid-19 have mild effect on their competency levels, 50.5% moderate and 24.2% severe effect.

Respondent's level of impact on social/emotional wellbeing, clinical training and academics differed among gender ($P<0.05$) (Table-2). Association between rotational postings attended (as measured by whether they had completed, not started, or partially completed rotational postings) and effect on social/emotional wellbeing ($P<0.001$), effect on clinical training and academics ($P<0.001$), effect on future ($P=0.031$) showed statistical significance. However, the association between rotational postings attended and self-initiative measures ($P=0.87$) and practice readiness ($P=0.086$) was not significant. (Table-3)

Table-1: Distribution of frequencies of impact of covid-19 lockdown on rotational postings of dental house surgeons

	Strongly agree (%)	Agree (%)	Neutral (%)	Disagree (%)	Strongly disagree (%)
EFFECT ON EMOTIONAL/SOCIAL WELL BEING					
Missed interactions with friends	52.3	33.5	12.2	0.5	1.5
Missed scope of discussion with seniors and faculty	38.2	42.5	16.2	1.3	1.8
Worried as pandemic wasted crucial time of training	48.6	29.5	18.5	1.4	2
Feeling of insecurity	32.8	40.8	20.5	3.9	2
SELF- INITIATIVE					
Provided time to prepare for competitive exams	26.5	43.3	25.2	1.8	3.2
Opportunity to improve knowledge by attending webinars/online courses	20.4	38.3	29.2	8	4.1
Contribution in health crisis (work as volunteers)	24.3	40.3	29.5	3.9	2
EFFECT ON CLINICAL TRAINING AND ACADEMICS					
Missed opportunity to learn clinical work	40.5	36.7	17.9	3.1	1.8
Unprepared for handling emergencies	30.2	34.2	26.4	6.5	2.8
Felt the need for having comprehensive training in the college	33.5	36.4	22.2	5.4	2.4
Missed the educational experience	33.5	37.5	19.2	7	2.8
Lack of confidence in making clinical decisions	14.8	29.3	26.5	21.6	7.8
PRACTICE READINESS					
Confident in skills acquired during graduation	18.2	38.2	30.9	8	4.7
Confident in starting an independent practice	13.5	27.8	35.4	16.3	7
Reconsideration of internship and degree timing	20	30.4	31.5	11.9	6.2
Need to work in a hospital to improve clinical skills	35.4	34.5	21.8	4.9	3.4
Joining senior internship	27.9	27.9	32	7.5	4.7
EFFECT ON FUTURE					
Difficulty in planning career	25.5	23.6	35.4	10.1	5.4
Fear of being unprepared for future	23.3	30.4	27.8	13.5	4.9
Future of medical education is uncertain	19.5	32	28.4	14.6	5.4
Covid-19 pandemic affected choice of specialty	23.9	25.7	25.7	18.2	6.5
Missed opportunity to work at private clinic	32	33.4	16.4	14	4.2
Wanted to change profession	12.4	18.4	22.9	25.5	20.8

TABLE 2: Association of domains of impact of covid-19 on rotational postings and gender

Domains	Gender	Impact						X ²	P-value
		Mild		Moderate		Severe			
		N	%	N	%	N	%		
Effect on emotional/social well being	Male	26	6.7	70	18.2	17	4.4	5.697	0.05*
	Female	74	19.3	133	34.7	64	16.7		
Self- initiation	Male	33	8.6	63	16.4	17	4.4	1.849	0.39
	Female	92	24	130	33.9	49	12.7		
Effect on clinical training and academics	Male	19	4.9	74	19.3	20	5.2	7.086	0.02*
	Female	77	20.1	140	36.5	54	14		
Practice readiness	Male	21	5.5	65	16.9	27	7	6.126	0.04*
	Female	83	21.6	126	32.8	62	16.2		
Effect on future	Male	36	9.4	60	15.6	17	4.4	5.943	0.05*
	Female	68	17.7	132	34.4	71	18.5		
Over all domains	Male	27	7	64	16.7	22	5.7	2.949	0.22
	Female	70	18.2	129	33.6	72	18.8		

N- Frequency, %- Percentage, X² - Chi square, P< 0.05 is significant

TABLE 3: Comparison of domains of impact of covid-19 on rotational postings

Domains	Rotational postings	Mean rank	P value
Effect on emotional/social well being	Attended all	218.38	<0.001*
	Attended few	180.18	
	Did not start	236.36	
Self- initiative	Attended all	196.33	0.87
	Attended few	191.22	
	Did not start	199.3	
Effect on clinical training and academics	Attended all	158.52	<.001*
	Attended few	193.24	
	Did not start	239.79	
Practice readiness	Attended all	167.96	0.086
	Attended few	195.33	
	Did not start	213.69	
Effect on future	Attended all	211.37	0.031*
	Attended few	183.88	
	Did not start	223.4	
Over all	Attended all	194.96	0.049*
	Attended few	186.5	
	Did not start	230.27	

H- Kruskal Wallis test, P< 0.05 is significant

DISCUSSION

The highly contagious nature of Corona virus pandemic and its fatal outcomes has influenced clinical education. This study highlights that Covid-19 lockdown has brought uncertainty among dental house surgeons across Telangana state

during first outbreak due to disruption of rotational postings. Government implemented sudden lockdown as a precautionary and only source of measure to break the chain of Covid-19 pandemic and dental institutes were required to suspend academic activities except for providing urgent and emergency dental care⁷. This led to scenario wherein to take immediate action to continue education and evaluation of dental students using virtual mode, not to have any adverse impact on education⁸.

In the current study 70.8% were females, which was in accordance with the studies conducted by Hattar S et al⁶ and Anargha AG et al⁹ as there are higher number of admissions of females in dental institutions in India than males. 88.3% of participants were not able to complete their compulsory rotational postings at the time this study was conducted. This was similar to the study conducted by Luigi G et al (94%)¹⁰.

Dental educational system has changed drastically in India due to suspension of classroom teaching and clinical training by switching to online mode to maintain social distance. Reduced social interactions, a lack of social support, and newly arising stress due to Covid-19 lockdown potentially

affected student's mental health negatively¹¹. 85.6% participants felt that they missed social connections with friends which was in accordance with the study conducted by Hung et al as lockdown decreased collaboration with colleagues, seniors and staff members¹². Covid-19 lockdown showed significant difference on emotional/social well being of participants (P=0.001), due to decreased interactions and collaboration with their classmates. This was more among participants who did not start and who have completed few of their rotational postings, as they missed a chance to get acquainted with each other and to work together during their internship period and communication with staff regarding case-based discussions and clinical scenarios, which can be minimised by encouraging students to be connected with staff and giving them clear directions not be left in the dark especially regarding the decisions that affect their education.

The lack of patient exposure and clinical cases due to Covid-19 lockdown creates a great void in dental learning, which seemed to be one of the major drawbacks of e-learning¹³, as it is important to have a great deal of social and practical skills to win the trust of patients. This gap in clinical knowledge/practice can be met by introducing innovative ideas like holding clinical case discussions in a separate interactive class or integrating these discussions while teaching certain topics. This could help increase clinical interest, diagnostic skills and master clinical skills as suggested by Kim KJ in their study¹⁴.

To ensure continued dental education, adaptation with the time is crucial. In the current study 58.5% attended online classes/webinars to increase their knowledge. These findings were in conjunction with studies done by Hung et al¹¹ and Shetty et al¹². This suggests that lockdown offered opportunity to use technology that enhance dental education and create opportunities to learn new things. In the current study 64.6% of the participants are willing to work as volunteers during pandemic, these results were in accordance with the studies

conducted by Adejimi AA et al (82.9%)¹⁵ and Harries AJ et al (63.5%)¹⁶. Despite of having stress of an ongoing pandemic, dental house surgeons are willing to volunteer, in event of manpower shortage and also to build their professional identities as volunteering during a pandemic is a form of education.

Covid-19 pandemic can be defined as a "Lesson to be learned", which have proven to be lacking in clinical training and regular academics which are valuable learning experiences during internship. In the current study 78.1% participants worried that lockdown has wasted crucial period of training, which was in accordance with the studies conducted by Anargha AG et al (64.8%)⁹, Hung et al (42.8%)¹², Shetty et al (76.3%)¹³. 77.2% missed an opportunity to learn clinical work and webinars/case discussions cannot substitute the acquisition of manual dexterity and fine motor skills which are necessary for various clinical procedures especially in dentistry, possible only by practicing on real patients. Hence study participants felt the need for comprehensive clinical training by strengthening extramural rotations and inter-professional education to enable to increase their competency as well as to help community during crisis.

Impact of Covid-19 on future was judged as severe by 56.7% participants, probably due to fact that dental house surgeons did not have the opportunity to complete their rotational one-year internship. There was significant difference (P=0.031) on future career among the participants who attended all, who attended few and who did not start their rotational postings as lack of a 'real scenario of clinical training' might cause an immense impact on the future career. In the current study 30.7% participants would like to change their profession as lockdown affected their clinical competency levels. This was more when compared to the study conducted by Ciavoi G et al (12.9%)¹⁷. This might be due to the fact that dental students invest many years into their education, considerable sum of money and may now face the real situation of

lacking clinical training, looming debt and unemployment.

There was significant difference ($P=0.039$) on effect of lockdown on curriculum based on rotational postings attended, as dentistry is primarily a clinical practice profession, there is ample clinical exposure among participants who attended all the rotational postings compared to others. It is obvious that the gain of practical skills seemed to cause the greatest concern among study participants.

The possibility of single responder filling the survey multiple times was rectified by limiting to single response. One of the major barriers to questionnaire completion may have been a higher-than-usual number of questionnaires circulating through the system currently amid the ongoing pandemic leading to “survey fatigue.” Despite these limitations, our study did provide some valuable insight into the impact of Covid-19 lockdown on dental house surgeons curriculum and provided a baseline for future studies. The desired sample size and a higher response rate have benefited the study. Studies on the impact of Covid-19 lockdown due to loss of compulsory rotational postings on dental house surgeons helps to make corrective actions to make up for cancelled rotational postings.

Future study will be necessary to determine whether the thought processes and concerns revealed in our results manifest as real changes, or

whether they are transient issues that resolve as students are allowed to resume rotations. A similar long-term analysis of medical student specialty choices before and after the pandemic would certainly be a worthwhile study in the future.

CONCLUSION

The impact of Covid-19 pandemic affects dental education a lot. First, it sheds light on the impact of pandemic on various domains of dental house surgeons training, which will help dental educators in revising curricula in the short term (eg, making up for the lost exposure and time to certain areas). Second, it provides insight into some of the strategies that were utilized by the training programs across the country, which will assist in planning for the current pandemic peak as well as any possible future waves. In conclusion Covid-19 outbreak mostly compromised clinical training affecting hands-on experience determining a significant disruption of dental house surgeons training and their curriculum.

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